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# ALL COURSES

## COURSE LISTING - ALL COURSES INDEX

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### NEW STUDENT ORIENTATION (1ATU)

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#### **1ATU 1000: Freshman Orientation**

Jumpstart your college experience with GO BOLD New Student Orientation. This mandatory orientation will help you transition into college and outline the university's academic, social, and developmental resources and opportunities. Meet other new students and become familiar with the university in an informative, two-day orientation program.

\$100 non-refundable fee.

#### **1ATU 2000: Transfer Student Orientation**

Make your transition to Arkansas Tech smoother with GO BOLD Transfer Student Orientation. This mandatory orientation will give transfer students the necessary information and resources needed to be successful at Arkansas Tech. Meet other new students and become familiar with the university in an informative, two-day orientation program.

\$50 non-refundable fee.

#### **1ATU 3000: International Student Orientation**

This mandatory online orientation will help familiarize international students with the academic expectations of a college student in the United States. Students will learn about immigration responsibilities as well as the American classroom, the ATU campus, helpful resources, and involvement opportunities.

## ACCOUNTING (ACCT)

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#### **ACCT 2000: Accounting Principles I Lab**

Co-requisite: ACCT 2004 Accounting Principles I

Application of concepts presented in the ACCT 2004 Accounting Principles I lectures using alternative activities to demonstrate how to apply accounting concepts.

#### **ACCT 2004: Accounting Principles I**

ACTS Common Course - ACCT 2003

Prerequisite: A grade of C or higher in MATH 1113 College Algebra or higher level math course.

Co-requisite: ACCT 2000 Accounting Principles I Lab.

A study of fundamental processes of accounting for day to day business transactions. Includes recording business events in journal entry form and preparing adjusting entries, trial balances, financial statements, and closing entries. Introduces the basic internal control system a business must employ. Concludes with the measurement and reporting of all assets and liabilities.

Note: Accounting majors may not repeat this course to raise grade point in their major field after completing ACCT 3013 Intermediate Accounting II. Lecture three hours, laboratory one and a half hours.

#### **ACCT 2013: Accounting Principles II**

ACTS Common Course - ACCT 2013 Accounting Principles II

Prerequisite: BUAD 2003 Business Information Systems or COMS 2003 Microcomputer Applications and a "C" or better in ACCT 2004 Accounting Principles I.

Addresses accounting processes applied to corporations, cash flow statements, and financial statement analysis. Manufacturing cost, managerial reports, and incremental analysis are also introduced.

Note: Accounting majors may not repeat this course to raise grade point in their major field after completing ACCT 3013 Intermediate Accounting II.

#### **ACCT 2033: Fundamental Accounting Concepts**

Prerequisites: Sophomore standing; "C" or better in MATH 1113 College Algebra (or MATH 1203 Plane Trigonometry, 1914, 2223, 2243, 2914).

This course is designed to provide an overview of accounting concepts for non-business majors with no accounting background. Students gain the knowledge and skills necessary for interpreting reported accounting data. Topics include fundamental financial and managerial accounting concepts, accrual accounting, internal control over cash, financial statement analysis and the budgeting process.

#### **ACCT 3003: Intermediate Accounting I**

Prerequisites: ACCT 2013 Accounting Principles II with a grade of C or higher.

A comprehensive study of accounting theory governing preparation of financial statements with emphasis on conceptual framework, development of accounting standards, and the recording and reporting process. Cash, receivables, inventories, property, plant and equipment, intangible assets, and other selected topics.

### **ACCT 3013: Intermediate Accounting II**

Prerequisites: ACCT 3003 Intermediate Accounting I.

Continuation of ACCT 3003 Intermediate Accounting I. Topics covered include current and long-term liabilities, contingencies, stockholders' equity, earnings per share, temporary and long-term investments, revenue recognition, accounting changes, cash flows, statement analysis, and disclosure in financial reporting.

### **ACCT 3023: Accounting Information Systems**

Prerequisites: ACCT 3003 Intermediate Accounting I, BDA 2003 Business Problem Solving, (BUAD 2053 Business Statistics or PSY 2053 Statistics for the Behavioral Sciences or STAT 2163 Introduction to Statistical Methods), BLAW 2033 Legal Environment of Business, ECON 2003 Principles of Macroeconomics, and ECON 2013 Principles of Microeconomics.

A study of accounting information processing, the systems concept, the analysis and design of accounting information systems, and database hardware and software technology as they apply to producing accounting information to be used in decision making.

### **ACCT 3043: Federal Taxes I**

Prerequisites: ACCT 2013 Accounting Principles II with a grade of C or higher, BDA 2003 Business Problem Solving, (BUAD 2053 Business Statistics or PSY 2053 Statistics for the Behavioral Sciences or STAT 2163 Introduction to Statistical Methods), BLAW 2033 Legal Environment of Business, ECON 2003 Principles of Macroeconomics, and ECON 2013 Principles of Microeconomics.

A study of federal income tax laws and their relationship to other forms of taxation with primary emphasis on the determination of federal income tax liability and tax planning for individuals.

### **ACCT 3053: Federal Taxes II**

Prerequisites: ACCT 3043 Federal Taxes I.

A study of federal income tax laws with primary emphasis on the determination of federal income tax liability and tax planning for entities other than individuals.

### **ACCT 3063: Managerial Accounting**

Prerequisites: ACCT 2013 Accounting Principles II, BDA 2003 Business Problem Solving, BUAD 2053 Business Statistics, and ECON 2013 Principles of Microeconomics.

A study of accounting principles, concepts and procedures as an aid to management for internal use in planning, controlling and decision making.

### **ACCT 4003: Advanced Accounting I**

Prerequisites: ACCT 3013 Intermediate Accounting II.

A comprehensive study of complex accounting problems involving financial statement treatment of income taxes, pensions, and leases. Problems underlying accounting for partnerships, corporate liquidations and reorganization, segment and interim financial reporting, and foreign currency denominated transactions are examined.

### **ACCT 4013: Advanced Accounting II**

Prerequisites: ACCT 3013 Intermediate Accounting II.

A comprehensive study of complex problems involving mergers and acquisitions, consolidated financial statements, and the translation of subsidiary financial statements denominated in a foreign currency.

### **ACCT 4023: Cost Accounting**

Prerequisites: ACCT 2013 Accounting Principles II with a grade of C or better and (BUAD 2053 Business Statistics or PSY 2053 Statistics for the Behavioral Sciences or STAT 2163 Introduction to Statistical Methods).

Basic principles of cost accounting, departmentalization, budgets, standard cost, variance analysis, job order and process costs.

### **ACCT 4033: Auditing**

Prerequisites: ACCT 3013 Intermediate Accounting II, ACCT 3023 Accounting Information Systems, and (BUAD 2053 Business Statistics or PSY 2053 Statistics for the Behavioral Sciences or STAT 2163 Introduction to Statistical Methods).

Auditing procedures and concepts, audit working papers and reports, evaluation of internal controls, legal and ethical environment.

### **ACCT 4083: Internship in Accounting**

Prerequisites: Permission of the instructor, department chair, and Dean, a minimum GPA of 2.75 on 85 or more earned hours and on at least 15 earned hours from ATU, and completion of ACCT 3013 Intermediate Accounting II.

A structured assignment which allows a senior accounting major to gain "real world" professional experience in an accounting position relating to an area of career interest. The student works one semester in the office of a cooperating firm under the supervision of a member of management of that firm. An accounting faculty member will consult with the student and the cooperating firm's management periodically during the period of internship.

A term paper prepared by the student will be required.

### **ACCT 4086: Internship in Accounting**

Prerequisites: Permission of the instructor, department chair, and Dean, a minimum GPA of 2.75 on 85 or more earned hours and on at least 15 earned hours from ATU, and completion of ACCT 3013 Intermediate Accounting II.

A structured assignment which allows a senior accounting major to gain "real world" professional experience in an accounting position relating to an area of career interest. The student works one semester in the office of a cooperating firm under the supervision of a member of management of that firm. An accounting faculty member will consult with the student and the cooperating firm's management periodically during the period of internship. A term paper prepared by the student will be required.

### **ACCT 4093: Governmental Accounting**

Prerequisites: ACCT 3013 Intermediate Accounting II.

Study of GAAP underlying accounting for governmental/ nonprofit entities. Governmental, Proprietary, and Fiduciary funds along with Fixed Asset and Long-term Liability Account Groups are covered.

### **ACCT 4103: Special Topics in Accounting**

Prerequisites: ACCT 3013 Intermediate Accounting II and permission of the instructor.

This course provides in-depth exploration of selected accounting topics. The primary topic will vary from offering to offering; thus, the course may be taken more than once.

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## **AGRICULTURAL BUSINESS/ECONOMIC (AGBU)**

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### **AGBU 4XXX: AGRICULTURAL TRANSFER ELECTIVE**

Credit transferred from another institution and articulated for agricultural upper division elective.

### **AGBU 3XXX: AGRICULTURAL TRANSFER ELECTIVE**

Credit transferred from another institution and articulated for agricultural upper division elective.

### **AGBU 1001: Agriculture Orientation**

Agriculture Orientation is a freshman course with attention given to sharing of possible solutions to individual problems. Learning experiences also include exploration of anticipated collegiate experiences for departmental majors in addition to post-graduation opportunities. Student and faculty interaction is stressed.

### **AGBU 1013: Principles of Agricultural Business**

Overview of the economic theories associated with the production, consumption, and marketing of agricultural products, and with the policies designed to achieve efficiency and welfare goals in agriculture.

### **AGBU 2063: Principles of Agricultural Macroeconomics**

Prerequisite: AGBU 1013 Principles of Agricultural Business

A study of macroeconomic variables that affect agriculture with emphasis on consumption, unemployment, inflation, government spending and taxes, investments, national income, and money and banking.

### **AGBU 2073: Principles of Agricultural Microeconomics**

Prerequisite: AGBU 1013 Principles of Agricultural Business

A study of microeconomics variables that affect agriculture with emphasis on price determination, production, costs, income distribution, and perfect and imperfect competition.

### **AGBU 2103: A Global Perspective: Resources, Food, and Society**

Prerequisites or Co-requisites: ENGL 1013 Composition I and COMM 2003 Public Speaking or COMM 2173 Business and Professional Speaking

A study of food and fiber production and distribution problems, policies, and processes analyzed within social, economic, political, and cultural contexts. The course will address issues related to feeding a growing world population.

### **AGBU 2991: Special Problems in Agriculture**

Prerequisite: Permission of the department.

One to four hours credit, depending on the nature and extent of the problem. This is a course designed to introduce qualified students to specific agricultural areas including Agribusiness, Animal Science, Horticulture, or Plant Science.

Note: only six hours of Special Problems in Agriculture may be used to satisfy the curriculum requirements for the B.S. degree in Agribusiness.

### **AGBU 2992: Special Problems in Agriculture**

Prerequisite: Permission of the department.

One to four hours credit, depending on the nature and extent of the problem. This is a course designed to introduce qualified students to specific agricultural areas including Agribusiness, Animal Science, Horticulture, or Plant Science.

Note: only six hours of Special Problems in Agriculture may be used to satisfy the curriculum requirements for the B.S. degree in Agribusiness.

### **AGBU 2993: Special Problems in Agriculture**

Prerequisite: Permission of the department.

One to four hours credit, depending on the nature and extent of the problem. This is a course designed to introduce qualified students to specific agricultural areas including Agribusiness, Animal Science, Horticulture, or Plant Science.

Note: only six hours of Special Problems in Agriculture may be used to satisfy the curriculum requirements for the B.S. degree in Agribusiness.

### **AGBU 2994: Special Problems in Agriculture**

Prerequisite: Permission of the department.

One to four hours credit, depending on the nature and extent of the problem. This is a course designed to introduce qualified students to specific agricultural areas including Agribusiness, Animal Science, Horticulture, or Plant Science.

Note: only six hours of Special Problems in Agriculture may be used to satisfy the curriculum requirements for the B.S. degree in Agribusiness.

### **AGBU 3013: Principles of Farm Management**

Prerequisite: AGBU 1013 Principles of Agricultural Business, junior standing, or consent of instructor.

A study of the principles of agribusiness including ways of doing business in a free market economic system, entrepreneurship, business start-up, business plans, management, facility needs, legal aspects and tax responsibilities, personnel, and ethics.

### **AGBU 3033: Legal Environment of Agriculture Business**

Offered: Fall

A study of federal, state, and local legal systems as they pertain to the agricultural industry; topics of study include property law, contracts, torts, business organizations, employment law, environmental regulations, estate planning, and administrative law.

### **AGBU 3213: Career Development in Agriculture**

Prerequisite: Junior standing; 60 hours or more

Study of the professional opportunities and responsibilities associated with agricultural business careers. Interaction with professionals in the chosen career along with development and improvement of written communication, oral communication, and leadership skills.

\$50 laboratory fee.

### **AGBU 3233: International Agricultural Trade**

Prerequisites: AGBU or ECON 2003 Principles of Macroeconomics and AGBU 2073 Principles of Agricultural Microeconomics or ECON 2013 Principles of Microeconomics, or consent of instructor.

This course is an examination of the economic forces associated with trade in food and agricultural products between the U.S. and other countries. Economic principles and analytical techniques are applied to international trade and multi-national markets.

### **AGBU 3993: Internship I in Agriculture**

Prerequisite: Approval of the department head, junior standing, and minimum of 2.5 overall gpa.

A supervised, practical experience providing undergraduate agribusiness majors with a hands-on, professional experience in a position relating to an area of career interest. The student will work in a local cooperating agribusiness establishment under the supervision of a member of management of that firm. A minimum of 300 clock hours of supervision, maintain a weekly internship log and prepare a final report.

\$100 lab fee.

Note: Only three hours of Internship I in Agriculture may be used to satisfy the curriculum requirements for a B.S. degree in Agribusiness.

### **AGBU 4003: Agri-Business Management**

Prerequisites: AGBU 1013 Principles of Agricultural Business, Junior standing, or consent of the instructor.

A study of the managerial practices and procedures that apply to all agriculture businesses. Emphasis is placed on the use and application of management and economic principles in decision making directed toward profit maximization.

### **AGBU 4013: Agricultural Marketing**

Prerequisites: AGBU 2063 Principles of Agricultural Macroeconomics or ECON 2003 Principles of Macroeconomics and AGBU 2073 Principles of Agricultural Microeconomics or ECON 2013 Principles of Microeconomics, or consent of instructor.

A study of marketing functions, practice, organizational structure, legal aspects of agricultural marketing in relation to marketing policies, analysis of consumer behavior, and market demand.

### **AGBU 4023: Agricultural Finance**

Prerequisites: AGBU 2063 Principles of Agricultural Macroeconomics or ECON 2003 Principles of Macroeconomics and AGBU 2073 Principles of Agricultural Microeconomics or ECON 2013 Principles of Microeconomics and ACCT 2033 Fundamental Accounting Concepts or 2004.

Designed as an economic and accounting study of the processes in agricultural businesses. Manufacturing costs, income tax, managerial reports, cash flow, and statement analysis of agricultural businesses along with capital allocation and the purpose and efficiency of agricultural lending institutions are analyzed.

### **AGBU 4033: Agricultural Policy**

Prerequisites: AGBU 2063 Principles of Agricultural Macroeconomics or ECON 2003 Principles of Macroeconomics and AGBU 2073 Principles of Agricultural Microeconomics or ECON 2013 Principles of Microeconomics, or consent of instructor.

Designed as an introduction to historical and current federal governmental legislation in agriculture. Specific emphasis is placed on the logic, beliefs, attitudes and values of the American people coincident with the social, economic, and political environment, and on evaluating the objectives, means and the observed results through the criteria of resource allocation and income distribution in the agricultural sector of the economy.

### **AGBU 4043: Appraisal of Farm Real Estate**

Prerequisites: AGBU 2063 Principles of Agricultural Macroeconomics or ECON 2003 Principles of Macroeconomics and AGBU 2073 Principles of Agricultural Microeconomics or ECON 2013 Principles of Microeconomics, or consent of instructor.

A practical application of principles and practices in farm real estate evaluation, emphasizing the processes of value development and uses.

### **AGBU 4053: Agricultural Price Analysis**

Prerequisites: AGBU 2063 Principles of Agricultural Macroeconomics or ECON 2003 Principles of Macroeconomics and AGBU 2073 Principles of Agricultural Microeconomics or ECON 2013 Principles of Microeconomics, or consent of instructor.

Study of the trends, cycles, and seasonal patterns associated with agricultural markets and institutional arrangements. Graphical and statistical analysis of commodity data and the fundamentals of agricultural futures markets are covered.

### **AGBU 4063: Agricultural Investments**

Prerequisites: AGBU 2063 Principles of Agricultural Macroeconomics or ECON 2003 Principles of Macroeconomics and AGBU 2073 Principles of Agricultural Microeconomics or ECON 2013 Principles of Microeconomics, or consent of instructor.

An in-depth analysis of investment opportunities available in the field of agriculture. Emphasis will be on investment in stocks, bonds, agricultural commodities, futures hedging, and in international currencies. Students will be required to create and maintain a diversified investment portfolio with weekly monitoring of their chosen investments.

### **AGBU 4073: Commodity Risk and Futures**

Prerequisites: AGBU 2063 Principles of Agricultural Macroeconomics or ECON 2003 Principles of Macroeconomics and AGBU 2073 Principles of Agricultural Microeconomics or ECON 2013 Principles of Microeconomics, or consent of instructor

An introductory study of grain and livestock futures markets, options, and their relationship to the cash market.

### **AGBU 4153: Computers in Agriculture**

Prerequisites: AGBU 2063 Principles of Agricultural Macroeconomics or ECON 2003 Principles of Macroeconomics and AGBU 2073 Principles of Agricultural Microeconomics or ECON 2013 Principles of Microeconomics, and COMS 1003 Introduction to Computer Based Systems or consent of instructor

An introduction to the use of Microsoft Office, especially Excel, and the different price information sources in the agriculture field.

### **AGBU 4951: Undergraduate Research in Agricultural Business and Economics**

Offered: On demand

Prerequisite: Departmental approval

Advanced students carry out independent research activity relating to a significant problem in major field of study. Supervised by faculty member. Formal report and presentation required. One to four credits depending on problem selected and effort made.

### **AGBU 4952: Undergraduate Research in Agricultural Business and Economics**

Offered: On demand

Prerequisite: Departmental approval

Advanced students carry out independent research activity relating to a significant problem in major field of study. Supervised by faculty member. Formal report and presentation required. One to four credits depending on problem selected and effort made.

### **AGBU 4953: Undergraduate Research in Agricultural Business and Economics**

Offered: On demand

Prerequisite: Departmental approval

Advanced students carry out independent research activity relating to a significant problem in major field of study. Supervised by faculty member. Formal report and presentation required. One to four credits depending on problem selected and effort made.

### **AGBU 4954: Undergraduate Research in Agricultural Business and Economics**

Offered: On demand

Prerequisite: Departmental approval

Advanced students carry out independent research activity relating to a significant problem in major field of study. Supervised by faculty member. Formal report and presentation required. One to four credits depending on problem selected and effort made.

### **AGBU 4973: Senior Seminar in Agriculture Business**

Prerequisite: Senior standing

This seminar is designed as a capstone course for the Agriculture Business degree. In the capstone experience, students are coached/coaxed to bridge the gap between the structured learning of traditional classroom and the dynamic agricultural business environment - which puts a premium on motivation, initiative and creativity. Students will be challenged to integrate their accumulated knowledge and technical and social skills in order to identify and solve a problem relevant to issues encountered by professionals in their chosen discipline and to communicate the results of their efforts to their peers.

In doing so, students will have the opportunity to demonstrate their ability to adapt to professional situations. It is hoped that this experience will transition students from dependent learners to self-directed learners and stimulate students' appreciation of the need for lifelong learning and initiate professional and personal liaisons.

\$20 course fee.

### **AGBU 4983: Internship II in Agriculture**

Prerequisites: Internship I in Agriculture, approval of the department head, junior or senior standing, minimum of 2.5 GPA overall.

A supervised, practical experience providing undergraduate agribusiness majors with a hands-on, professional experience in a position relating to an area of career interest. The student will work in a local cooperating agribusiness establishment under the supervision of a member of management of that firm. A minimum of 300 clock hours of supervision, maintain a weekly internship log, prepare a final report and present at least a 15 minute seminar to the agriculture department.

\$100 lab fee.

Note: Only three hours of Internship II in Agriculture may be used to satisfy the curriculum requirements for a B.S. degree in Agribusiness.

### **AGBU 4991: Special Problems in Agriculture**

Prerequisite: Permission of the department.

One to four hours credit, depending on the nature and extent of the problem. This is a course designed to introduce qualified students to specific agricultural areas including Agribusiness, Animal Science, Horticulture, or Plant Science.

Note: only six hours of Special Problems in Agriculture may be used to satisfy the curriculum requirements for the B.S. degree in Agribusiness.

### **AGBU 4992: Special Problems in Agriculture**

Prerequisite: Permission of the department.

One to four hours credit, depending on the nature and extent of the problem. This is a course designed to introduce qualified students to specific agricultural areas including Agribusiness, Animal Science, Horticulture, or Plant Science.

Note: only six hours of Special Problems in Agriculture may be used to satisfy the curriculum requirements for the B.S. degree in Agribusiness.

### **AGBU 4993: Special Problems in Agriculture**

Prerequisite: Permission of the department.

One to four hours credit, depending on the nature and extent of the problem. This is a course designed to introduce qualified students to specific agricultural areas including Agribusiness, Animal Science, Horticulture, or Plant Science.

Note: only six hours of Special Problems in Agriculture may be used to satisfy the curriculum requirements for the B.S. degree in Agribusiness.

### **AGBU 4994: Special Problems in Agriculture**

Prerequisite: Permission of the department.

One to four hours credit, depending on the nature and extent of the problem. This is a course designed to introduce qualified students to specific agricultural areas including Agribusiness, Animal Science, Horticulture, or Plant Science.

Note: only six hours of Special Problems in Agriculture may be used to satisfy the curriculum requirements for the B.S. degree in Agribusiness.

## **AGRICULTURAL EDUCATION (AGED)**

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### **AGED 1001: Introduction to Agricultural Education**

Freshman orientation with attention given to sharing of possible solutions to individual problems. Exploration of anticipated collegiate experiences for departmental majors as well as post- graduation opportunities. Student and faculty interaction is stressed.

The class meets one day a week for the full semester or two days a week for half a semester.

### **AGED 1013: Agricultural Youth Organizations**

A comprehensive introduction to student organizations in agriculture and career and technical education, including 4-H and FFA. Special attention is given to topics related to membership, benefits, awards, and special recognition programs. Supervised agricultural experience programs are also addressed.

### **AGED 2104: Introduction to Agricultural Systems Technology**

Prerequisite: Sophomore standing

The purpose of this course is for the student to develop an understanding of, and be able to apply, the basic principles utilized in agricultural mechanization with emphasis in the areas of structures, power and machinery, electricity, and agricultural surveying and land measurement. Discussion of the role mechanics plays in agriculture, as well as future roles is included.

\$100 course fee.

### **AGED 2203: Applied Agricultural Systems Technology**

Prerequisite: AGED 2104 Introduction to Agricultural Systems Technology

This course is designed to prepare secondary Arkansas agriculture teachers to apply agricultural systems technology in the laboratory. Content areas include safe practices in the laboratory, metalworking, woodworking, internal combustion engines, electrical wiring, tractor mechanics, paint & preservation.

\$100 course fee.

**AGED 3033: Philosophy and Foundations of Program Development**

Prerequisite: AGED 1013 Agricultural Youth Organizations or consent of instructor.

This course provides a comprehensive overview of the historical and philosophical foundations of Agricultural Education programs. Based on this foundation, the course will prepare pre-service teachers for the job and responsibility of developing a local program and curriculum that incorporates local, national and international agricultural policy issues as they relate to lecture and discussion on issues related to the global food, fiber, and natural resource system.

**AGED 4033: Curriculum Design and Assessment**

Prerequisite: AGED 3033 Philosophy and Foundations of Program Development or consent of instructor

This course is designed to prepare pre-service educators for the responsibility of developing philosophical approaches, designing curricular programs, planning for effective instruction, and assessing student performance. Students will be expected to communicate effectively through both written and verbal presentation of information.

**AGED 4044: Methods in Teaching Agriculture**

Prerequisite: AGED 4033 Curriculum Design and Assessment or consent of instructor.

Instructional methodology course focused on teaching approaches and methods, problem-solving teaching techniques, and managing learning environments for teaching agriculture subjects in formal and non-formal educational settings.

\$50 course fee.

**AGRICULTURAL LEADERSHIP (AGLE)****AGLE 3003: Personal Leadership Theory and Development**

Prerequisite: Junior Standing

This course focuses on the knowledge, skills and attitudes that enhance personal effectiveness and professional success. Students will gain self-awareness and study leadership traits. Goal attainment, personal organization and critical thinking strategies are emphasized.

**AGLE 3013: Team Leadership and Organizational Change**

Prerequisite: Junior Standing

Principles and practices in planning, developing, conducting, and evaluating leadership programs for agricultural groups. The course focuses on helping students better understand themselves and others; improving group communication; becoming effective leaders and members of groups; improving leadership and personal development skills; assessing leadership situations, determining and administering appropriate leadership strategies, and evaluating results.

**AGRICULTURAL PEST MANAGEMENT (AGPM)****AGPM 3104: Introduction to Entomology**

Cross-listed: BIOL 3104 Introduction to Entomology

This course will introduce the student to insect diversity and the identification of the major families of insects. Laboratory time will be spent learning family characteristics and collecting and preserving insect specimens. Lecture will consist of topics such as insect diversity, morphology and physiology. \$25 laboratory fee.

**AGPM 3124: Applied Pest Control**

Prerequisites: AGPS 1003, AGPM 3104 Introduction to Entomology, AGPS 3053 Weed Ecology, junior standing or consent of instructor.

Advanced concepts and techniques used in modern pest control practices and the chemistry and environmental fate of pesticides.

\$50 laboratory fee.

**AGPM 4103: Integrated Pest Management**

Prerequisites: AGPS 1003, junior standing or consent of instructor.

A systematic approach utilizing biological, cultural and genetic control methods to suppress pest numbers in agro ecosystems.

**AGRICULTURE ANIMAL SCIENCE (AGAS)****AGAS 1001: Principles of Animal Science Laboratory**

Study of management and the facilities used in the production of beef cattle, swine, sheep, and horses.

Note: Laboratory mandatory for all animal science majors. Optional for others.

Laboratory two hours.

**AGAS 1014: Principles of Animal Science**

A study of the American livestock industry and the scientific principles underlying the management and production of livestock and poultry.

Lecture three hours, laboratory two hours. \$50 laboratory fee.

### **AGAS 2014: Principles of Meat Science**

Prerequisites: AGAS 1014 Principles of Animal Science, or consent of instructor.

Integrated studies of the meat animal processing sequence regarding the production of meat-type animals and the science and technology of their conversion to human food. Lecture meets three days per week for fifty minutes and Lab meets one day per week for 110 minutes. \$50 laboratory fee.

### **AGAS 2084: Feeds and Feeding**

Principles of animal nutrition, characteristics of feed ingredients, feeding strategies and formulation of rations for farm animals. Lecture three hours, laboratory two hours. \$50 laboratory fee.

### **AGAS 3004: Reproduction in Farm Animals**

Prerequisite: AGAS 1014 Principles of Animal Science or consent of instructor.

Anatomy and physiology of the reproductive system of farm animals; to include a study of the causes of reproductive failure, management to improve reproductive efficiency, and practical training in pregnancy testing and artificial insemination of cattle.

Lecture three hours, laboratory two hours. \$50 laboratory fee.

### **AGAS 3014: Beef Cattle Management**

Prerequisite: AGAS 1014 Principles of Animal Science and AGAS 2084 Feeds and Feeding or consent of instructor.

A study of practices in management of beef cattle including breeding, feeding, care and marketing, with emphasis on production in the South.

Lecture three hours, laboratory two hours. \$50 laboratory fee.

### **AGAS 3021: Livestock Selection and Evaluation**

Offered: Fall

Prerequisites: AGAS 1014 Principles of Animal Science and AGAS 2084 Feeds and Feeding, or consent of instructor.

This course is offered as a study in livestock selection according to desirable characteristics for cattle, swine, sheep, goats, and poultry. Evaluation criteria are presented according to industry standards for species' breeds and expected market production. Students will be expected to develop safe handling practices with live animals.

\$20 laboratory fee.

### **AGAS 3104: Swine Management**

Prerequisite: AGAS 1014 Principles of Animal Science and AGAS 2084 Feeds and Feeding or consent of instructor.

A study of current practices during the farrowing, growing, and finishing phases of swine production. Topics covered include housing, feeding, scheduling, reproduction, disease control, and waste disposal.

Lecture three hours, laboratory two hours. \$50 laboratory fee.

### **AGAS 3113: Light Horse Production**

Prerequisite: AGAS 1014 Principles of Animal Science or consent of instructor.

A study of breeding, feeding, management, and disease control practices in light horse production.

### **AGAS 3303: Poultry Management**

Prerequisite: AGAS 1014 Principles of Animal Science, or consent of instructor.

A study of the management practices involved in the various phases of the production of eggs, broilers, turkeys, and breeders.

### **AGAS 3323: Poultry Nutrition**

Prerequisite: Junior standing or consent of instructor.

An introductory course in poultry nutrition. A study of the essential nutrients for poultry, available sources of these nutrients and formulation of diets that supply the nutrients in their appropriate amounts.

### **AGAS 3343: Regulatory Affairs of the Food Industry**

Prerequisites: AGAS 1014 Principles of Animal Science, and junior standing or consent of instructor

Regulatory Affairs of the Food Industry course is designed to offer a combination of theory and practical training for students in the field of food regulatory affairs. In this field, rapidly evolving regulations and expansion of international markets create an increasing need to train students in the implementation of regulatory guidelines, industry's compliance with regulations, and the regulatory strategies of companies looking to create a sustainable competitive advantage in the food industry.

### **AGAS 3933: Animal Breeding and Genetics**

Offered: Fall

Prerequisites: AGAS 3004 Reproduction in Farm Animals and BIOL 1014 Introduction to Biological Science or higher level biology with laboratory, or consent of instructor.

Basic principles of Mendelian and quantitative genetics as they apply to the improvement of farm animals. Selection, inbreeding, crossbreeding and their application to the improvement of beef cattle, dairy cattle, swine, horses and poultry as well as the genetic control of coloration and defects in cattle and horses are included.



**AGAS 4203: Livestock and Poultry Nutrition**

Prerequisites: AGAS 1014 Principles of Animal Science, AGAS 2084 Feeds and Feeding, CHEM 1113 A Survey of Chemistry, CHEM 1111 Survey of Chemistry Laboratory, or any higher level chemistry with laboratory, or consent of instructor.

Digestion, absorption of nutrients, and metabolism of farm animals. Includes a study of the requirements for maintenance, growth, activity, and reproduction of ruminants and non-ruminants.

**AGAS 4403: Poultry and Livestock Disease**

Prerequisite: Junior standing or consent of the instructor

A study of the diseases of poultry and livestock, particularly those common to Arkansas and surrounding states. Emphasis will be placed on the recognition of the disease and methods to control and/or prevent the disease.

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**AGRICULTURE ENGR/MECHANIZATION (AGEG)**

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**AGEG 3203: Soil, Water and Forest Conservation**

Prerequisite: Junior standing or consent of instructor.

Causes and control of soil and water losses; methods of erosion control; relationship of soil and water conservation to forest, recreation, pollution and wildlife management.

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**AGRICULTURE PLANT SCIENCE (AGPS)**

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**AGPS 1024: Principles of Plant Science**

Prerequisite: Junior standing or consent of instructor.

A study of important plant practices associated with horticulture and agronomic crop production, including classification of plants, the role of soil and the environment, plant management, cropping systems, and integrated pest management and harvest methods. Principles and practices in propagation of plants and sexual and asexual reproduction methods.

Lecture three hours, laboratory two hours. \$50 laboratory fee.

**AGPS 1033: Introduction to Forestry**

General survey of the five fields of forestry; a preview of forestry subjects; forestry resources; some emphasis on silviculture, measurement, protection, utilization, preservation and forest administration.

**AGPS 3023: Forage Crops and Pasture Management**

Prerequisites: Junior standing or consent of instructor.

Selection, culture, production, distribution and uses of pasture and forage plants; management problems in hay and silage; emphasis on utilization and improvement of pasture.

\$50 Laboratory Fee.

**AGPS 3044: Plant Propagation**

Prerequisites: AGPS 1024 Principles of Plant Science, junior standing or consent of instructor.

A study of the principles and practices in the propagation of herbaceous and woody indoor plants and flowers.

Lecture three hours, laboratory two hours. \$50 laboratory fee.

**AGPS 3053: Weed Ecology**

Prerequisites: AGPS 1024 Principles of Plant Science or consent of instructor.

The principles of weed ecology including weed demography and population dynamics, competition, interference, soil seed bank concept and systematic approaches to weed management.

**AGPS 3064: Vegetable Growing**

Prerequisites: AGPS 1024 Principles of Plant Science, junior standing or consent of instructor.

The application of scientific facts and principles that are involved in the successful production of vegetables under cover and/or in the open.

Lecture three hours, laboratory two hours. \$50 laboratory fee.

**AGPS 3074: Floriculture**

Prerequisites: AGPS 1024 Principles of Plant Science, junior standing or consent of instructor.

Commercial production and marketing of major cut flower crops, bedding plants, and flowering pot plants under cover and/or in the open.

Lecture three hours, laboratory two hours. \$50 laboratory fee.

**AGPS 3083: Small Fruit and Nut Culture**

Prerequisites: AGPS 1024 Principles of Plant Science, junior standing or consent of instructor.

A study of the factors underlying the commercial and home production of small fruits and nuts, including a study of varieties, propagation, pruning, spraying, harvesting, and marketing.

### **AGPS 3093: Greenhouse Operation and Management**

Prerequisites: AGPS 1024 Principles of Plant Science, junior standing or consent of instructor.

Greenhouse construction and management of heating, cooling, moisture, fertilization, lighting, insect and disease control in the growth of major greenhouse crops.

### **AGPS 3244: Plant Pathology**

Prerequisite: BIOL 1014 Introduction to Biological Science or higher level biology with laboratory.

Introductory course in plant diseases. A study of the causes, symptoms, spread and control of plant diseases. The emphasis is placed on the interaction between disease causing agents and the diseased plant and the way in which environmental conditions influence the mechanisms by which factors produce plant disease.

Lecture three hours, laboratory two hours. \$50 laboratory fee.

### **AGPS 4103: Crop and Garden Insects**

Prerequisites: AGPS 1024 Principles of Plant Science, junior standing or consent of instructor.

Anatomy, physiology, ecology, life history, and control of insects affecting crops and garden plants.

## **AGRICULTURE SOIL SCIENCE (AGSS)**

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### **AGSS 2014: Soils**

Prerequisites: CHEM 1113 A Survey of Chemistry and CHEM 1111 Survey of Chemistry Laboratory or higher level chemistry with laboratory, or consent of instructor.

Development, classification, and properties of soils. A review of the major areas of soil science and their application to agricultural production and the environment.

Lecture three hours, laboratory two hours. \$50 laboratory fee.

## **ALLIED HEALTH SCIENCE (AHS)**

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### **AHS 1023: Basic Pharmacology with an Overview of Microbiology**

Enrollment is limited to medical assistant and health information management majors. Topics to be covered in addition to introductory pharmacology will include basic chemistry as it applies to the medical laboratory and a brief overview of microbiology and immunology. Basic pharmacology as it relates to the drug interaction with each of the body systems and classifications of drugs will be covered. Students will utilize the Physicians' Desk Reference (PDR) in the course.

### **AHS 2013: Medical Terminology**

A study of the language of medicine including word construction, definition, and use of terms related to all areas of medical science, hospital service, and the allied health specialties.

Note: Duplicate credit for AHS 2013 Medical Terminology and 3013 will not be allowed.

### **AHS 2032: Medical Assistant Clinical Practice Laboratory**

Offered: Spring

Co-requisites: Enrollment is limited to medical assistant majors who are enrolled in AHS 2034 Medical Assistant Clinical Practice and in the final semester before the medical assistant externship assignment.

This course is designed to allow for practice in locale area clinics. Students will complete a two-hour laboratory in the simulated lab and will be assigned to three hours in area clinics on a weekly basis. While at the medical facility students will apply the theories and concepts covered in AHS 2023 and AHS 2034 Medical Assistant Clinical Practice.

Laboratory five hours weekly. \$40 laboratory fee.

### **AHS 2033: Coding Principles for Medical Office**

Prerequisites: AHS 2013 Medical Terminology, 1023, BIOL 2004 Basic Human Anatomy and Physiology, or permission of instructor.

A study of medical coding using ICD-9-CM and CPT codes in the medical office. Students will be taught to evaluate patients' medical records to correctly assign both diagnostic and procedural codes required for healthcare reimbursement in the medical office setting.

### **AHS 2034: Medical Assistant Clinical Practice**

Offered: Spring

Prerequisites: AHS 2023 and 2022. Enrollment is limited to medical assistant majors.

Topics covered will include examination room techniques, sterilization procedures, operation and care of electrocardiograph, assisting with minor surgery, physiotherapy, pharmacology, medications and specialist assisting. Students must subscribe to malpractice liability insurance.

\$40 laboratory fee.

### **AHS 2044: Medical Assistant Administrative Practice**

Offered: Fall

Prerequisite: AHS 2013 Medical Terminology. This course is open only to medical assistant majors in the final part of the program or by permission of the medical assistant program director.

A survey course emphasizing the business administrative duties of the medical assistant. Course content will include working with patients, medical records, medical dictation, office procedures, and office management. Student must subscribe to malpractice liability insurance.

Lecture three hours, laboratory two hours. \$40 laboratory fee.

### **AHS 2053: Computers in the Medical Office with an Overview of Insurance Procedures**

Offered: Spring

Prerequisites: HIM 2003, AHS 2044 Medical Assistant Administrative Practice. This course is open only to medical assistant majors in the final part of the program or by permission of the medical assistant program director.

This course will prepare the medical assistant to work as an administrative medical assistant in a health care facility. Students are introduced to the computerization of the medical office using current operating systems. Topics covered will include recording information on patients, scheduling appointments, printing reports, producing patient statements and claim forms, and filing electronic claims.

### **AHS 2055: Externship**

Offered: First summer term

Prerequisites: Completion of all other required courses in medical assistant curriculum.

The course is scheduled at the end of the program. It shall include the opportunity to perform various clinical and administrative procedures under supervision. The student will remain in a medical facility for a period of four weeks. Assignments may be made anywhere in Arkansas; students must assume the full financial responsibility for this assignment. A seminar will be scheduled for the fifth week. Student must subscribe to malpractice liability insurance.

### **AHS 2061: Medical Assistant Seminar**

Offered: First summer term

Prerequisite: AHS 2055 Externship

An one week seminar scheduled for the week following the externship. Topics discussed will be based on those arising from the student's experiences while on his/her externship. Employment procedures will also be covered.

## **AMERICAN STUDIES (AMST)**

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### **AMST 2003: American Studies**

An exploration of American culture through study of significant ideas, social issues and literary texts.

Note: AMST 2003 American Studies may be used to fulfill 3 hours of the Social Sciences general education requirements.

## **ANTHROPOLOGY (ANTH)**

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### **ANTH 4XXX: ANTHROPOLOGY TRANSFER ELECTIVE**

Credit transferred from another institution and articulated for anthropology upper division elective.

### **ANTH 3XXX: ANTHROPOLOGY TRANSFER ELECTIVE**

Credit transferred from another institution and articulated for anthropology upper division elective.

### **ANTH 2XXX: ANTHROPOLOGY TRANSFER ELECTIVE**

Credit transferred from another institution and articulated for anthropology lower division elective.

### **ANTH 1XXX: ANTHROPOLOGY TRANSFER ELECTIVE**

Credit transferred from another institution and articulated for anthropology lower division elective.

### **ANTH 1213: Introduction to Anthropology**

ACTS Common Course - ANTH 1013

An introduction to the sub disciplines of cultural anthropology, physical anthropology, archeology, and linguistics.

### **ANTH 2003: Cultural Anthropology**

ACTS Common Course - ANTH 2013

A study of contemporary and historical peoples and cultures of major world culture areas.

Note: May not be taken for credit after completion of ANTH 3213.

### **ANTH 2103: Ozark-Ouachita Studies**

This course provides students with the knowledge and skills to understand changing human-environment relationships in the mountain south and to apply these understandings to the assessment of, and potential solutions to, contemporary socio-environmental issues in the area. We will explore the emergence of Mississippian societies, their transformation during prehistoric and early historic eras, the impacts of early European settlements and the

regions' incorporation into the global marketplace, development and the growth of tourism and industry in the area, and current social and environmental issues in the mountain South.

**ANTH 2203: Indians of North America**

A study of contemporary and historical peoples and cultures of North America.

**ANTH 2223: North American Archeology**

The study of prehistoric peoples and cultures of North America.

**ANTH 2303: Globalization**

This course provides an overview of the economic, social, technological, environmental, and ideological impacts of globalization on national communities, with an emphasis on the cultural dynamics of the process. Through class discussions and lectures, readings, and student research, this course will examine the complex implications of globalization on culture change in different national settings.

**ANTH 2833: Cultural Resource Management**

This course explores the discipline of cultural resource management (CRM), a form of applied anthropology, which manages the impacts of the contemporary world on places (e.g., historic and archaeological sites and landscapes) and items of cultural value. Through an exploration or real-world case studies, students will gain an understanding of current federal and state laws pertinent to CRM, disciplinary best practices, and ethical issues.

**ANTH 3103: Anthropology of Food**

Prerequisite: ANTH 1213 Introduction to Anthropology or ANTH 2003 Cultural Anthropology

This course examines the topics of food and agriculture from a broadly anthropological perspective with a significant focus on the Ozark-Ouachita region of Arkansas. The course explores the relationships among human biology, cultural diversity, social systems, politics, economics and food and agriculture. Significant emphasis is placed on how political and economic forces have created a global, industrial food system that is ecologically unsustainable, socially unjust, and detrimental to human health and well-being as well as on opportunities that exist to change this system.

**ANTH 3303: Southeastern Archaeology**

The course will survey the rise of chiefdom-level societies in the prehistoric Southeast, reconstruct the "Mississippian world" these chiefdoms created, document the activities of sixteenth-century Spanish explorers in the region, and trace the subsequent decline of Mississippian chiefdoms. In addition to reconstructing the landscape of the ancient South, students will explore long-term social and cultural traits of southeastern Indians and discover the secrets unearthed at famous Mississippian sites such as Cahokia, Moundville, and Etowah.

**ANTH 3313: Southeastern Indians**

This course is an ethnographic and historic survey of southern Indians from European contact through the era of Removal. Particular emphasis will be placed on the following subjects: the decline of chiefdom societies across the South, the Spanish mission system, the development of the deerskin and Indian slave trade, native resistance to colonial encroachment, and a detailed discussion of Removal. The course also includes ethnographic descriptions of major southern Indian groups, including the Creek, Cherokee, Catawba, Choctaw, Chickasaw, Seminole, Apalachee, and Natchez. By the end of the course students should acquire an understanding of a little known aspect of our country's heritage, be able to distinguish between the various colonial strategies at play in the region, as well as the various forms of native resistance, and gain an appreciation for the place of southern Indians within U.S. society today.

**ANTH 3403: Ethnographic Methods**

This course trains students in research methods in anthropology with an emphasis on qualitative research. Students learn the different uses of methodologies to address specific types of research questions, practice participant-observation and interview techniques as part of semester-long research projects, and survey anthropological theory as it relates to conducting ethnographic fieldwork.

**ANTH 4403: Interpretation/Education through Museum Methods**

Cross-listed: HIST 4403 Interpretation/Education through Museum Methods, MUSM 4403 Interpretation/Education through Museum Methods

Prerequisite: Senior or Graduate standing, or permission of instructor.

Museum perspectives and approaches to care and interpretation of cultural resources, including interpretive techniques of exhibit and education- outreach materials, and integrating museum interpretation/education into public school and general public programming. Class projects focus on special problems for managing interpretive materials in a museum setting.

**ANTH 4853: Music of the World's Peoples**

Cross-listed: MUS 4853 Music of the World's Peoples

Open to students in all majors. A survey of predominantly non-Western world music cultures with attention to sonic structures, musicians, musical instruments, and socio-cultural contexts of music making. Listening emphasized.

**ANTH 4951: Undergraduate Research in Anthropology**

Offered: On demand

Prerequisite: Departmental approval

Advanced students carry out independent research activity relating to a significant problem in a major field of study. Supervised by faculty member. Formal report and presentation required. One to four credits depending on problem selected and effort made.

### **ANTH 4952: Undergraduate Research in Anthropology**

Offered: On demand

Prerequisite: Departmental approval

Advanced students carry out independent research activity relating to a significant problem in a major field of study. Supervised by faculty member. Formal report and presentation required. One to four credits depending on problem selected and effort made.

### **ANTH 4953: Undergraduate Research in Anthropology**

Offered: On demand

Prerequisite: Departmental approval

Advanced students carry out independent research activity relating to a significant problem in a major field of study. Supervised by faculty member. Formal report and presentation required. One to four credits depending on problem selected and effort made.

### **ANTH 4954: Undergraduate Research in Anthropology**

Offered: On demand

Prerequisite: Departmental approval

Advanced students carry out independent research activity relating to a significant problem in a major field of study. Supervised by faculty member. Formal report and presentation required. One to four credits depending on problem selected and effort made.

### **ANTH 4983: Seminar in Anthropology**

Prerequisite: Permission of instructor.

A directed seminar in an area of anthropology. The specific focus will depend upon research interests, student interest, and current developments in the field of anthropology.

### **ANTH 4991: Special Problems in Anthropology**

Prerequisite: Permission of instructor.

Independent work under individual guidance of staff member.

### **ANTH 4992: Special Problems in Anthropology**

Prerequisite: Permission of instructor.

Independent work under individual guidance of staff member.

### **ANTH 4993: Special Problems in Anthropology**

Prerequisite: Permission of instructor.

Independent work under individual guidance of staff member.

### **ANTH 4994: Special Problems in Anthropology**

Prerequisite: Permission of instructor.

Independent work under individual guidance of staff member.

## **ART (ART)**

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### **ART 1XXX: ART TRANSFER ELECTIVE**

Credit transferred from another institution and articulated for art lower division elective.

### **ART 2XXX: ART TRANSFER ELECTIVE**

Credit transferred from another institution and articulated for art lower division elective.

### **ART 4XXX: ART TRANSFER ELECTIVE**

Credit transferred from another institution and articulated for art upper division elective.

### **ART 3XXX: ART TRANSFER ELECTIVE**

Credit transferred from another institution and articulated for art upper division elective.

### **ART 1163: Basic Digital Photography**

Cross-listed: JOUR 1163 Basic Digital Photography

Basic Digital Photography, an introduction to the medium, its history, techniques and theory. This course will teach students the basics of photographic composition, lighting, camera and lens operation, editing and printing using the digital format.

**ART 1303: Introduction to Drawing**

An introduction to structural and expressive responses in drawing by the study of line, volume, shape, light perspective, the media, and their interrelations.

Studio six hours. \$45 art fee.

**ART 1403: Two-dimensional Design**

Basic study of elements and principles of two-dimensional design employing a variety of tools and materials.

Studio six hours. \$45 art fee.

**ART 1503: Introduction to Graphic Design**

Prerequisites: ART 1403 Two-dimensional Design, ART 1303 Introduction to Drawing or permission of instructor.

An introduction to fundamental graphic design principles, techniques and materials.

Studio six hours. \$45 art fee.

**ART 2103: Art History I**

ACTS Common Course - ARTA 2003

An examination of the periods and western cultures responsible for major artistic monuments and achievements from prehistory through the Gothic period.

**ART 2113: Art History II**

ACTS Common Course - ARTA 2103

A western art survey of the events, people, and stylistic trends involved in the development of major art forms from the era of the Italian Renaissance to the present.

**ART 2123: Experiencing Art**

ACTS Common Course - ARTA 1003

This course is designed to provide a background in art and the related processes so that a student may develop powers of observation and thereby respond to a work of art.

**ART 2213: Digital Skills**

Students will learn graphic design software which they will, in turn, use to create various projects.

Studio six hours. \$45 art fee.

**ART 2233: Special Topics in Art and Design**

Prerequisites: Must be a Fine Art, Game, Graphic Design, or Art Education Major

An introductory course in a special topic in art and design that will be offered through lectures, practical assignments, and in-class studio assignments. Open to all art majors.

Note: May be repeated for credit for a max of 6 hours.

**ART 2303: Figure Drawing**

Prerequisite: ART 1303 Introduction to Drawing.

Introduction to the study of the human figure. A major emphasis will be directed to exercises in the study of anatomy, proportion, and line as it relates to the figure.

Studio six hours. \$72 art fee.

**ART 2403: Color Design**

Basic application of color principles and color theory.

Studio six hours. \$45 art fee.

**ART 2413: Three-dimensional Design**

Prerequisite: ART 1403 Two-dimensional Design

Basic study of three-dimensional problems of structure, spatial organization, and introductory sculptural concerns.

Studio six hours. \$45 art fee.

**ART 3001: Sophomore Review**

Prerequisites: ART 1303 Introduction to Drawing, ART 1403 Two-dimensional Design, ART 2403 Color Design, and ART 2413 Three-dimensional Design or permission of the Department Head.

The Sophomore Review course is an academic engagement designed to provide you with an opportunity to discuss your work on a scholarly level. Faculty will give you specific feedback on the work in your portfolio, the ability to use and understand art vocabulary, and communicate effectively about art. This course must be successfully completed with a C or better before students will be permitted into Upper Division classes.

\$12 course fee.

**ART 3003: Concepts in Art Education**

Prerequisite: ART 3001 Sophomore Review

Introduction to theory and specialized practice in art education issues as applied to elementary art experience. Studio processes, art criticism, aesthetics, and art history methodology will be incorporated into lessons implemented as part of field experience in local elementary schools. Studio six hours. \$45 art fee.

**ART 3013: Art Education Practicum**

Prerequisite: ART 3001 Sophomore Review

Curriculum design with emphasis on visual art standards, art media, and assessment as applied to teaching on the secondary level. Students will implement a unit of study in partnership with local schools.

Studio six hours. \$45 art fee.

**ART 3073: Introduction to Sculpture**

Prerequisite: ART 3001 Sophomore Review or permission of Department Head

Basic techniques of sculpture and sculptural composition. Modeling, casting, carving, and constructive processes are introduced.

Studio six hours. \$165 art fee.

**ART 3113: Art History, American**

Prerequisite: ART 2103 Art History I, ART 2113 Art History II, and ART 3001 Sophomore Review.

A study of art forms in architecture, painting, sculpture and craft from Colonial times to the present.

**ART 3133: Art History, Americas & Africa**

Prerequisites: ART 2103 Art History I, ART 2113 Art History II, and ART 3001 Sophomore Review.

A study of the art of Africa, with a strong focus on African cultures south of the Sahara, along with art of native peoples of North, Central, and South America from both before and after contact with Europeans. Contemporary works by African, Latin American, and Native American artists will also be studied.

**ART 3143: Art History, Asia & Pacific**

Prerequisites: ART 2103 Art History I, ART 2113 Art History II, and ART 3001 Sophomore Review

A study of the art of South, East, and Southeast Asia, the islands of the Pacific, and the Aboriginal cultures of Australia. Contemporary works by artists from these regions will also be studied.

**ART 3153: History of Digital Art**

Prerequisites: ART 2103 Art History I and ART 2113 Art History II

This course will examine the contemporary history of art and focus on work created with digital technology including: new media, video, animation, video games, mobile and other interactive art forms. Through a historical, artistic, and technological framework students will learn to classify, interpret, discuss, analyze works of digital art.

**ART 3203: Typography and Layout**

Prerequisite: ART 1503 Introduction to Graphic Design

Beginning and intermediate problems in layout designs as well as the effective use of type.

Studio six hours. \$45 art fee.

**ART 3223: Package Design**

Prerequisites: ART 1503 Introduction to Graphic Design, ART 2213 Digital Skills, and ART 3001 Sophomore Review

Studio problems in the design and presentation of 3 D advertising packaging and displays.

Studio six hours. \$45 art fee.

**ART 3232: Production Design**

Prerequisites: ART 1503 Introduction to Graphic Design, ART 3203 Typography and Layout, ART 3223 Package Design

Course on preparing graphic design pieces for commercial printing.

Studio six hours. \$36 art fee.

**ART 3243: Web Design**

Prerequisites: ART 2213 Digital Skills, 3001, and 3203

Introduce basic website planning, content editing and creation using graphic arts techniques. Screen-based color theory, web design aesthetics, use of graphic editors, and interface design are explored.

Studio six hours. \$36 art fee.

**ART 3253: Digital Illustration**

Prerequisites: ART 2213 Digital Skills and ART 3001 Sophomore Review

This course will provide students with advanced conceptual skills in computer illustration and digital imaging. Students will acquire intermediate knowledge in vector and pixel-based drawing formats, digital painting effects, comic art/video game illustration, storyboarding and coloring through the completion of integrated design projects.

Studio six hours. \$45 art fee.

### **ART 3303: Drawing Studio I**

Prerequisites: ART 3001 Sophomore Review or permission of Department Head.

The application of the theories and techniques of drawing as they relate to the study of composition in finished works of art.

Studio six hours. \$45 art fee.

### **ART 3403: Introduction to Opaque Painting**

Prerequisites: ART 1303 Introduction to Drawing, ART 1403 Two-dimensional Design, ART 2403 Color Design, ART 3001 Sophomore Review, or permission of instructor.

The exploration of opaque painting techniques. Traditional oil, acrylic and alkyd will be studied.

Studio six hours. \$45 art fee.

### **ART 3503: Painting Studio I**

Prerequisites: ART 3403 Introduction to Opaque Painting or ART 3533 Watercolor Painting and ART 3001 Sophomore Review.

A continued study in the opaque or transparent painting techniques. Emphasis will be directed toward the economy of conception and performance in the completion of finished works of art.

Studio six hours. \$45 art fee.

### **ART 3533: Watercolor Painting**

Prerequisite: ART 3001 Sophomore Review or permission of Department Head.

The exploration of transparent water painting techniques.

Studio six hours. \$45 art fee.

### **ART 3603: Introduction to Ceramics**

Prerequisite: ART 3001 Sophomore Review or permission of Department Head.

An introduction to ceramics, emphasizing the imaginative design and production of ceramic objects utilizing hand building and wheel throwing techniques. Exposure to the complete ceramic process through the use of demonstrations, slides, and lectures.

Studio six hours. \$165 art fee.

### **ART 3703: Sculpture Studio I**

Prerequisite: ART 3073 Introduction to Sculpture

A continued study of sculptural techniques introduced in Introduction to Sculpture, allowing for student expansion and specialization on individual conceptions.

Studio six hours. \$165 art fee.

### **ART 3713: Sculpture Studio II**

Prerequisite: ART 3703 Sculpture Studio I

A continued study of sculptural techniques introduced in Introduction to Sculpture, allowing for student expansion and specialization on individual conceptions.

Studio six hours. \$165 art fee.

### **ART 3803: Introduction to Printmaking**

Prerequisite: ART 3001 Sophomore Review or permission of Department Head.

A survey of traditional printmaking techniques will be taught including intaglio, relief, and monotype.

Studio six hours. \$165 art fee.

### **ART 3813: Printmaking Studio I**

Prerequisites: ART 3001 Sophomore Review and ART 3803 Introduction to Printmaking

Printmaking activities introduced in Introduction to Printmaking will be used as a basis for the student to expand and specialize. Students will be expected to develop an individual print series in one or more print techniques.

Studio six hours. \$165 art fee.

### **ART 3833: Animation Techniques**

Prerequisite: ART 2213 Digital Skills and ART 3001 Sophomore Review or permission of Department Head.

Introduce basic drawing/2D animation, and create movies/cartoons, motion graphics/interactive content using multimedia tools and techniques. Time-based media, animation timing, use of audio-visual editors, and effective storyboard techniques are explored.

Studio six hours.



**ART 3903: Introduction to Fiber Arts**

Prerequisite: ART 3001 Sophomore Review or permission of Department Head.

An introduction to fiber arts to include historical and cultural connections, techniques and processes associated with materials studies such as weaving, papermaking, textile design, and mixed media.

Studio six hours. \$45 art fee.

**ART 4003: Digital Communication Design**

Prerequisite: ART 3001 Sophomore Review

In this course, students will learn advanced techniques in typography and interactive media design that are used in creating contemporary communications design. Applications for such techniques include both electronic and print formats of magazines, newspapers as well as web integration, advertising and E-publications.

Studio six hours. \$45 art fee.

**ART 4013: The Business of Art and Design**

Prerequisites: ART 3001 Sophomore Review

In this course, students will develop a working knowledge of a variety of skills used in contemporary art and design businesses, including creating contracts, submitting copyrights and working with clients.

Lecture 3 hours.

**ART 4023: Motion Graphics**

Prerequisite: ART 3001 Sophomore Review

This course will allow students to analyze, develop, and execute motion graphics pieces using Adobe After Effects for such purposes as title design, kinetic type, video, and web advertisement.

Studio six hours. \$45 art fee.

**ART 4113: Art History, Art After 1945**

Prerequisites: ART 2103 Art History I, ART 2113 Art History II, and ART 3001 Sophomore Review.

A study of the artists, movements, and theories of Western art since 1945, with an emphasis on art of the United States.

**ART 4163: Advanced Digital Photography**

Cross-listed: JOUR 4163 Advanced Digital Photography

Prerequisite: JOUR (ART) 1163 or consent of instructor.

Advanced techniques in digital photography are explored to expand the student's understanding of the digital processes as they relate to computer editing, manipulation and printing of digital images. Students will also study current theories of visual communication that relate to the field of digital photography.

**ART 4231: Graphic Design Exhibition**

Offered: spring

Prerequisites: ART 1503 Introduction to Graphic Design, ART 2213 Digital Skills, ART 3001 Sophomore Review, ART 3203 Typography and Layout, ART 3223 Package Design, ART 3232 Production Design, ART 3243 Web Design, ART 3253 Digital Illustration, and ART 4623

Co-requisite: ART 4243 Professional Portfolio Preparation for Graphic Designers

The purpose of the course is to provide the student an opportunity to present their work in a professional manner in a public venue.

Studio two hours.

**ART 4233: Illustration Studio**

Prerequisite: ART 3001 Sophomore Review or permission of Department Head.

Application of fine art drawing and painting techniques to illustration problems.

Studio six hours. \$36 art fee.

**ART 4243: Professional Portfolio Preparation for Graphic Designers**

Prerequisites: ART 1503 Introduction to Graphic Design, ART 2213 Digital Skills, ART 3203 Typography and Layout, ART 3223 Package Design, or permission of Department Head.

Co-requisite: ART 4231 Graphic Design Exhibition

Review. The purpose of this course is to prepare the student for entry into the professional world through the development of a resume and the presentation of their work.

Studio six hours. \$45 art fee.

**ART 4313: Drawing Studio II**

Prerequisites: ART 3303 Drawing Studio I and ART 3001 Sophomore Review

The further development of advanced drawing concepts and skills. This course will deal with each student on a one to one basis. The student will present a "contract of drawing projects" subject to instructor's approval.

Studio six hours. \$45 art fee.

### **ART 4323: Drawing Studio III**

Prerequisites: ART 3001 Sophomore Review and ART 3303 Drawing Studio I

The further development of advanced drawing concepts and skills. This course will deal with each student on a one to one basis. The student will present a "contract of drawing projects" subject to instructor's approval.

Studio six hours. \$45 art fee.

### **ART 4503: Painting Studio II**

Prerequisites: ART 3001 Sophomore Review and ART 3503 Painting Studio I

Advanced study of the opaque/ transparent painting techniques. Emphasis will be theme oriented. Each student must submit to the instructor a "painting contract" which must be approved.

Studio six hours. \$45 art fee.

### **ART 4513: Painting Studio III**

Prerequisites: ART 3001 Sophomore Review and ART 3503 Painting Studio I.

Advanced study of the opaque/ transparent painting techniques. Emphasis will be theme oriented. Each student must submit to the instructor a "painting contract" which must be approved.

Studio six hours. \$36 art fee.

### **ART 4603: Ceramics Studio I**

Prerequisites: ART 3001 Sophomore Review and ART 3603 Introduction to Ceramics

A study of advanced techniques and skills. This course will deal with each student on a one to one basis. Each student must submit a "contract of ceramics project" subject to instructor's approval.

Studio six hours. \$165 art fee.

### **ART 4613: Ceramics Studio II**

Prerequisites: ART 3001 Sophomore Review and ART 3603 Introduction to Ceramics

A study of advanced techniques and skills. This course will deal with each student on a one to one basis. Each student must submit a "contract of ceramics project" subject to instructor's approval.

Studio six hours. \$165 art fee.

### **ART 4703: Senior Project and Exhibition**

Offered: Spring

Prerequisites: ART 3001 Sophomore Review and Junior Review

This course is required for all Fine Arts majors, and elective for Graphic Design and Art Education majors.

Studio six hours.

### **ART 4723: Art History Seminar**

Prerequisite: ART 2103 Art History I, ART 2113 Art History II, and ART 3001 Sophomore Review.

This course will provide a forum for in-depth examination of a particular artist, movement, theme, or period in art history.

### **ART 4731: Art or Design Internship**

Prerequisites: ART 3001 Sophomore Review

A supervised, practical experience providing graphic design majors with professional hands-on training in a position relating to an area within their chosen field of graphic design at a cooperating business.

### **ART 4732: Art or Design Internship**

Prerequisites: ART 3001 Sophomore Review

A supervised, practical experience providing graphic design majors with professional hands-on training in a position relating to an area within their chosen field of graphic design at a cooperating business.

### **ART 4733: Art or Design Internship**

Prerequisites: ART 3001 Sophomore Review

A supervised, practical experience providing graphic design majors with professional hands-on training in a position relating to an area within their chosen field of graphic design at a cooperating business.

### **ART 4734: Art or Design Internship**

Prerequisites: ART 3001 Sophomore Review

A supervised, practical experience providing graphic design majors with professional hands-on training in a position relating to an area within their chosen field of graphic design at a cooperating business.

### **ART 4735: Art or Design Internship**

Prerequisites: ART 3001 Sophomore Review

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A supervised, practical experience providing graphic design majors with professional hands-on training in a position relating to an area within their chosen field of graphic design at a cooperating business.

**ART 4736: Art or Design Internship**

Prerequisites: ART 3001 Sophomore Review

A supervised, practical experience providing graphic design majors with professional hands-on training in a position relating to an area within their chosen field of graphic design at a cooperating business.

**ART 4803: Printmaking Studio II**

Prerequisites: ART 3001 Sophomore Review, ART 3813 Printmaking Studio I, and permission of Instructor.

A concentration on printmaking techniques which will develop additional strength and capability in the student.

Studio six hours. \$165 art fee.

**ART 4813: Printmaking Studio III**

Prerequisites: ART 3001 Sophomore Review, ART 3813 Printmaking Studio I, and permission of Instructor.

A concentration on printmaking techniques which will develop additional strength and capability in the student.

Studio six hours. \$165 art fee.

**ART 4823: Art Criticism and Aesthetics**

Prerequisite: 3 hours of Art History or permission of Department Head

Perspectives on analyzing and interpreting works of art required for art education majors. The course may be used as an art history elective for graphics and fine arts majors.

**ART 4833: Advanced Web Design**

Prerequisite: ART 3243 Web Design

Builds upon the fundamental concepts and skills developed in ART 3243 Web Design: Web Design. Students will take an in-depth look at website development and strategies. Advanced web editing and scripting techniques will be used to complete projects and build a professional web portfolio.

Studio six hours.

**ART 4883: Advanced Studio Studies**

Prerequisite: Senior Status or permission of Department Head

Advanced Studio Studies is an advanced studio course with a revolving focus selected by the art faculty to provide research in particular skills, subjects, or trends in art & media.

Note: This course can be repeated for credit if course content differs.

Studio six hours. \$45 art fee.

**ART 4951: Undergraduate Research in Art**

Offered: On demand

Prerequisite: Departmental approval

Advanced students carry out independent research activity relating to a significant problem in a major field of study. Supervised by faculty member. Formal report and presentation required. One to four credits depending on problem selected and effort made.

**ART 4952: Undergraduate Research in Art**

Offered: On demand

Prerequisite: Departmental approval

Advanced students carry out independent research activity relating to a significant problem in a major field of study. Supervised by faculty member. Formal report and presentation required. One to four credits depending on problem selected and effort made.

**ART 4953: Undergraduate Research in Art**

Offered: On demand

Prerequisite: Departmental approval

Advanced students carry out independent research activity relating to a significant problem in a major field of study. Supervised by faculty member. Formal report and presentation required. One to four credits depending on problem selected and effort made.

**ART 4954: Undergraduate Research in Art**

Offered: On demand

Prerequisite: Departmental approval

Advanced students carry out independent research activity relating to a significant problem in a major field of study. Supervised by faculty member. Formal report and presentation required. One to four credits depending on problem selected and effort made.

**ART 4983: Sound Design Seminar**

Cross-listed: MUS 4983 Sound Design Seminar

Prerequisite: GAME 2013 Digital Audio Production or MUS 2013 Digital Audio Production and MUS 3723 Electronic Music Creation  
Advanced study of synthesis and sampling technologies through state-of-the-art audio technology available at the ATU Media and Audio Labs.

**ART 4991: Special Problems in Art**

This course requires advance approval by the instructor, department head, and the dean of school. Designed to provide certain advanced students with further concentration in a particular area.  
Fee may apply.

**ART 4992: Special Problems in Art**

This course requires advance approval by the instructor, department head, and the dean of school. Designed to provide certain advanced students with further concentration in a particular area.  
Fee may apply.

**ART 4993: Special Problems in Art**

This course requires advance approval by the instructor, department head, and the dean of school. Designed to provide certain advanced students with further concentration in a particular area.  
Fee may apply.

**ART 4994: Special Problems in Art**

This course requires advance approval by the instructor, department head, and the dean of school. Designed to provide certain advanced students with further concentration in a particular area.  
Fee may apply.

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**BACHELOR OF APPLIED SCIENCE (BAS)**

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**BAS 4253: Quality Control and Continuous Improvement**

This course provides the student with a substantive background in a prevailing approach to quality control and continuous improvement: The Toyota Way. The course addresses quality control and continuous improvement as a complex methodology with two primary dimensions: "Continuous Improvement" and "Respect for the People." The emphasis of the course is how theory and application can inform the practice of quality control and continuous improvement in a wide-array of organizational settings. Students are expected to understand the theoretical basis of the model and how to apply the model to practical solutions.

Note: Participation in the course requires access to a computer, the internet, and a webcam or other video capture technology.

**BAS 4353: Project Management**

This course provides the student with a substantive background in project management effective for deployment in multiple industrial, manufacturing, and technical domains. The course prepares the student to pursue the Certified Associate in Project Management (CAPM) credential offered by the Project Management Institute (PMI). The CAPM is designed for those with less project experience and is intended to demonstrate candidate's understanding of the fundamental knowledge, terminology, and processes of effective project management.

Note: Participation in the course requires access to a computer, the internet, and a webcam or other video capture technology.

**BAS 4363: Project Risk Analysis and Mitigation**

Prerequisite: BAS 4353 Project Management

BAS 4363 Project Risk Analysis and Mitigation explores the essential process of risk management mitigation in defined projects. Students assess the failures of risk management to deliver expected risk mitigation results, apply a risk management process with a focus on achieving efficacy, and the implementation of risk management to various types of projects in organizations (nonprofit, governmental and for-profit) and individual endeavors. The Active Threat and Opportunity Management (ATOM) process is designed to meet the need for a simple scalable risk management process applicable to all projects.

Note: Participation in the course requires access to a computer, the internet, and a webcam or other video capture technology.

**BAS 4373: Leading Agile Projects**

Prerequisite: BAS 4353 Project Management

Project management is multi-faceted. In this course, students enhance their knowledge and application of project management by mastering the fundamentals of agile project management. Mastery includes the mechanics of how one employs agile project based on Scrum, the impact of agile on the project management profession, and how agile project management broadens and expands project management skills to deploy an integrated approach.

Note: Participation in the course requires access to a computer, the internet, and a webcam or other video capture technology.

**BAS 4453: Problem Solving and Root Cause Analysis**

This course is designed to introduce students to the systematic processes of problem solving and root cause analysis. Students will learn how to apply root cause methodologies to identify and solve complex issues in organizations. Topics covered include: incident investigation, data collection and analysis, solution identification and implementation, and assessment.

Note: Participation in the course requires access to a computer, the internet, and a webcam or other video capture technology.

**BAS 4553: Workplace Health and Safety**

This course provides an in-depth study of various occupational health and safety issues that industry professionals face. The course focuses on safety-related legislation and business laws, ethical standards in safety, accident causation and investigation, ergonomics and safety management, psychology of safety and safety performance improvement measures, workplace violence and security measures, hazardous materials and transportation safety.

Note: Participation in the course requires access to a computer, the internet, and a webcam or other video capture technology.

\$189 course fee.

**BAS 4653: Production Scheduling**

This course provides the student with deployable knowledge and skills in production planning and scheduling, effective for use in multiple industrial, manufacturing, and technical domains. Master scheduling is the pivotal point in a manufacturing business when demand from the marketplace is balanced with the capabilities and capacities of the company and its suppliers in real-time terms. This course defines the master scheduling process, explores specific tools and techniques used in various manufacturing environments, and provides an introduction to the supporting functions of production planning and scheduling.

Note: Participation in the course requires access to a computer, the internet, and a webcam or other video capture technology.

**BAS 4751: Career Planning and Personal Development**

Prerequisite: Senior Standing

In this course, students develop an ePortfolio highlighting various competencies learned as a BAS student. The course prepares the BAS student with the skills, knowledge, and abilities to communicate a critical understanding of his/her work through the articulation of goals, critique, and self-assessment. The course introduces students to the portfolio development process and improves their ability to think critically and communicate more effectively while developing personal goals and mission statements, and working collaboratively with other students on competency-based case studies.

Note: Participation in the course requires access to a computer, the internet, and a webcam or other video capture technology.

**BIOLOGY (BIOL)****BIOL XXXX: Biological Science with Laboratory**

Biological Science with Laboratory

Four hours of science with laboratory from the following courses:

BIOL 1004 Principles of Environmental Science: Principles of Environmental Science

BIOL 1014 Introduction to Biological Science: Introduction to Biological Science

BIOL 1114 Principles of Biology: Principles of Biology

BIOL 2004 Basic Human Anatomy and Physiology: Basic Human Anatomy and Physiology

BIOL 2014 Human Anatomy: Human Anatomy

BIOL 2054 Microbiology for Health Sciences: Microbiology for Health Sciences

BIOL 2124 Principles of Zoology: Principles of Zoology

BIOL 2134 Principles of Botany: Principles of Botany

BIOL 2404 Human Anatomy and Physiology I: Human Anatomy and Physiology I

**BIOL 4XXX: BIOLOGY TRANSFER ELECTIVE**

Credit transferred from another institution and articulated for biology upper division elective.

**BIOL 3XXX: BIOLOGY TRANSFER ELECTIVE**

Credit transferred from another institution and articulated for biology upper division elective.

**BIOL 2XXX: BIOLOGY TRANSFER ELECTIVE**

Credit transferred from another institution and articulated for biology lower division elective.

**BIOL 1XXX: BIOLOGY TRANSFER ELECTIVE**

Credit transferred from another institution and articulated for biology lower division elective.

**BIOL 1004: Principles of Environmental Science**

Cross-listed: ENVS 1004 Principles of Environmental Science and PHSC 1004 Principles of Environmental Science

This course is designed to bring the student to a basic but informed awareness of and responsible behavior toward our environment and the role of the human race therein. The content will include a study of the philosophical and scientific basis for the study of ecosystems and the environment, the nature of ecosystems, the techniques used to study the environment, the origin and development of current environmental problems, the interdisciplinary nature of environmental studies, the processes of critical thinking and problem solving, and the moral and ethical implications of environmentally-mandated decisions.

Lecture three hours, laboratory three hours. \$40 laboratory fee.

### **BIOL 1011: Orientation to the Biological Sciences**

This course orients entering students to the biological sciences. Topics examined in this course include an overview of the Tech Department of Biological Sciences and careers in biology, managing a biology curriculum (registration procedures, student responsibilities, and study skills), requirements for professional schools and graduate education, and undergraduate research opportunities.

### **BIOL 1014: Introduction to Biological Science**

ACTS Common Course - BIOL 1004 Principles of Environmental Science

An introduction to the major concepts of biological science, with an emphasis on the development of this scientific perspective and how it applies to humans.

Note: Duplicate credit for BIOL 1014 Introduction to Biological Science and BIOL 1114 Principles of Biology will not be allowed. May not be taken for credit after completion of BIOL 1114 Principles of Biology, 2124, or 2134.

Lecture three hours, laboratory two hours. \$40 laboratory fee.

### **BIOL 1114: Principles of Biology**

ACTS Common Course - BIOL 1014 Introduction to Biological Science

Prerequisites: scores of 21 or higher on the reading, science reasoning and mathematics portions of the enhanced ACT or completion of MATH 0903 Beginning and Intermediate Algebra with a grade of C or higher, or a grade of C or higher in a college science course.

An in depth study of biological principles and the interrelationships of biology with other sciences. Topics included are: cellular structure, intermediary metabolism and differentiation, population genetics, ecology, and evolution.

Note: Duplicate credit for BIOL 1014 Introduction to Biological Science and BIOL 1114 Principles of Biology will not be allowed.

Lecture three hours, laboratory two hours. \$40 laboratory fee.

### **BIOL 2004: Basic Human Anatomy and Physiology**

Prerequisite: A grade of C or higher in a science course or approval of the instructor.

This course is intended for students who have a need for basic studies in functional aspects of the organ systems of the human body.

Note: This course may not be taken for credit after completion of BIOL 2014 Human Anatomy, 3074, or equivalent.

Lecture three hours, laboratory two hours. \$40 laboratory fee.

### **BIOL 2014: Human Anatomy**

Prerequisite: A grade of C or higher in a science course or approval of the instructor.

This is an introductory course in human anatomy which should be useful to students in the biological and health oriented fields. The course is designed to present an introduction to the unified concepts and data that contribute to a basic understanding of the structure of the human body. The course will include familiarization with essential technical vocabulary; reference to general functions of organs and organ systems; and brief encounters with histology, embryology, and comparative anatomy.

Lecture three hours, laboratory two hours. \$40 laboratory fee.

### **BIOL 2054: Microbiology for Health Sciences**

ACTS Common Course - BIOL 2004 Basic Human Anatomy and Physiology

Prerequisites: Completion of CHEM 1113 A Survey of Chemistry and 1111 or CHEM 2124 General Chemistry I with a grade of C or higher

Microbiological concepts, including overviews of bacteria, viruses, fungi, protozoa, prions, and viroid and how they interact with humans. Designed to serve students in health-related majors other than biology.

Lecture three hours, laboratory two hours. \$40 laboratory fee.

### **BIOL 2111: Environmental Seminar**

Cross-listed: CHEM 2111 Environmental Seminar, GEOL 2111 Environmental Seminar

A seminar for students pursuing the environmental option of biology, chemistry, or geology and other students interested in environmental sciences.

### **BIOL 2124: Principles of Zoology**

ACTS Common Course - BIOL 1054

Prerequisites: Scores of 21 or higher on the reading, science reasoning, and mathematics portions of the enhanced ACT or completion of MATH 0903 Beginning and Intermediate Algebra with a grade of C or higher, or a grade of C or higher in a college science course.

A survey of the major animal phyla: morphology, physiology, and natural history.

Lecture three hours, laboratory two hours. \$40 laboratory fee.

### **BIOL 2134: Principles of Botany**

ACTS Common Course - BIOL 1034

Prerequisites: Scores of 21 or higher on the reading, science reasoning and mathematics portions of the enhanced ACT or completion of MATH 0903 Beginning and Intermediate Algebra with a grade of C or higher, or a grade of C or higher in a college science course.

Introduction to the structure, function, classification, and importance of nonvascular and vascular plants.

Lecture three hours, laboratory two hours. \$40 laboratory fee.

### **BIOL 2404: Human Anatomy and Physiology I**

ACTS Common Course - BIOL 2404 Human Anatomy and Physiology I

Prerequisites: Grade of "C" or better in a college chemistry course or permission of instructor

This course is the first in a two semester sequence that covers the basic structure and function of human organ systems including mechanisms of homeostasis. Specific topics include: body organization, basic biochemistry, cell biology, metabolism, histology, the integumentary, skeletal, muscular, and nervous systems. Laboratory sessions involve dissection, microscopy, demonstration and/or experimental modeling of concepts.

Lecture three hours, laboratory two hours. \$40 laboratory fee.

### **BIOL 2414: Human Anatomy and Physiology II**

ACTS Common Course - BIOL 2414 Human Anatomy and Physiology II

Prerequisite: Grade of "C" or better in BIOL 2404 Human Anatomy and Physiology I or consent of instructor

This course is the second in a two semester sequence that covers the basic structure and function of human organ systems including mechanisms of homeostasis. Specific topics include: the Endocrine, Cardiovascular, Lymphatic, Respiratory, Digestive, Urinary, and Reproductive systems as well as principles of immunity, genetics, metabolism, fluid and electrolyte balance, and acid-base homeostasis. Laboratory sessions involve dissection, microscopy, demonstration and/or experimental modeling of concepts.

Lecture three hours, laboratory two hours. \$40 laboratory fee.

### **BIOL 2881: Special Topics in Biology**

Offered: On demand

Prerequisite: Consent of the instructor.

This course offers specialized instruction in an area of biological sciences that is not otherwise covered in the curriculum. The focus of the course will vary from offering to offering, thus the course may be taken more than once.

Note: BIOL 2884 Special Topics in Biology includes a \$20 laboratory fee.

### **BIOL 2882: Special Topics in Biology**

Offered: On demand

Prerequisite: Consent of the instructor.

This course offers specialized instruction in an area of biological sciences that is not otherwise covered in the curriculum. The focus of the course will vary from offering to offering, thus the course may be taken more than once.

Note: BIOL 2884 Special Topics in Biology includes a \$20 laboratory fee.

### **BIOL 2883: Special Topics in Biology**

Offered: On demand

Prerequisite: Consent of the instructor.

This course offers specialized instruction in an area of biological sciences that is not otherwise covered in the curriculum. The focus of the course will vary from offering to offering, thus the course may be taken more than once.

Note: BIOL 2884 Special Topics in Biology includes a \$20 laboratory fee.

### **BIOL 2884: Special Topics in Biology**

Offered: On demand

Prerequisite: Consent of the instructor.

This course offers specialized instruction in an area of biological sciences that is not otherwise covered in the curriculum. The focus of the course will vary from offering to offering, thus the course may be taken more than once.

Note: BIOL 2884 Special Topics in Biology includes a \$40 laboratory fee.

### **BIOL 3004: Plant Taxonomy**

Prerequisites: BIOL 1114 Principles of Biology and 2134 or permission of instructor.

An overview of the major principles of classification, identification, naming, and collection of representatives of vascular plants.

Lecture two hours, laboratory four hours. \$40 laboratory fee.

### **BIOL 3033: Bioinformatics**

Prerequisites: BIOL 1114 Principles of Biology, MATH 1113 College Algebra, and/or the permission of the instructor.

This course focuses upon the principles and major concepts in bioinformatics. Course topics may include the following: blast searching, retrieving, and analyzing DNA & protein sequences; Metagenomic data analysis; molecular phylogenetic tree creation; bacterial genome isolation, sequencing, genome assembly, and annotation; gene data analysis in R.

Note: A laptop computer with internet capabilities and operating R Studio is required.

### **BIOL 3034: Genetics**

Prerequisites: BIOL 1114 Principles of Biology and eight hours of chemistry.

Introduction to and discussion of the principles of Mendelian, molecular and population genetics with a strong emphasis on problem solving. Laboratory exercises will involve hands-on experience with microbes, plants, animals and fungi using traditional and molecular techniques.

Lecture three hours, laboratory two hours. \$40 laboratory fee.

### **BIOL 3043: Conservation**

Cross-listed: ENVS 3043 Conservation

Prerequisite: BIOL/ENVS/PHSC 1004 Principles of Environmental Science

A study of natural resources, their utilization in a technical society, and factors leading to their depletion.

### **BIOL 3054: Microbiology**

Prerequisites: One semester of chemistry and one semester of biology.

An introduction to the microbial world with an emphasis on prokaryotes. Identification of bacteria based on staining, immunologic reactions, morphology and physiology. Symbionts and pathogens of human and domestic animals. Principles of control using chemical and physical agents. An overview of virology and immunology.

Lecture three hours, laboratory two hours. \$40 laboratory fee.

### **BIOL 3064: Parasitology**

Prerequisite: BIOL 2124 Principles of Zoology

A survey of parasitism in the various phyla. Special emphasis is given to parasites that affect humans.

Lecture two hours, laboratory four hours. \$40 laboratory fee.

### **BIOL 3074: Human Physiology**

Prerequisites: BIOL 1114 Principles of Biology, 2014, and two semesters of chemistry.

An introduction to the function of vertebrate body systems, i.e., muscle action, digestion, circulation, nervous control, endocrine, metabolism and respiration, with special emphasis on the human body.

Lecture three hours, laboratory two hours. \$40 laboratory fee.

### **BIOL 3084: Ichthyology**

Offered: Fall

Cross-listed: FW 3084 Ichthyology

Prerequisite: BIOL 2124 Principles of Zoology

Systematics, collection, identification, natural history, and importance of fishes.

Lecture two hours, laboratory four hours. \$40 laboratory fee.

### **BIOL 3104: Introduction to Entomology**

Cross-listed: AGPM 3104 Introduction to Entomology

This course will introduce the student to insect diversity and the identification of the major families of insects. Laboratory time will be spent learning family characteristics and collecting and preserving insect specimens. Lecture will consist of topics such as insect diversity, morphology and physiology. \$25 laboratory fee.

### **BIOL 3111: Environmental Seminar**

Cross-listed: ENVS 3111 Environmental Seminar, CHEM 3111 Environmental Seminar, and GEOL 3111 Environmental Seminar

A seminar for students pursuing the environmental option of biology, chemistry, or geology and other students interested in environmental sciences.

### **BIOL 3114: Principles of Ecology**

Cross-listed: FW 3114 Principles of Ecology

Prerequisites: BIOL 2124 Principles of Zoology, BIOL 2134 Principles of Botany, and one semester of chemistry.

Responses of organisms to environmental variables, bioenergetics, population dynamics, community interactions, ecosystem structure and function, and major bio geographical patterns.

Lecture two hours, laboratory four hours. \$40 laboratory fee.

### **BIOL 3134: Invertebrate Zoology**

Prerequisites: BIOL 1114 Principles of Biology, BIOL 2124 Principles of Zoology, BIOL 2134 Principles of Botany, and two semesters of chemistry.

Morphology, physiology, natural history and taxonomy of major invertebrate phyla. Laboratory maintenance and preservation techniques.

Lecture two hours, laboratory four hours. \$40 laboratory fee.

### **BIOL 3144: Ornithology**

Offered: Spring of even years

Cross-listed: FW 3144 Ornithology

Prerequisite: BIOL 2124 Principles of Zoology

An introduction to the biology of birds. The course covers aspects of anatomy, physiology, behavior, natural history, evolution, and conservation of birds. Laboratories address field identification and natural history of the birds of Arkansas.

Note: Students will be expected to participate in an extended 5-7 day field trip.

Lecture two hours, laboratory four hours. \$40 laboratory fee.

### **BIOL 3154: Mammalogy**

Offered: Fall

Cross-listed: FW 3154 Mammalogy

Prerequisite: BIOL 2124 Principles of Zoology



Taxonomy, identification, ecology, and study natural history of the mammals.  
Lecture three hours, laboratory two hours. \$40 laboratory fee.

### **BIOL 3174: Physiological Ecology**

Prerequisites: BIOL 1114 Principles of Biology, BIOL 2124 Principles of Zoology, BIOL 2134 Principles of Botany and two semesters of chemistry.  
An in-depth study of plant and animal adaptations and responses to different environmental conditions. Comparative physiology of major systems, mechanisms of adaptation and adaptations to challenging habitats will be studied.  
\$40 laboratory fee.

### **BIOL 3184: Animal Behavior**

Cross-listed: PSY 3184 Animal Behavior

Prerequisites: sophomore standing in biology or psychology, or approval of instructor.

An introductory course in animal behavior covering behavioral responses in primitive and advanced animals exposed to a wide range of environmental and social conditions. Laboratory exercises will include field as well as in-lab exercises and will focus on observational techniques and analyses of behavioral patterns in vertebrates and invertebrates.

Lecture three hours, laboratory two hours. \$40 laboratory fee.

### **BIOL 3213: Science Education in the Elementary School**

Cross-listed: PHSC 3213 Science Education in the Elementary School

Prerequisites: Junior standing, ECED 2001, ECED 2002, and at least six credit hours in science.

An overview of the most recent and research-based strategies and techniques for planning, teaching, and assessing elementary science. Inquiry-based methods and other constructivist approaches as described in the National Science Education Standards will be emphasized. Design and execution of learning activities for an elementary school setting are required.

Note: To enroll in an internet section (TC1 or AT1) of this course, one of these prerequisite courses is required: COMS 1003 Introduction to Computer Based Systems, EDMD 3013 Integrating Instructional Technology, or equivalent.

Lecture two hours, laboratory two hours; three credit hours. \$40 laboratory fee.

### **BIOL 3223: Science Education in the Middle Level**

Cross-listed: PHSC 3223 Science Education in the Middle Level

Prerequisites: 16 hours in science and MLED 2003 Introduction to Education.

This course is designed to provide pre-service teachers with an integrated approach to the teaching of science in the middle grades. Theoretical and practical aspects of teaching science will be explored and students will develop curricular materials based on their explorations.

Lecture two hours, laboratory 2 hours. \$40 laboratory fee.

### **BIOL 3224: Herpetology**

Offered: Spring of odd years

Cross-listed: FW 3224 Herpetology

Prerequisite: BIOL 2124 Principles of Zoology

The phylogeny, classification, physiology, behavior, and distribution of reptiles and amphibians. The Laboratory will stress identification of the species found in Arkansas.

Lecture two hours, laboratory four hours. \$40 laboratory fee.

### **BIOL 3233: Science Education in the Secondary School**

Cross-listed: PHSC 3233 Science Education in the Secondary School

Offered: Fall

Prerequisites: 16 hours in biology or 16 hours in physical science and SEED 2002 Education as a Profession.

This course will examine the issues of nature and history of science, developing lessons and assessments, and science education standards for the prospective secondary school teacher. Curriculum development, including assessment and planning skills, utilizing various instructional media and inquiry methodology are emphasized. Design and execution of learning activities for a secondary school setting are required.

Lecture two hours, laboratory two hours. \$40 laboratory fee.

### **BIOL 3243: Integrating the Three Dimensions of Science**

Cross-listed: PHSC 3243 Integrating the Three Dimensions of Science

Prerequisites: Junior Standing and at least 8 hours of science.

This course integrates the three major areas of discipline in science: physical science, life science and earth science, using as a focus the processes and cross-cutting concepts of science, technology, engineering and mathematics (STEM).

\$40 laboratory fee.

### **BIOL 3252: The Nature and Context of Science**

Cross-listed: PHSC 3252 The Nature and Context of Science

Prerequisite: At least 12 hours of science courses.

This seminar course examines science from a holistic perspective. It will concentrate on examining how current science develops scientific knowledge including unifying concepts across scientific disciplines, the place of science within modern society, technology and its role in science and society, and current scientific methodology.

### **BIOL 3253: Teaching Methods for STEM**

Cross-listed: PHSC 3253 Teaching Methods for STEM

Prerequisites: Junior Standing, ECED 2001, ECED 2002, PHSC 3243 Integrating the Three Dimensions of Science and completion of at least 8 hours of science.

An overview of strategies and techniques for planning, teaching, and assessing elementary science. An emphasis will be placed on best practices, crosscutting concepts, and core ideas outlined in current National Science Frameworks developed in conjunction with the National Research Council. Current adopted standards such as the Next Generation Science Standards (NGSS) and Common Core State Standards will be emphasized in designing learning experiences that integrate science, technology, math, and engineering (STEM) with language arts skills. Inquiry-based methods and other constructivist approaches as described in the National Science Education Frameworks will be emphasized. Design and execution of learning activities for an elementary school setting are required.

Lecture two hours, laboratory two hours; three credit hours. \$40 laboratory fee.

### **BIOL 3353: Fundamentals of Toxicology**

Cross-listed: CHEM 3353 Fundamentals of Toxicology

Offered: On demand

Prerequisite: CHEM 3254 Fundamentals of Organic Chemistry

An introduction to the science of poisons. Toxicological principles studied include structures, dose/response relationships, metabolism, mechanism of action, and gross effects of chemicals.

### **BIOL 3803: Applied Pathophysiology**

Cross-listed: NUR 3803 Applied Pathophysiology

Prerequisites: grade of C or better in BIOL 2014 Human Anatomy or BIOL 2404 Human Anatomy and Physiology I and BIOL 2414 Human Anatomy and Physiology II or BIOL 3074 Human Physiology

This course focuses on the mechanisms and concepts of selected pathological disturbances in the human body. Emphasis is placed on how the specific pathological condition effects the functioning of the system involved, as well as its impact on all other body systems.

### **BIOL 4023: Immunology**

Prerequisites: Four hours each in biology and chemistry and/or consent of instructor.

An overview of the human immune system, including cellular and humoral defense mechanisms, immunity to infection, hypersensitivity, transplant rejection, and tumor destruction. Immune deficiency and autoimmune diseases. Antibody structure and the use of antibodies in medicine and research.

### **BIOL 4024: Limnology**

Offered: Spring

Cross-listed: FW 4024 Limnology

Prerequisite: BIOL (FW) 3114.

A study of physical and chemical processes in fresh water and their effects on organisms in lakes and streams. Laboratory sessions and field trips demonstrate limnological instrumentation and methodology.

Lecture two hours, laboratory four hours. \$40 laboratory fee.

### **BIOL 4033: Cell Biology**

Prerequisites: BIOL 1114 Principles of Biology, eight hours of chemistry, and one course from BIOL 3034 Genetics, 3054, 3074, 4023 or CHEM 3344 Principles of Biochemistry.

The primary goal of this course is to build on the cell and molecular component of BIOL 1114 Principles of Biology, by performing an in-depth study of the molecular processes underlying cell structure and function through the directed application of energy and processing of information within the cell. Topics include methods of cell study, ultrastructure and function of cellular organelles, membrane structure and function, cell-cell communication, cell division and differentiation. Lecture three hours per week.

### **BIOL 4043: Conservation Genetics**

Prerequisite: BIOL 1114 Principles of Biology, BIOL 2124 Principles of Zoology, and BIOL 2134 Principles of Botany and/or the permission of the instructor.

This course focuses upon the principles and major concepts in conservation genetics from a contemporary viewpoint. Evolutionary genetics of natural populations, the effects of population size reduction, and practical applications of conservation genetics are among the topics examined in the course.

### **BIOL 4044: Dendrology**

Prerequisites: BIOL 1114 Principles of Biology and BIOL 2134 Principles of Botany.

A study of woody plants with emphasis on field recognition throughout the year.

Lecture two hours, laboratory four hours. \$40 laboratory fee.

**BIOL 4054: Vertebrate Histology**

Prerequisites: BIOL 1114 Principles of Biology, BIOL 2124 Principles of Zoology and an additional four hours in biology.

A study of functional/structural relationship of cells, tissues, and organs. Exercises in the preparation and observation of tissues and development of general principles of micro techniques.

Lecture two hours, laboratory four hours. \$40 laboratory fee.

**BIOL 4064: Evolutionary Biology**

Prerequisites: BIOL 1114 Principles of Biology, 2124, and 2134, or permission of instructor.

This course focuses upon the principles and major concepts in evolutionary biology from a historical and contemporary viewpoint. Morphological and molecular evolution, population genetics, systematics, the fossil record, a history of life on earth, macroevolution, and adaptation are among the topics examined in this course.

Lecture 3 hours, laboratory 3 hours. \$40 laboratory fee.

**BIOL 4074: Molecular Genetics**

Prerequisite: BIOL 3034 Genetics

This course continues the material introduced in Genetics (BIOL 3034 Genetics) with a focus upon the major concepts and techniques in contemporary molecular genetics. Current viewpoints of the gene, gene regulation, developmental genetics, recombinant DNA technology, genomics, proteomics, and molecular evolution are among the topics examined in the course.

Lecture 3 hours, laboratory 3 hours. \$40 laboratory fee.

**BIOL 4083: Cancer Biology**

Prerequisite: BIOL 3034 Genetics

An in-depth study of major areas and topics in cancer biology, including etiology and epidemiology of cancer, impact of the human genome mapping project, molecular genetics and cell biology of cancer, cancer modeling and clinical aspects of human cancer.

**BIOL 4094: Coastal Ecology**

Prerequisites: BIOL 2124 Principles of Zoology and BIOL 2134 Principles of Botany and one semester of chemistry.

A focused study of coastal ecology, as represented by the Mississippi Gulf Coast. Coastal plants, animals, their interactions, and relationship to the physical environment are explored.

Note: The course includes a required field trip to the Gulf Coast. Investigations are conducted in the marshes, bays, estuaries, bogs, and barrier island systems. Students bear the cost of food and a nominal housing fee.

\$40 laboratory fee.

**BIOL 4111: Environmental Seminar**

Cross-listed: CHEM 4111 Environmental Seminar, GEOL 4111 Environmental Seminar

A seminar for students pursuing the environmental option of biology, chemistry, or geology and other students interested in environmental sciences.

**BIOL 4112: Biology Internship**

Prerequisites: Junior or senior standing and consent of internship program director.

A supervised, practical experience providing BIOL majors with a hands-on, professional experience related to their career interests. The course will allow students to gain experience in an occupational environment. Students will be placed in positions under the direction of the internship program director and work supervisor. The program will emphasize application of classroom knowledge to career goals. Approximately 200 clock hours, a proposal, a log book or journal, a summary letter from the employment supervisor, and a written report are required.

Note: A maximum of four credit hours is allowed for BIOL internship.

**BIOL 4114: Biology Internship**

Prerequisites: Junior or senior standing and consent of internship program director.

A supervised, practical experience providing BIOL majors with a hands-on, professional experience related to their career interests. The course will allow students to gain experience in an occupational environment. Students will be placed in positions under the direction of the internship program director and work supervisor. The program will emphasize application of classroom knowledge to career goals. Approximately 400 clock hours, a proposal, a log book or journal, a summary letter from the employment supervisor, and a written report are required.

Note: A maximum of four credit hours is allowed for BIOL internship.

**BIOL 4124: Biological Assessment of Water Quality**

Cross-listed: ENVS 4124 Biological Assessment of Water Quality

Offered: Spring

Prerequisites: BIOL/ENVS/PHSC 1004 Principles of Environmental Science, BIOL/FW 3114 Principles of Ecology, and three semesters of chemistry.

This course is an in-depth study of assessment of water quality by analyzing biological and chemical data.

This course may include topics and case studies from the following list:

Compare and contrast biological and chemical techniques for assessing water quality

Physical and chemical properties of water

Connecting flows and water quality

Nutrient pollution

Point and non-point sources

Effects of petroleum pollution from extraction, transportation, refining, and combustion on biological systems

SOPs, industry, and government standard practices and procedures for analyzing water quality

Species richness, species evenness, and rank abundance curves

Techniques from microbiology

Plants as assessment tools

Cladocerans and other zooplankton in laboratory or field

Macro invertebrates as indicators

Fighting Back Against Invasive Plants

Watch-dogging Wetlands Mitigation

Tackling the Dead Zone & Restoring the Mississippi

Volunteer monitoring helps identify problems and improve clean-up

Lecture 3 hours, laboratory 3 hours. This course includes several required field trips. \$40 laboratory fee.

### **BIOL 4163: Biodiversity and Conservation Biology**

Offered: Fall

Cross-listed: FW 4163 Biodiversity and Conservation Biology

Prerequisite: A course in ecology or permission of instructor

The concepts of, processes that produce, and factors that threaten biological diversity are introduced and examined. Further emphasis is placed on unique problems associated with small population size, management of endangered species and practical applications of conservation biology.

### **BIOL 4701: Special Methods in Biology**

Prerequisite: Admission to student teaching phase of the teacher education program.

Co-requisite: SEED 4909 Teaching in the Secondary School

Intensive on campus exploration of the principles of curriculum construction, teaching methods, use of community resources, and evaluation as related to teaching biology.

\$40 laboratory fee.

### **BIOL 4881: Advanced Topics in Biology**

Offered: On demand

Prerequisites: an upper level science course and consent of the instructor.

This course offers advanced instruction in an area of biological sciences that is not otherwise covered in the curriculum. The focus of the course will vary from offering to offering, thus the course may be taken more than once.

\$40 laboratory fee.

### **BIOL 4882: Advanced Topics in Biology**

Offered: On demand

Prerequisites: an upper level science course and consent of the instructor.

This course offers advanced instruction in an area of biological sciences that is not otherwise covered in the curriculum. The focus of the course will vary from offering to offering, thus the course may be taken more than once.

\$40 laboratory fee.

### **BIOL 4883: Advanced Topics in Biology**

Offered: On demand

Prerequisites: an upper level science course and consent of the instructor.

This course offers advanced instruction in an area of biological sciences that is not otherwise covered in the curriculum. The focus of the course will vary from offering to offering, thus the course may be taken more than once.

\$40 laboratory fee.

### **BIOL 4884: Advanced Topics in Biology**

Offered: On demand

Prerequisites: an upper level science course and consent of the instructor.

This course offers advanced instruction in an area of biological sciences that is not otherwise covered in the curriculum. The focus of the course will vary from offering to offering, thus the course may be taken more than once.

\$40 laboratory fee.

### **BIOL 4891: Seminar in Biology**

Prerequisite: An upper level biology course and senior standing.

Designed to integrate all aspects of biology by covering current topics in many fields of biology and to acquaint the student with fields of biology not covered in the general curriculum.

### **BIOL 4951: Undergraduate Research in Biology**

Offered: On demand

Prerequisite: Departmental approval

Advanced students carry out independent research activity relating to a significant problem in a major field of study. Supervised by faculty member. Formal report and presentation required. One to four credits depending on problem selected and effort made. \$40 laboratory fee.

### **BIOL 4952: Undergraduate Research in Biology**

Offered: On demand

Prerequisite: Departmental approval

Advanced students carry out independent research activity relating to a significant problem in a major field of study. Supervised by faculty member. Formal report and presentation required. One to four credits depending on problem selected and effort made. \$40 laboratory fee.

### **BIOL 4953: Undergraduate Research in Biology**

Offered: On demand

Prerequisite: Departmental approval

Advanced students carry out independent research activity relating to a significant problem in a major field of study. Supervised by faculty member. Formal report and presentation required. One to four credits depending on problem selected and effort made. \$40 laboratory fee.

### **BIOL 4954: Undergraduate Research in Biology**

Offered: On demand

Prerequisite: Departmental approval

Advanced students carry out independent research activity relating to a significant problem in a major field of study. Supervised by faculty member. Formal report and presentation required. One to four credits depending on problem selected and effort made. \$40 laboratory fee.

## **BUSINESS ADMINISTRATION (BUAD)**

### **BUAD 1023: Keyboarding**

Instruction and supervised practice in basic keyboarding skills with emphasis on alphabetic and numeric keyboard, ten-key pad, and basic applications transferable to computer terminal keyboards. The purpose of the course is to prepare Business Education majors for teaching secondary education students how to use computer keyboards. The course is required by Business Education majors, but may be taken by other majors as well.

### **BUAD 1111: Introduction to Business**

The course provides university orientation and a preview of the business discipline. The course explores the fundamentals of organizing and managing business enterprises and the American enterprise system.

Note: This course may not be taken for credit after completion of MGMT 3003 Principles of Management.

### **BUAD 2003: Business Information Systems**

An introduction to business information systems with emphasis on concepts and applications utilizing spreadsheets, word processing, and database management as productivity tools; provides basic rationale for using computers in generating and managing information necessary for the business decision making process.

### **BUAD 2043: Principles of Word Processing**

Prerequisites: BUAD 1023 Keyboarding or BUAD 2003 Business Information Systems or COMS 1003 Introduction to Computer Based Systems

A course designed to develop technology skills using current software; application documents include letters, memos, reports, tables, desktop publishing, and graphics for business as well as personal use.

### **BUAD 2053: Business Statistics**

ACTS Common Course - BUSI 2103

Prerequisites: COMS 2003 Microcomputer Applications or BUAD 2003 Business Information Systems and MATH 2223 Quantitative Business Analysis or any higher level math course.

This course reviews basic descriptive statistics and probability distributions. The course introduces inferential statistics and their application to business problems. Topics covered include data collection, the t-tests for one sample, matched-pairs, and independent groups, the F-test for one and two-way analysis of variance, the z-test for one and two proportions, the chi-square tests for independence and goodness of fit, the t- and F- tests as they relate to simple and multiple regression, control charts, time-series analysis, the visual display of quantitative information, and the reporting of results. Problems are addressed using technology such as statistical calculators and advanced statistical software.

### **BUAD 3023: Business Communications**

Prerequisites: 6 hours of English Composition, BDA 2003 Business Problem Solving, ACCT 2003, ECON 2003 Principles of Macroeconomics, and either COMM 2003 Public Speaking or COMM 2173 Business and Professional Speaking.

Course includes principles of effective business communication using technology to generate and present documents including letters, memos, and reports; international, ethical, legal, and interpersonal topics are integrated throughout the course.

### **BUAD 3123: Management**

A study of the basic principles of management and organizational behavior including planning, organizing, leading, controlling, staffing, decision making, ethics, interpersonal influence, and group behavior; and organizational change and development.

Note: School of Business students, except Health Information Management students, cannot take this course for credit.

### **BUAD 3143: Marketing**

This course covers marketing fundamentals, consumer behavior, the retailing and wholesaling systems, marketing functions, marketing policies, marketing costs, critical appraisal of marketing, marketing ethics and social responsibility, and the relationship between marketing, society, and the government.

Note: College of Business students cannot take this course for credit.

### **BUAD 3293: International Business**

This course covers all aspects of international business including, but not limited to, international politics, culture, economics, finance, technology, marketing, ethical decision-making, strategic planning and management, and human resource development in a global environment.

### **BUAD 3393: Small Business Firm Planning**

Application of business planning principles to the creation and operation of small-scale enterprises. The emphasis for this course is on the preparation and implementation of business plans for small firms. Focus will be given to plans used for business strategy and for seeking financial investment in the firm.

### **BUAD 4000: School of Business College Distinction Activity**

Prerequisite: Acceptance into the School of Business College Distinction program.

This course is required for all students accepted into the School of Business College of Distinction.

Note: This course may be taken a maximum of four times.

### **BUAD 4100: Business Experiential Learning Activity**

Prerequisite: Completion of at least 60 credit hours.

This non-credit course indicates student completion of one or more experiential learning activities during the semester taken. Examples of experiential learning include activities that allow students to engage: 1. with external entities such as a business or non-profit organization to work on or solve business problems; 2. in business decision making activities; and 3. in work related activities. This course will be pass(P)/fail(F) and is offered each semester.

Note: This course may be repeated up to 5 times: once each fall, spring, or summer term.

## **BUSINESS DATA ANALYTICS (BDA)**

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### **BDA 2003: Business Problem Solving**

Prerequisites: BUAD 2003 Business Information Systems with a C or better or COMS 2003 Microcomputer Applications with a C or better or Microsoft certification in both Access and Excel or permission of instructor.

This course is designed to provide students training in solving business problems. Students will work individually and in groups on projects to learn and apply various problem solving frameworks, methods, and tools to realistic business situations. Frameworks include general problem solving, systems thinking, critical thinking, and ethical reasoning. Methods and tools include project management, communication and coordination techniques, quantitative models, and software applications.

### **BDA 2023: Introduction to Data Visualization**

This course introduces students to data visualization, including principles, concepts, and techniques. The goal of the course is to empower students to identify and illuminate important insights and skillfully display them to improve decision making. This course covers basic quantitative analysis and software to create effective displays. The course will advance critical thinking skills because students will be better equipped to evaluate data and eliminate bias from the process of turning data into knowledge. Students will enhance their written and oral communication skills in written reports and presentations of their data visualizations.

### **BDA 3003: Data Analytics Apps Development**

Offered: Fall

Prerequisites: BDA 2003 Business Problem Solving and MATH 2223 Quantitative Business Analysis or permission of instructor.

This course covers how business data analysts develop software applications to retrieve and analyze data and provide information and business intelligence useful to solve business problems, to support business decisions, and to determine business tactics and strategy. Students will learn how to design appropriate logic and user interfaces for business data analytic software as well as write and debug professional code in a typical production environment. The student will develop a set of standard data analysis techniques representing typical approaches to solving business intelligence problems.

### **BDA 3013: Business Spreadsheet Modeling**

Offered: Fall

Prerequisites: BDA 2003 Business Problem Solving and MATH 2223 Quantitative Business Analysis or permission of instructor.

This is an introductory course for business major undergraduate students. The main objective of the course is to teach how to solve problems arising in modern business environments using Microsoft Excel. The course will begin by teaching common tools available in Microsoft Excel. Then it will introduce the students to a variety of analytical problems arising in modern businesses and present ways in which these problems can be solved using Microsoft Excel.

### **BDA 3033: Data Modeling and Management**

Offered: Fall

Prerequisite: BDA 2003 Business Problem Solving, BUAD 2003 Business Information Systems, and MATH 2223 Quantitative Business Analysis, or permission of the instructor

This course covers how databases are constructed and managed so that business data analysts can store, update, manage, retrieve, and process data. Students will learn to design, implement, and use databases to create information and business intelligence useful for solving problems, making business decisions, and determining business strategy and tactics. The content addresses how to design effective and efficient data models, implement data models in commonly used database management systems, retrieve and process that data, present information to clients and managers, and address the main issues and tradeoffs in database administration.

### **BDA 3053: Business Data Analysis**

Offered: Spring

Prerequisites: BDA 2003 Business Problem Solving and (BUAD 2053 Business Statistics or PSY 2053 Statistics for the Behavioral Sciences or STAT 2163 Introduction to Statistical Methods with a C or better), or permission of instructor.

This course explores the development of exploratory and predictive models for managers and business decision-makers. Specific tools addressed include analysis of variance (ANOVA), multiple regression, factor analysis, cluster analysis, logistic regression, and path analysis. Emphasis is on analyzing data using statistical software, visualizing and interpreting the results of those analyses and translating results into clear and simple insights to aid managerial decision making.

### **BDA 4003: Business Intelligence**

Offered: Spring

Prerequisites: BDA 3003 Data Analytics Apps Development, BDA 3033 Data Modeling and Management, and BDA 3053 Business Data Analysis with a C or better and 90 earned hours or permission of instructor.

This course covers how data analysts can process large data sets from a variety of sources to create information by that guides leaders in crafting strategy and tactics which allow an organization to survive and thrive in a turbulent environment. Students will review how business intelligence has been created and successfully used in the past and learn appropriate processes and a variety of techniques to accomplish this transformation. The course also addresses professional and ethical conduct with respect to data mining and use of business intelligence.

### **BDA 4031: BDA Internship**

Offered: As needed

Prerequisites: Permission of the instructor, Department Chair, and Dean; a minimum GPA of 2.50 on 54 or more earned hours and on at least 15 earned hours at ATU.

A supervised, practical experience providing undergraduate BDA majors with a hands-on professional experience in a position relating to an area of career interest. The student will work in a local cooperating business establishment under the supervision of a member of management of that firm. A School of Business faculty member will observe and consult with the students and the management of the cooperating firm periodically during the period of the internship. Students will be required to make oral reports in the classroom, maintain an internship log, and prepare a final term paper.

Note: Only three hours of internship may be used to satisfy the curriculum requirements for Business Data Analytics electives. Additional hours may be used to satisfy the curriculum requirements for general electives.

### **BDA 4032: BDA Internship**

Offered: As needed

Prerequisites: Permission of the instructor, Department Chair, and Dean; a minimum GPA of 2.50 on 54 or more earned hours and on at least 15 earned hours at ATU.

A supervised, practical experience providing undergraduate BDA majors with a hands-on professional experience in a position relating to an area of career interest. The student will work in a local cooperating business establishment under the supervision of a member of management of that firm. A School of Business faculty member will observe and consult with the students and the management of the cooperating firm periodically during the period of the internship. Students will be required to make oral reports in the classroom, maintain an internship log, and prepare a final term paper.

Note: Only three hours of internship may be used to satisfy the curriculum requirements for Business Data Analytics electives. Additional hours may be used to satisfy the curriculum requirements for general electives.

### **BDA 4033: BDA Internship**

Offered: As needed

Prerequisites: Permission of the instructor, Department Chair, and Dean; a minimum GPA of 2.50 on 54 or more earned hours and on at least 15 earned hours at ATU.

A supervised, practical experience providing undergraduate BDA majors with a hands-on professional experience in a position relating to an area of career interest. The student will work in a local cooperating business establishment under the supervision of a member of management of that firm. A School of Business faculty member will observe and consult with the students and the management of the cooperating firm periodically during the period of the internship. Students will be required to make oral reports in the classroom, maintain an internship log, and prepare a final term paper.

Note: Only three hours of internship may be used to satisfy the curriculum requirements for Business Data Analytics electives. Additional hours may be used to satisfy the curriculum requirements for general electives.

### **BDA 4071: Special Topics**

Offered: As needed

Prerequisites: Permission of the Instructor, Associate Dean, and Dean; at least 54 earned hours with a minimum 2.5 overall GPA.

This course offers an in-depth exploration of selected business data analytics topics. The primary topic will vary from offering to offering; thus, the course may be taken more than once.

### **BDA 4072: Special Topics**

Offered: As needed

Prerequisites: Permission of the Instructor, Associate Dean, and Dean; at least 54 earned hours with a minimum 2.5 overall GPA.

This course offers an in-depth exploration of selected business data analytics topics. The primary topic will vary from offering to offering; thus, the course may be taken more than once.

### **BDA 4073: Special Topics**

Offered: As needed

Prerequisites: Permission of the Instructor, Associate Dean, and Dean; at least 54 earned hours with a minimum 2.5 overall GPA.

This course offers an in-depth exploration of selected business data analytics topics. The primary topic will vary from offering to offering; thus, the course may be taken more than once.

## **BUSINESS LAW (BLAW)**

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### **BLAW 1033: Law for Life: Understanding the Law and Personal Legal Issues**

This course is a survey of the basic framework of the American legal system and topics in law that many people encounter in both business and everyday life. Upon completion of this course, students should be able to explain the structure and function of the U.S. legal system and understand the basic principles of contracts torts, crimes, property law, family law, and employment law, including the public policy and ethical issues relevant to these areas of the law.

### **BLAW 2033: Legal Environment of Business**

ACTS Common Course - BLAW 2003

Prerequisite: Sophomore standing

A survey of the U.S. legal system, the ethical and public policy issues relevant to business, and the principles of law commonly affecting business, including Constitutional law, contract law, tort law, employment law, white-collar crime, and laws pertaining to corporations and other business organizations.

### **BLAW 4073: Special Topics in Law**

Prerequisites: BLAW 2033 Legal Environment of Business

Course offers an in-depth exploration of selected legal issues affecting business. The primary focus of the course will vary from offering to offering; thus the course may be taken more than once.

## **CHEMISTRY (CHEM)**

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### **CHEM 4XXX: CHEMISTRY TRANSFER ELECTIVE**

Credit transferred from another institution and articulated for chemistry upper division elective.

### **CHEM 3XXX: CHEMISTRY TRANSFER ELECTIVE**

Credit transferred from another institution and articulated for chemistry upper division elective.

### **CHEM 2XXX: CHEMISTRY TRANSFER ELECTIVE**

Credit transferred from another institution and articulated for chemistry lower division elective.

### **CHEM 1XXX: CHEMISTRY TRANSFER ELECTIVE**

Credit transferred from another institution and articulated for chemistry lower division elective.

### **CHEM 1111: Survey of Chemistry Laboratory**

ACTS Common Course - CHEM 1214 (taken with CHEM 1113 A Survey of Chemistry)

Co-requisite: CHEM 1113 A Survey of Chemistry.

An introduction to laboratory experiences in chemistry.

\$40 laboratory fee



**CHEM 1113: A Survey of Chemistry**

ACTS Common Course - CHEM 1214 (taken with CHEM 1111 Survey of Chemistry Laboratory)

Prerequisite: A score of 19 or above on the mathematics section of the ACTE exam, or completion of MATH 0903 Beginning and Intermediate Algebra, Intermediate Algebra, with a grade of C or better.

Co-requisite: CHEM 1111 Survey of Chemistry Laboratory

A survey of selected topics in chemistry for life science majors. A brief introduction to fundamental concepts, atomic structure, chemical bonding, and periodic law as applied in the life sciences and allied areas.

May not be taken for credit after completion of CHEM 2124 General Chemistry I or 2134.

**CHEM 2111: Environmental Seminar**

Cross-listed: BIOL 2111 Environmental Seminar, GEOL 2111 Environmental Seminar

A seminar for students pursuing the environmental option of chemistry, biology, or geology and other students interested in environmental sciences.

**CHEM 2120: General Chemistry I Lab**

Co-requisite for CHEM 2124 General Chemistry I General Chemistry I.

**CHEM 2124: General Chemistry I**

ACTS Common Course - CHEM 1414

Prerequisite: Score of 21 or higher on the math portion of the ACTE; or MATH 1113 College Algebra or equivalent; or a "C" or better in CHEM 1113 A Survey of Chemistry and CHEM 1111 Survey of Chemistry Laboratory; or approval of the instructor.

Co-requisite: CHEM 2120 General Chemistry I Lab

The first of a two semester sequence designed for science and engineering majors. Topics include qualitative and quantitative, applied and theoretical analyses of the interactions of matter; atoms, molecules, ions, the mole concept, chemical equations, gases, solutions, intermolecular forces, thermochemistry, quantum theory, periodic law, ionic and covalent bonding, molecular geometry.

Lecture three hours, laboratory three hours. \$40 laboratory fee.

**CHEM 2130: General Chemistry II Lab**

Co-requisite for CHEM 2134 General Chemistry II, General Chemistry II.

**CHEM 2134: General Chemistry II**

ACTS Common Course - CHEM 1424

Prerequisite: A grade of C or better in CHEM 2124 General Chemistry I or equivalent.

Co-requisite: CHEM 2130 General Chemistry II Lab

A continuation of CHEM 2124 General Chemistry I, encompassing chemical kinetics, equilibrium, acid/base systems, atmospheric chemistry, thermodynamics, electrochemistry, descriptive inorganic chemistry and nuclear chemistry.

Lecture three hours, laboratory three hours. \$40 laboratory fee.

**CHEM 2204: Organic Physiological Chemistry**

ACTS Common Course - CHEM 1224

Offered: Fall

Prerequisite: A grade of C or better in CHEM 1113 A Survey of Chemistry and CHEM 1111 Survey of Chemistry Laboratory or CHEM 2124 General Chemistry I.

For students who desire only one semester of organic/physiologic chemistry, such as wildlife biology and various allied health programs. A brief introduction to organic and physiological chemistry. The structures, reactions and biological aspects of organic compounds will be stressed.

Note: Will not be counted for chemistry credit toward the ACS approved BS in chemistry.

Lecture three hours, laboratory three hours. \$40 laboratory fee.

**CHEM 2991: Special Problems in Chemistry**

Prerequisite: Permission of instructor

One to three credits, depending on the nature and extent of the problem. This course is designed to encourage creative, independent scientific activity on the part of advanced students. Problems will be designed to fit the future aspirations of individual students and will be supervised by a faculty mentor. \$40 laboratory fee.

**CHEM 2992: Special Problems in Chemistry**

Prerequisite: Permission of instructor

One to three credits, depending on the nature and extent of the problem. This course is designed to encourage creative, independent scientific activity on the part of advanced students. Problems will be designed to fit the future aspirations of individual students and will be supervised by a faculty mentor. \$40 laboratory fee.

**CHEM 2993: Special Problems in Chemistry**

Prerequisite: Permission of instructor

One to three credits, depending on the nature and extent of the problem. This course is designed to encourage creative, independent scientific activity on the part of advanced students. Problems will be designed to fit the future aspirations of individual students and will be supervised by a faculty mentor.

\$40 laboratory fee.

**CHEM 3111: Environmental Seminar**

Cross-listed: BIOL 3111 Environmental Seminar, ENVS 3111 Environmental Seminar, and GEOL 3111 Environmental Seminar

A seminar for students pursuing the environmental option of chemistry, biology, or geology and other students interested in environmental sciences.

**CHEM 3245: Quantitative Analysis**

Offered: Spring

Prerequisite: A grade of C or better in CHEM 2134 General Chemistry II

This is a lab intensive course, that focuses on a variety of experimental techniques that enable the chemist to characterize and quantify many types of samples.

Lecture three hours, laboratory six hours. \$40 laboratory fee.

**CHEM 3250: Fundamentals of Organic Chemistry Laboratory**

Co-requisite: CHEM 3254 Fundamentals of Organic Chemistry.

**CHEM 3254: Fundamentals of Organic Chemistry**

Prerequisite: CHEM 2134 General Chemistry II

Co-requisite: CHEM 3250 Fundamentals of Organic Chemistry Laboratory.

An introduction to the chemistry of covalently bonded carbon. Special emphasis will be given to descriptive and structural aspects of Organic Chemistry.

Lecture three hours, laboratory three hours. \$40 laboratory fee.

**CHEM 3260: Mechanistic Organic Chemistry Laboratory**

Co-requisite: CHEM 3264 Mechanistic Organic Chemistry.

**CHEM 3264: Mechanistic Organic Chemistry**

Prerequisite: A grade of C or better in CHEM 3254 Fundamentals of Organic Chemistry or equivalent.

Co-requisite: CHEM 3260 Mechanistic Organic Chemistry Laboratory.

A continuation of CHEM 3254 Fundamentals of Organic Chemistry with special emphasis on theory and mechanisms of organic reactions.

Lecture three hours, laboratory three hours. \$40 laboratory fee.

**CHEM 3301: Chemistry Seminar**

Offered: Fall

Prerequisite: Junior Standing

Participants will prepare written reviews, present oral reports, and defend their reports. Emphasis will be on the use of the library and current chemical research.

**CHEM 3313: Environmental Chemistry**

Offered: Spring

Prerequisite: A grade of C or better in CHEM 3254 Fundamentals of Organic Chemistry

An examination of the chemistry of the environment including the origins, natural processes, and anthropogenic influences.

**CHEM 3324: Physical Chemistry I**

Offered: Fall

Prerequisites: A grade of C or better in CHEM 3254 Fundamentals of Organic Chemistry, PHYS 2114 Calculus-Based Physics I, and MATH 2924 Calculus II

A junior-level chemistry course required of all chemistry majors. Course content includes ideal and non-ideal gases, laws of thermodynamics, enthalpy, entropy, heat capacity, free energy, Maxwell's relations, activities, phase and chemical equilibria, electrochemistry, colligative properties, kinetic theory of gases, statistical mechanics, classical kinetics and mechanisms.

Lecture 3 hours, laboratory 3 hours. \$40 laboratory fee.

**CHEM 3334: Physical Chemistry II**

Offered: Spring, alternating years

Prerequisite: A grade of C or better in CHEM 3324 Physical Chemistry I

Continuation of CHEM 3324 Physical Chemistry I. Early and modern quantum theory, wave mechanics and the Schrödinger wave equation, valence bond theory, molecular orbital (MO) theory, computational chemistry, group theory and molecular symmetry, vibrational and rotational spectroscopy.

Lecture 3 hours, laboratory 3 hours. \$40 laboratory fee.

**CHEM 3340: Principles of Biochemistry Laboratory**

Co-requisite: CHEM 3344 Principles of Biochemistry.

**CHEM 3344: Principles of Biochemistry**

Prerequisites: A grade of C or better in CHEM 3264 Mechanistic Organic Chemistry and BIOL 1014 Introduction to Biological Science or 1114.

Co-requisite: CHEM 3340 Principles of Biochemistry Laboratory.

The chemistry of metabolism of carbohydrates, lipids, and proteins. Basic concepts of the biochemistry of DNA, vitamins, enzymes, biological oxidations, and bioenergetics with introduction to biochemical laboratory techniques.

Lecture three hours, laboratory three hours. \$40 laboratory fee.

**CHEM 3353: Fundamentals of Toxicology**

Cross-listed: BIOL 3353 Fundamentals of Toxicology

Offered: On demand

Prerequisite: CHEM 3254 Fundamentals of Organic Chemistry

An introduction to the science of poisons. Toxicological principles studied include structures, dose/response relationships, metabolism, mechanism of action, and gross effects of chemicals.

**CHEM 3363: Metabolic Biochemistry**

Offered: Spring

Prerequisite: grade of C or better in CHEM 3344 Principles of Biochemistry

The study of metabolism of carbohydrates, lipids, proteins, and nucleic acids, and the study of biological information flow in organisms. Metabolic pathways and genetic informational flow in plants and animals will be addressed.

**CHEM 3423: Descriptive Inorganic Chemistry**

Offered: Fall

Prerequisite: A grade of C or better in CHEM 2134 General Chemistry II

Basic descriptive inorganic chemistry dealing in a systematic way with the elements and the structures, properties and reactions of their inorganic compounds. Topics range from coordination chemistry to organometallic chemistry to bioinorganic chemistry.

**CHEM 3991: Special Problems in Chemistry**

Prerequisite: Permission of instructor

One to three credits, depending on the nature and extent of the problem. This course is designed to encourage creative, independent scientific activity on the part of advanced students. Problems will be designed to fit the future aspirations of individual students and will be supervised by a faculty mentor. \$40 laboratory fee.

**CHEM 3992: Special Problems in Chemistry**

Prerequisite: Permission of instructor

One to three credits, depending on the nature and extent of the problem. This course is designed to encourage creative, independent scientific activity on the part of advanced students. Problems will be designed to fit the future aspirations of individual students and will be supervised by a faculty mentor. \$40 laboratory fee.

**CHEM 3993: Special Problems in Chemistry**

Prerequisite: Permission of instructor

One to three credits, depending on the nature and extent of the problem. This course is designed to encourage creative, independent scientific activity on the part of advanced students. Problems will be designed to fit the future aspirations of individual students and will be supervised by a faculty mentor. \$40 laboratory fee.

**CHEM 4111: Environmental Seminar**

Cross-listed: BIOL 4111 Environmental Seminar, GEOL 4111 Environmental Seminar

A seminar for students pursuing the environmental option of chemistry, biology, or geology and other students interested in environmental sciences.

**CHEM 4401: Chemistry Seminar**

Offered: Spring

Prerequisite: A grade of C or better in CHEM 3301 Chemistry Seminar and senior status

Participants will prepare written reviews, present oral reports, and defend their reports. Emphasis will be on the use of the library and current chemical research.

**CHEM 4414: Instrumental Analysis**

Offered: Fall

Prerequisite: A grade of C or better in CHEM 3245 Quantitative Analysis

This course is designed for chemistry majors. It will focus on the understanding of the instrumental methods used in analytical chemistry. A variety of spectrometric, chromatographic, and electrometric techniques will be covered in the lecture and laboratory.

Lecture three hours, laboratory three hours. \$40 laboratory fee.

**CHEM 4424: Advanced Inorganic Chemistry**

Offered: Spring, alternating years

Prerequisite: A grade of C or better in CHEM 3423 Descriptive Inorganic Chemistry

CHEM 4424 Advanced Inorganic Chemistry is a senior level inorganic chemistry course. The course gives an overview of some of the many advanced areas of study in inorganic chemistry including atomic and molecular structure, acid-base chemistry, symmetry and group theory, coordination chemistry and organometallic chemistry.

Lecture three hours, laboratory three hours. \$40 laboratory fee

### **CHEM 4433: Advanced Topics in Chemistry**

Offered: On demand

Prerequisite: Permission of instructor.

Various advanced topics in any specialty area of chemistry, e.g., polymers, coordination chemistry, and nuclear chemistry.

Note: May be taken for duplicate credit if topic varies.

### **CHEM 4951: Undergraduate Research in Chemistry**

Offered: On demand

Prerequisite: Departmental approval

Advanced students carry out independent research activity relating to a significant problem in a major field of study. Supervised by faculty member. Formal report and presentation required. One to four credits depending on problem selected and effort made.

\$40 laboratory fee.

### **CHEM 4952: Undergraduate Research in Chemistry**

Offered: On demand

Prerequisite: Departmental approval

Advanced students carry out independent research activity relating to a significant problem in a major field of study. Supervised by faculty member. Formal report and presentation required. One to four credits depending on problem selected and effort made.

\$40 laboratory fee.

### **CHEM 4953: Undergraduate Research in Chemistry**

Offered: On demand

Prerequisite: Departmental approval

Advanced students carry out independent research activity relating to a significant problem in a major field of study. Supervised by faculty member. Formal report and presentation required. One to four credits depending on problem selected and effort made.

\$40 laboratory fee.

### **CHEM 4954: Undergraduate Research in Chemistry**

Offered: On demand

Prerequisite: Departmental approval

Advanced students carry out independent research activity relating to a significant problem in a major field of study. Supervised by faculty member. Formal report and presentation required. One to four credits depending on problem selected and effort made.

\$40 laboratory fee.

### **CHEM 4991: Special Problems in Chemistry**

Prerequisite: Permission of instructor.

One to four credits, depending on the nature and extent of the problem. This course is designed to encourage creative, independent scientific activity on the part of advanced students. Problems will be designed to fit the future aspirations of individual students and will be supervised by a faculty mentor.

\$40 laboratory fee.

### **CHEM 4992: Special Problems in Chemistry**

Prerequisite: Permission of instructor.

One to four credits, depending on the nature and extent of the problem. This course is designed to encourage creative, independent scientific activity on the part of advanced students. Problems will be designed to fit the future aspirations of individual students and will be supervised by a faculty mentor.

\$40 laboratory fee.

### **CHEM 4993: Special Problems in Chemistry**

Prerequisite: Permission of instructor.

One to four credits, depending on the nature and extent of the problem. This course is designed to encourage creative, independent scientific activity on the part of advanced students. Problems will be designed to fit the future aspirations of individual students and will be supervised by a faculty mentor.

\$40 laboratory fee.

### **CHEM 4994: Special Problems in Chemistry**

Prerequisite: Permission of instructor.

One to four credits, depending on the nature and extent of the problem. This course is designed to encourage creative, independent scientific activity on the part of advanced students. Problems will be designed to fit the future aspirations of individual students and will be supervised by a faculty mentor.

\$40 laboratory fee.

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## CHINESE (CHIN)

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### **CHIN 1013: Beginning Chinese I**

Emphasis on conversation; introduction to basic grammar, reading, writing, and culture. Three hours of applied class work and one hour of foreign language lab per week is required.

### **CHIN 1023: Beginning Chinese II**

Continued emphasis on conversation and fundamental language skills. Three hours of applied class work and one hour of foreign language lab per week is required.

### **CHIN 2013: Intermediate Chinese I**

Prerequisite: CHIN 1023 Beginning Chinese II or equivalent.  
Instruction designed to develop communication skills and knowledge of grammar, reading, writing, and culture. Three hours of applied class work and one hour of foreign language lab per week is required.

### **CHIN 2023: Intermediate Chinese II**

Prerequisite: CHIN 2013 Intermediate Chinese I or equivalent.  
Instruction designed to enhance communication skills and knowledge of grammar, reading, writing, and culture. Three hours of applied class work and one hour of foreign language lab per week is required.

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## COMMUNICATION (COMM)

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### **COMM 1XXX: SPEECH TRANSFER ELECTIVE**

Credit transferred from another institution and articulated for speech lower division elective.

### **COMM 4XXX: SPEECH TRANSFER ELECTIVE**

Credit transferred from another institution and articulated for speech upper division elective.

### **COMM 3XXX: SPEECH TRANSFER ELECTIVE**

Credit transferred from another institution and articulated for speech upper division elective.

### **COMM 2XXX: SPEECH TRANSFER ELECTIVE**

Credit transferred from another institution and articulated for speech lower division elective.

### **COMM 1003: Introduction to Communication**

This course is an introduction to the discipline of communication studies and explores the various theoretical perspectives on communication processes. The purpose of this course is to demonstrate how communication theory can be applied to everyday communication situations to solve problems in their public, professional, and private lives.

### **COMM 1023: Exploration of Media and Communication**

This course offers an overview of the modern communication and media landscape. Students will explore and be exposed to the different avenues that a professional life in communication and media may take, such as journalism, social media, public relations, film making and broadcasting. In addition, students will examine the deeper knowledge of communication ranging from theory, crisis communication, rhetoric and interpersonal communication.

### **COMM 1111: Individual Events Practicum**

Prerequisite: Consent of instructor.  
Preparation and performance of a variety of public speaking events.

### **COMM 1121: Individual Events Practicum**

Prerequisite: Consent of instructor.  
Preparation and performance of a variety of public speaking events.

### **COMM 2003: Public Speaking**

Prerequisites: ENGL 1013 Composition I or equivalent.  
Fundamentals of composition, delivery, and logical reasoning. Effective utilization of basic visual aids will be included.

### **COMM 2013: Voice and Diction**

A course for majors and non-majors. A study of the effective use of the voice, including optimum breathing methods, proper vocal technique, improvement of articulation, use of the dialects, and familiarity with the International Phonetic Alphabet (IPA).

**COMM 2023: Communication Research and Writing**

This course teaches majors the fundamentals of conducting scholarly research, accepted citation standards, and effective writing techniques for the communication discipline. Course includes a survey of the sub-areas of the discipline and lecture, discussion, research, presentations, and writing scholarly papers.

**COMM 2111: Debate Practicum**

Prerequisite: Consent of instructor.

Case research and participation in public debate.

**COMM 2121: Debate Practicum**

Prerequisite: Consent of instructor.

Case research and participation in public debate.

**COMM 2173: Business and Professional Speaking**

An introduction to a variety of communication skills to help achieve effectiveness on the job including skill sets such as verbal and listening skills, oral presentation techniques, small group problem solving/leadership, interviewing, and organizational communication.

**COMM 3003: Interpersonal Communication**

This course teaches students the fundamental practice of effective dyadic communication in social, familial, and work environments. Specifically, the course focuses on topics such as self-concept, perception, listening, conversations, language, nonverbal communication, emotions, and conflict management in relationship.

**COMM 3013: Intercultural Communication**

An examination of communication variables in different cultures and how to better understand and more effectively communicate across diverse cultures.

**COMM 3023: Introduction to Linguistics**

Cross-listed: ENGL 3023 Introduction to Linguistics, FR 3023 Introduction to Linguistics, GER 3023 Introduction to Linguistics, SPAN 3023 Introduction to Linguistics

Offered: Fall

Prerequisite: ENGL 1023 Composition II or equivalent.

A study of basic concepts of language, comparative characteristics of different languages, and the principles of linguistic investigation.

**COMM 3033: Interviewing Principles and Practices**

Prerequisite: COMM 2003 Public Speaking or consent of instructor.

A course for both majors and non-majors that uses interviewing theory as a framework for developing skills in preparing for and practicing various types of interviews.

**COMM 3053: Health Communication**

This course provides an overview of current communication research and practice in various medical and care contexts including patient/provider interactions, provider/provider communication, patient/family interactions, communication and social support related to chronic and terminal illness, promotion and marketing of health information through health campaigns, communication within health care organizations, consumer advocacy, and the politics of healthcare.

**COMM 3063: Oral Interpretation**

Theory and practice of intelligent and effective oral reading of prose and poetry.

**COMM 3073: Group Communication**

Examines theory and procedures used when communicating in groups and teams. Areas of inquiry include principles of group formation and development, working in teams, leadership, conflict management, and discussion methods involving decision-making and policy implementation.

**COMM 3111: Debate Practicum**

Prerequisite: Consent of instructor.

Case preparation, brief writing, and participation in public debate.

**COMM 3121: Debate Practicum**

Prerequisite: Consent of instructor.

Case preparation, brief writing, and participation in public debate.

**COMM 3123: Argumentation**

Prerequisites: COMM 1003 Introduction to Communication, COMM 2003 Public Speaking or equivalent, or consent of instructor.

Designed to develop research, critical thinking, and persuasive speaking ability. Includes lecture, discussion, research, study of debates, classroom debates, and presentations.

**COMM 3133: Digital Civility**

This course explores the emergence of the digital public sphere and impacts on American culture, politics, and mediated relationships. It focuses on the way post-truth culture shapes Americans views of themselves and their relationships to one another. It goes on to provide practical strategies for navigating this challenging universe, including online research skills and conflict management techniques to build consensus and generate effective public action.

**COMM 3163: Writing for Performance**

Students will learn to communicate orally through the medium of aesthetic texts such as monologues and plays. This course teaches skills necessary to all forms of dramatic writing, with emphasis on plot structure, character development, and dialogue.

**COMM 3223: Nonverbal Communication**

This course provides an examination of the various methods in which nonverbal communication is utilized in the communication process. Included in the examination will be historical contexts, as well as the effects of physical appearance, touch, proxemics, eye contact, kinesics, and voice.

**COMM 3263: Podcast/Radio Theatre Writing**

This course aims to introduce students to audio drama through reading, listening, performing, recording, and editing. The primary emphasis of the course, however, is on writing - teaching such practical skills as adaptation, monologue-writing, serial writing, and original script-writing.

**COMM 3513: Media Criticism**

Prerequisite: COMM 1003 Introduction to Communication

This class explores differing approaches for critiquing media ranging from print, television, film, music, politics, and digital communication. Given that today's public sphere is increasingly variegated, students must develop a greater sense of awareness of the ways that these practices have impacted our public sphere. This means developing media literacy skills. Students will be equipped with the critical vocabulary necessary to articulate the ways that media shape our communication environment and social consciousness.

**COMM 4003: Human Communication Theory**

Prerequisite: COMM 1003 Introduction to Communication, 2003, and 2023, or consent of instructor.

This capstone theory class integrates learning about speech communication in various contexts. It is an in-depth study of contemporary and traditional perspectives of human communication, and synthesizes major concepts in human communication theory development.

**COMM 4053: Speech Communication Seminar**

Prerequisite: Junior standing

A course for both majors and non-majors who want to investigate the relationship between human communication and contemporary social, political, and economic issues.

**COMM 4063: Organizational Communication**

Theories of organizational communication are examined in terms of their practical application to various organizational contexts, including social, political, profit, and nonprofit organizations. Includes lecture, discussion, research, and group projects.

**COMM 4111: Individual Events Practicum**

Prerequisite: Consent of instructor.

Preparation and performance of a variety of interpretive events.

**COMM 4121: Individual Events Practicum**

Prerequisite: Consent of instructor.

Preparation and performance of a variety of interpretive events.

**COMM 4123: Rhetorical Criticism**

This course will provide the principles of rhetorical theories as they have developed throughout history, and apply them to the critical analysis of various communication events.

**COMM 4153: Persuasive Theory and Audience Analysis**

Survey of classical and social science theories of persuasion. Particular emphasis is given to analysis of persuasive strategies, preparation of persuasive appeals, ethics of persuasion, and audience analysis. A consideration of social movements and persuasive campaigns is also included.

**COMM 4173: Internship in Speech Communication**

Prerequisites: Fifteen semester hours of Communications and COMM 4063 Organizational Communication, which can be taken concurrently; university grade point average of at least 2.50.

A course that focuses on career goals of students through classroom discussions and places students in communication positions within public and private organizations.

**COMM 4223: Communication and Gender**

This class asks students to think critically about and beyond the categories of "women" and "men." Students will actively contribute to discussions as we explore the intersection of gender with culture in such contexts as the workplace, sports, the media, families, and friendships.

**COMM 4701: Special Methods in Speech**

Prerequisites: Admission to student teaching phase of the teacher education program.

Co-requisite: SEED 4909 Teaching in the Secondary School

Intensive on campus exploration of the principles of curriculum construction, teaching methods, use of community resources, and evaluation as related to teaching speech.

**COMM 4823: Communication Capstone**

Prerequisite: COMM/JOUR 1023 Exploration of Media and Communication

This class provides an opportunity to generate an original work of research or aesthetic performance to be distributed and consumed with the digital sphere. It provides an overview of the field of communication studies, through interpersonal, media, and performance. Students will then select a topic dealing with the practice of communication and create an original work that will stand as their capstone project. Students will also be expected to workshop one another's projects.

**COMM 4951: Undergraduate Research in Communications**

Offered: On demand

Prerequisite: Departmental approval

Advanced students carry out independent research activity relating to a significant problem in a major field of study. Supervised by faculty member. Formal report and presentation required. One to four credits depending on problem selected and effort made.

**COMM 4952: Undergraduate Research in Communications**

Offered: On demand

Prerequisite: Departmental approval

Advanced students carry out independent research activity relating to a significant problem in a major field of study. Supervised by faculty member. Formal report and presentation required. One to four credits depending on problem selected and effort made.

**COMM 4953: Undergraduate Research in Communications**

Offered: On demand

Prerequisite: Departmental approval

Advanced students carry out independent research activity relating to a significant problem in a major field of study. Supervised by faculty member. Formal report and presentation required. One to four credits depending on problem selected and effort made.

**COMM 4954: Undergraduate Research in Communications**

Offered: On demand

Prerequisite: Departmental approval

Advanced students carry out independent research activity relating to a significant problem in a major field of study. Supervised by faculty member. Formal report and presentation required. One to four credits depending on problem selected and effort made.

**COMM 4991: Special Problems in Communications**

A course for majors only. Students are accepted by invitation of the instructor.

**COMM 4992: Special Problems in Communications**

A course for majors only. Students are accepted by invitation of the instructor.

**COMM 4993: Special Problems in Communications**

A course for majors only. Students are accepted by invitation of the instructor.

**COMM 4994: Special Problems in Communications**

A course for majors only. Students are accepted by invitation of the instructor.

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**COMMUNICATION COURSES (CM)**

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**CM 1XXX: Communication**

COMM 1003 Introduction to Communication Introduction to Speech Communication

COMM 2003 Public Speaking Public Speaking

COMM 2173 Business and Professional Speaking Business and Professional Speaking



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## COMMUNICATION COURSES (SP)

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### SP 1XXX: Speech Communication Courses

COMM 1003 Introduction to Communication Introduction to Speech Communication

COMM 2003 Public Speaking Public Speaking

COMM 2173 Business and Professional Speaking Business and Professional Speaking

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## COMPUTER/INFORMATION SCIENCE (COMS)

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### COMS 1003: Introduction to Computer Based Systems

ACTS Common Course - CPSI 1003

Provides students with both computer concepts and hands-on applications. Although little or no prior computer experience is required for this course, keyboarding proficiency is assumed. Topics include PC basics, file maintenance, and hardware and software components. Students will gain experience in the use of Windows, e-mail, the Internet, word processing, spreadsheets, databases, and presentation packages. The integration of software packages will also be covered.

Note: This course may not be taken for credit after completion of COMS 2003 Microcomputer Applications or BUAD 2003 Business Information Systems.

Note: Credit by examination is offered to students who have notable experience with computers and MS Office applications. Information regarding this examination can be found at [cs.atu.edu/coms1003](http://cs.atu.edu/coms1003).

### COMS 1011: Programming Foundations I Lab

Offered: Fall, Spring, Summer

Laboratory for COMS 1013 Programming Foundations I Programming I course. This course is graded pass/fail.

Note: Previously offered as lab portion of COMS 2104

### COMS 1013: Programming Foundations I

Offered: Fall, Spring, Summer

Prerequisite: MATH 1113 College Algebra or higher.

Co-requisite: COMS 1011 Programming Foundations I Lab

An introduction to the foundational concepts of programming using structured programming concepts of C++ as an implementation tool. Topics include sequential, selection, and iterative control structures, functions, strings, and arrays.

Note: Previously offered as COMS 2104.

### COMS 1333: Web and Mobile Technologies

Offered: Fall, Spring, Summer

An introduction to planning, designing, and maintaining effective web sites on desktop and mobile devices. Topics include how to implement web pages by writing HTML and CSS code; format web pages using text, images, multimedia, and page layout techniques; design responsive sites for mobile technologies; and publish the sites to a web server.

### COMS 1403: Orientation to Computing, Information, and Technology

An overview of hardware, software, technology, and information systems concepts and terms as well as ethics and opportunities within the three fields.

Note: Required of all students who have declared a major in Computer Science, Information Systems, or Information Technology.

### COMS 1411: Computer and Information Science Lab

An introduction to the computing resources of the department and the university.

### COMS 1921: Microsoft Excel

Preparation to pass the Microsoft Office Specialist: Excel Associate Certification exam. Topics covered include creating and managing worksheets and workbooks, creating cells and ranges, creating tables, applying formulas and functions and creating charts and objects.

Credit for this course may be awarded to any student who has already obtained the MOS: Excel Associate certification.

### COMS 2003: Microcomputer Applications

Offered: Fall

Prerequisite: COMS 1003 Introduction to Computer Based Systems or BUAD 2003 Business Information Systems

This course provides hands-on experience with several software applications. Topics include intermediate and advanced word processing; spreadsheet design, formulas, and charts; database design principles and implementation; presentation design and techniques; and integration among these applications. Students will be required to apply each package on a semester project related to their major.

### COMS 2163: Scripting Languages

Offered: Fall, Spring

Prerequisite: COMS 1333 Web and Mobile Technologies and a minimum of 3 hour programming course.

An introduction to web program development using modern scripting languages.

### **COMS 2203: Programming Foundations II**

Offered: Fall, Spring

Prerequisites: COMS 1013 Programming Foundations I with a grade of "C" or better.

A continuation of Programming I which introduces object-oriented programming as well as other topics, including multi-dimensional arrays, functions, string processing, pointers, structs, and records.

### **COMS 2213: Data Structures**

Offered: Fall, Spring

Prerequisites: COMS 2203 Programming Foundations II with a grade of "C" or better, and MATH 2703 Discrete Mathematics

A study of abstract data structures and the implementation of these abstract concepts as computer algorithms. Topics include recursion, linked lists, stacks, queues, searching and sorting algorithms, binary trees, and graphs.

### **COMS 2223: Computer Organization and Programming**

Offered: Fall, Spring

Prerequisites: COMS 2203 Programming Foundations II and MATH 2703 Discrete Mathematics

Introduction to organizing and structuring hardware components of computers. Topics include internal data representation, data transfer and control, I/O, memory hierarchy, and programming in assembly.

### **COMS 2233: Introduction to Databases**

This course develops a detailed understanding of a database software package developed for microcomputer applications. Topics include how to design, implement, and access a personal database. Entity relationship diagrams are emphasized in design. The use of macros, data conversion operations, linking, and complex selection operations are used in implementation. Advanced report generation mechanisms are covered along with custom-designed menus and user interfaces.

### **COMS 2323: Programming in Python**

Prerequisite: COMS 2203 Programming Foundations II

Introduction to the Python programming language where students will learn the basics through advanced concepts including basic data types, control structures, regular expressions, input/output, and textual analysis.

### **COMS 2333: Web Publishing II**

Prerequisite: COMS 1333 Web and Mobile Technologies or consent of instructor.

This course is a continuation of COMS 1333 Web and Mobile Technologies. Students are introduced to multimedia design concepts and software. Multimedia applications and design tools are used to create and maintain multimedia products such as dynamic graphics, animation, interactive websites, and video.

### **COMS 2701: Computer Architecture and Networks Laboratory**

Laboratory exercises repairing and networking computers.

### **COMS 2703: Computer Hardware and Architecture**

Offered: Fall, Spring

An introduction to modern computer hardware and architecture. Students receive hands-on experience in building a PC, as well as computer maintenance and troubleshooting skills.

\$20 course fee.

### **COMS 2713: Survey of Operating Systems**

Offered: Spring

Definition and brief history of computer operating systems, processes and their structure, CPU scheduling, process synchronization, deadlocks, swapping, memory management, paging and virtual memory, storage, secondary storage structure, and basic utility programs.

### **COMS 2733: Introduction to Computer Forensics and Security**

An introduction to the fundamentals of computer forensic technology. The course emphasizes techniques for identifying and minimizing the threats to, and vulnerabilities of computer systems. These techniques include methods and tools for tracking suspicious activity, for recovering and preserving digital media, and for doing post-mortem analysis.

### **COMS 2803: Programming in C**

Prerequisite: MATH 1113 College Algebra or higher

For non-computing majors. This course involves the design, coding, debugging, and implementation of programs using the C language. The UNIX operating system is introduced.

Note: May not be taken for credit after the successful completion of COMS 1013 Programming Foundations I.

### **COMS 2903: Discrete Structures for Technical Majors**

Prerequisites: MATH 1113 College Algebra and a C or better In COMS 2104 or equivalent

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Fundamental mathematical concepts related to computing, including logic and proof techniques; sets, sequences, relations, and functions; combinatorics; algebraic structures and Boolean algebra ; trees and graphs.

**COMS 2981: Special Topics**

Prerequisite: Permission of the department.

This course will be offered on an "as-needed" basis to cover those topics and subject areas in computing that are emerging in a technological sense, but that do not yet warrant the addition of a new course to the curriculum.

Note: This course may be repeated for credit if course content differs.

**COMS 2982: Special Topics**

Prerequisite: Permission of the department.

This course will be offered on an "as-needed" basis to cover those topics and subject areas in computing that are emerging in a technological sense, but that do not yet warrant the addition of a new course to the curriculum.

Note: This course may be repeated for credit if course content differs.

**COMS 2983: Special Topics**

Prerequisite: Permission of the department.

This course will be offered on an "as-needed" basis to cover those topics and subject areas in computing that are emerging in a technological sense, but that do not yet warrant the addition of a new course to the curriculum.

Note: This course may be repeated for credit if course content differs.

**COMS 2984: Special Topics**

Prerequisite: Permission of the department.

This course will be offered on an "as-needed" basis to cover those topics and subject areas in computing that are emerging in a technological sense, but that do not yet warrant the addition of a new course to the curriculum.

Note: This course may be repeated for credit if course content differs.

**COMS 3053: Ethical Issues in Technology**

Prerequisite: Junior standing in a computing or related degree

Ethical issues faced by members of a complex technological society and by professionals in a technology-related field. Topics covered include professional ethics and ethical decision making, as well as issues related to privacy, intellectual property, software development, productivity, and computer crime.

**COMS 3163: Web Programming**

Offered: Spring

Prerequisites: COMS 1333 Web and Mobile Technologies, COMS 2213 Data Structures and COMS 3233 Database Design and Implementation

How to create a dynamic user experience based on the data available on the web application. Topics include database interactions with web-based scripting languages, logic-driven content, data manipulation, form validation, session and cookie management, security, and other concepts.

**COMS 3213: Algorithm Design and Analysis**

Offered: Fall

Prerequisites: COMS 2213 Data Structures

Concepts, implementation, and application of trees, hashing, graphs, and other advanced data structures will be studied.

**COMS 3233: Database Design and Implementation**

Prerequisites: COMS 2203 Programming Foundations II

The design and implementation of relational database systems, including conceptual design and normalization. Students will also gain experience in database and query implementation using a DBMS and SQL.

**COMS 3243: Data Mining**

Offered: Spring

Prerequisites: COMS 3233 Database Design and Implementation and 3 hours statistics

Introduction to knowledge discovery from large databases: terminology, algorithms, methodologies, software, limitations, implications, and current trends. Students will implement and evaluate data mining techniques.

**COMS 3313: Software Engineering**

Offered: Spring

Prerequisite: COMS 3213 Algorithm Design and Analysis

Software engineering fundamentals. Topics include analyzing system requirements, applicable methods of design, verification and validation, team software development, software project management, and building large, and reliable software systems.

Note: Course previously offered as COMS 4163

### **COMS 3363: Server Administration**

Offered: Fall

Prerequisite: COMS 2703 Computer Hardware and Architecture and 2713.

The tools and techniques needed to administer a server, including installation, configuration, and administration of a variety of servers on different platforms.

Note: Course previously offered as COMS 4313.

### **COMS 3373: Data Center Operations**

Offered: Spring

Prerequisite: COMS 3363 Server Administration

An overview of the construction, design, and utilization of a data center, for IT professionals. The course will start with physical realities of data center design and construction, and proceed to discussion on data center level networking, storage requirements, server utilization, and common administrative tasks in a data center environment.

### **COMS 3413: App Development**

Offered: Fall

Prerequisites: COMS 1333 Web and Mobile Technologies and COMS 2213 Data Structures

Development of native and web applications for mobile devices with an emphasis on security.

### **COMS 3503: Visual Programming**

Offered: Spring of even years

Prerequisites: COMS 2213 Data Structures

The design and development of event-driven programs using an object-oriented visual programming language.

### **COMS 3513: Administering and Using the IBM Platform**

Prerequisites: COMS 1013 Programming Foundations I

This course is an introduction to the operations of the IBM midrange computer system. Topics include architecture, system security, user interface, and work management. Coverage will also extend to applications and programming using an introduction to DB2 and RPG.

### **COMS 3523: Human Factors in Information Technology**

Prerequisite: Junior standing in a computing or related degree.

A study of the major factors involved in Human-Computer Interaction. A system-oriented, multi-disciplinary approach to understanding the human considerations in the design, testing, implementation, and administration of computer-based systems and information technology.

### **COMS 3703: Advanced Operating Systems**

Offered: Fall, Spring

Prerequisites: COMS 2213 Data Structures and COMS 2223 Computer Organization and Programming.

Basic operating system concepts and structures, CPU management, sharing resources (disks, networks, and processors), process management, threads, CPU scheduling, synchronization, deadlocks, memory management, segmentation, paging, swapping, file/device management, protection mechanisms, distributed systems, Unix/Linux environments and kernel internals, shell script programming, Unix/Linux file system, and case studies.

### **COMS 3903: Systems Software and Architecture**

Prerequisites: COMS 1013 Programming Foundations I

This course covers the implementation of production operating systems, the fundamentals of digital logic, and machine architecture.

Note: This course does not count as credit toward a degree in Computer Science.

### **COMS 3913: Advanced Discrete Structures**

Prerequisites: COMS 2203 Programming Foundations II, COMS 2903 Discrete Structures for Technical Majors and MATH 2914 Calculus I

Advanced topics in discrete mathematics applicable to modeling, analysis, and computer theory. Topics include relations, graphs, analysis of algorithms, and computability.

### **COMS 4033: Information Systems Analysis and Design**

Offered: Fall

Prerequisite: COMS 3233 Database Design and Implementation

The application of concepts, tools, procedures, and techniques involved in the development of information systems. Emphasis is placed on the systems approach to problem solving, user involvement, the management of quality, project control, and teamwork.

### **COMS 4043: Systems Analysis and Design II**

Prerequisites: COMS 4033 Information Systems Analysis and Design

A continuation of COMS 4033 Information Systems Analysis and Design, with emphasis on the application of the theory and techniques covered in the previous course. Students will research, analyze, design, implement, test and document a complete system. Students, working as a team, will analyze, plan, implement, document, and present a complete system in a real world environment.

**COMS 4053: Information Systems Resource Management**

Offered: Spring

Prerequisites: Junior standing in a computing or related degree

A study of the principles and concepts involved in the management of organizational maintenance of all information resources, including hardware, software, and personnel. Includes coverage of departmental functions within computer/information services, as well as legal, ethical, and professional issues, quality management, and the strategic impact of information systems.

**COMS 4063: IT Project Administration**

Offered: Fall

Prerequisite: Junior standing in a computing or related degree.

A thorough introduction to the art and science of Project Management, as applied in the domain of information technology. Theories, best practices, and tools of project management are studied in relation to the completion of a successful project life cycle.

**COMS 4103: Organization of Programming Languages**

Offered: Fall

Prerequisites: COMS 2213 Data Structures and COMS 2223 Computer Organization and Programming

This course emphasizes the comparative structures and capabilities of several programming languages. Major emphasis will be placed on language constructs and the run-time behavior of programs.

**COMS 4133: Application Program Development**

Offered: Fall of odd years

Prerequisites: COMS 2213 Data Structures

Object-oriented application development, including OO Programming, three-tier design, and model-driven development. Students will develop and present their own large-scale application program.

**COMS 4213: Database Administration**

Offered: Spring

Prerequisite: COMS 3233 Database Design and Implementation

A comprehensive foundation in the planning, implementation and execution of database management policies and procedures. Topics include installation, storage and replication implementation, security management, indexing and performance tuning, and backup and recovery.

**COMS 4353: Artificial Intelligence**

Offered: Fall of even years

Prerequisites: COMS 2213 Data Structures

A comprehensive overview of general concepts and AI history; development and exposure to different artificial intelligence systems; planning, learning, and reasoning techniques; pattern recognition and natural language processing.

**COMS 4403: Compiler Design**

Prerequisites: COMS 2223 Computer Organization and Programming, COMS 3213 Algorithm Design and Analysis and COMS 4103 Organization of Programming Languages

This course covers syntax translation, grammars and parsing, symbol tables, data representation, translating control structures, translating procedures and functions, processing expressions and data structures, and multipass translation. Students will design a computer language and implement the compiler.

**COMS 4413: Parallel and Distributed Computing**

Offered: Spring

Prerequisites: COMS 2703 Computer Hardware and Architecture and COMS 3703 Advanced Operating Systems

An introduction to the concepts and design of parallel and distributed computing systems. Topics include data versus control parallelism, shared versus distributed memory, message passing Interface (MPI) and topologies, parallel and distributed algorithms.

**COMS 4701: Data Communications and Networking Lab**

Students will complete network lab exercises in support of COMS 4703 Data Communications and Networks.

**COMS 4703: Data Communications and Networks**

Prerequisites: COMS 2703 Computer Hardware and Architecture

Basic elements and functional aspects of the hardware and software required to establish and control data communications in a stand-alone or network environment. Topics include communication protocols, media, network topologies, and system support software. Participation in a designated lab outside of the regularly scheduled meeting time is required.

**COMS 4710: Heterogeneous Networks Lab**

Students will complete network lab exercises in support of COMS 4713 Networking Practicum.

### **COMS 4713: Networking Practicum**

Offered: Spring

Prerequisite: COMS 3373 Data Center Operations

This course provides practical hands-on skills in a networked environment. Topics covered include group policy, user management, licensing, and emerging trends in the field.

### **COMS 4801: Special Methods in Computer Science Education**

Offered: as needed

Prerequisite: Admission to student teaching phase of the teacher education program.

Exploration of the principles of curriculum construction, teaching methods, use of resources, and evaluation as related to teaching computing.

### **COMS 4813: Teaching Methods in Computer Science Education**

Offered: as needed

Prerequisites: Admission into Stage II of teacher education program and minimum 75% of required COMS courses completed.

A methods course designed to prepare beginning educators for effective teaching in a computer science (or related) program.

### **COMS 4913: Capstone I**

Offered: Fall, Spring

Prerequisite: Senior standing

The first course in a two-course sequence where students will formulate teams, choose a real-world project, create a proposal, and plan the project to be developed in the second course.

### **COMS 4923: Capstone II**

Prerequisite: COMS 4913 Capstone I

A continuation of Capstone I with an emphasis on the development, testing, and deployment phase of the project based on the proposal presented in the previous course. Students will work in teams to develop and present their project in a real-world environment.

### **COMS 4931: Internship**

Prerequisite: Junior standing in a computing or related degree

A supervised, practical experience providing computing majors with hands-on professional experience in a position relating to an area of career interests. The student should secure an approved internship prior to course enrollment. During the internship, the student will submit regular reports regarding their internship experience.

### **COMS 4932: Internship**

Prerequisite: Junior standing in a computing or related degree

A supervised, practical experience providing computing majors with hands-on professional experience in a position relating to an area of career interests. The student should secure an approved internship prior to course enrollment. During the internship, the student will submit regular reports regarding their internship experience.

### **COMS 4933: Internship**

Prerequisite: Junior standing in a computing or related degree

A supervised, practical experience providing computing majors with hands-on professional experience in a position relating to an area of career interests. The student should secure an approved internship prior to course enrollment. During the internship, the student will submit regular reports regarding their internship experience.

### **COMS 4951: Undergraduate Research in Computer and Information Science**

Offered: On demand

Prerequisite: Departmental approval

Advanced students carry out independent research activity relating to a significant problem in a major field of study. Supervised by faculty member. Formal report and presentation required. One to four credits depending on problem selected and effort made.

### **COMS 4952: Undergraduate Research in Computer and Information Science**

Offered: On demand

Prerequisite: Departmental approval

Advanced students carry out independent research activity relating to a significant problem in a major field of study. Supervised by faculty member. Formal report and presentation required. One to four credits depending on problem selected and effort made.

### **COMS 4953: Undergraduate Research in Computer and Information Science**

Offered: On demand

Prerequisite: Departmental approval

Advanced students carry out independent research activity relating to a significant problem in a major field of study. Supervised by faculty member. Formal report and presentation required. One to four credits depending on problem selected and effort made.

**COMS 4954: Undergraduate Research in Computer and Information Science**

Offered: On demand

Prerequisite: Departmental approval

Advanced students carry out independent research activity relating to a significant problem in a major field of study. Supervised by faculty member. Formal report and presentation required. One to four credits depending on problem selected and effort made.

**COMS 4981: Seminar in Computer and Information Science**

Prerequisite: Permission of department

A directed seminar in an area of computer and information science. Seminars will focus on topics relating to emerging technologies which are beyond the scope of other computer and information science courses.

Note: This course may be repeated for credit if course content differs.

**COMS 4982: Seminar in Computer and Information Science**

Prerequisite: Permission of department

A directed seminar in an area of computer and information science. Seminars will focus on topics relating to emerging technologies which are beyond the scope of other computer and information science courses.

Note: This course may be repeated for credit if course content differs.

**COMS 4983: Seminar in Computer and Information Science**

Prerequisite: Permission of department

A directed seminar in an area of computer and information science. Seminars will focus on topics relating to emerging technologies which are beyond the scope of other computer and information science courses.

Note: This course may be repeated for credit if course content differs.

**COMS 4991: Special Problems in Computer and Information Science**

Prerequisite: Permission of department

This course will allow the student to work individually or as part of a small team to study and design practical computerized systems in order to solve problems of particular interest. This course may be used to offer a variety of subjects that strengthen the student's knowledge in areas not covered by other course offerings.

**COMS 4992: Special Problems in Computer and Information Science**

Prerequisite: Permission of department

This course will allow the student to work individually or as part of a small team to study and design practical computerized systems in order to solve problems of particular interest. This course may be used to offer a variety of subjects that strengthen the student's knowledge in areas not covered by other course offerings.

**COMS 4993: Special Problems in Computer and Information Science**

Prerequisite: Permission of department

This course will allow the student to work individually or as part of a small team to study and design practical computerized systems in order to solve problems of particular interest. This course may be used to offer a variety of subjects that strengthen the student's knowledge in areas not covered by other course offerings.

**COMS 4994: Special Problems in Computer and Information Science**

Prerequisite: Permission of department

This course will allow the student to work individually or as part of a small team to study and design practical computerized systems in order to solve problems of particular interest. This course may be used to offer a variety of subjects that strengthen the student's knowledge in areas not covered by other course offerings.

**CRIMINAL JUSTICE (CJ)****CJ 2XXX: CJ TRANSFER ELECTIVE**

Credit transferred from another institution and articulated for criminal justice lower division elective.

**CJ 1XXX: CJ TRANSFER ELECTIVE**

Credit transferred from another institution and articulated for criminal justice lower division elective.

**CJ 4XXX: CJ TRANSFER ELECTIVE**

Credit transferred from another institution and articulated for criminal justice upper division elective.

**CJ 3XXX: CJ TRANSFER ELECTIVE**

Credit transferred from another institution and articulated for criminal justice upper division elective.

**CJ 2003: Introduction to Criminal Justice**

ACTS Common Course - CRJU 1023

Cross-listed: SOC 2003 Introduction to Criminal Justice

An overview of the criminal justice system and the workings of each component. Topics include the history, structure, and functions of law enforcement, judicial and correctional organizations, their interrelationship and effectiveness, and the future trends in each.

**CJ 2033: Social Problems**

ACTS Common Course - SOCI 2013

Cross-listed: SOC 2033 Social Problems

Prerequisite: SOC 1003 Introductory Sociology

A sociological analysis of contemporary social problems including inequalities, deviance, population changes, and troubled institutions.

**CJ 2043: Crime and Delinquency**

Cross-listed: SOC 2043 Crime and Delinquency

Prerequisite: SOC 1003 Introductory Sociology or CJ(SOC) 2003

A study of the major areas of crime and delinquency; theories of crime, the nature of criminal behavior and the components of the criminal justice system. Topics include: crime statistics, criminology research, theories of crime and delinquency, criminal typologies and operations of the criminal justice system.

**CJ 3023: Judicial Process**

Cross-listed: POLS 3023 Judicial Process

The structure and operations of the state and national court systems. Emphasis is upon the role of the criminal courts in the political system and the consequences of judicial policy making.

**CJ 3033: Criminal Psychology**

Cross-listed: PSY 3033 Criminal Psychology

Prerequisites: PSY 2003 General Psychology

The course familiarizes students with various models, theories, and research regarding criminality from a psychological perspective. Genetic, constitutional, and biological factors will be emphasized and some practical applications to dealing with criminals will be considered.

**CJ 3083: Social Deviance**

Cross-listed: SOC 3083 Social Deviance

Prerequisite: SOC 1003 Introductory Sociology or SOC (CJ) 2003

An introduction to the sociological and criminological study of human deviance. Various theories of deviance will be examined and applied to real life examples.

**CJ 3103: The Juvenile Justice System**

Cross-listed: SOC 3103 The Juvenile Justice System

Prerequisite: CJ(SOC) 2003 or permission of instructor

An in-depth look at the juvenile justice system including the structure, statuses and roles as well as current issues, problems, and trends.

**CJ 3153: Prison and Corrections**

Cross-listed: SOC 3153 Prison and Corrections

Prerequisites: SOC 1003 Introductory Sociology and SOC (CJ) 2033

An introduction to and analysis of contemporary American corrections. Emphasis will be on current and past correctional philosophy, traditional and modern correctional facilities, correctional personnel and offenders, new approaches in corrections, and the relationship of corrections to the criminal justice field.

**CJ 4013: Drugs in Society**

Cross-listed: SOC 4013 Drugs in Society

Prerequisite: SOC 1003 Introductory Sociology or CJ 2003 Introduction to Criminal Justice

This course presents a comprehensive study of the history and prohibition of drug use in the United States, as well as the effects of drugs on society in the form of crime, prison and treatment. The main focus of this class is on the history of drug use, how certain drugs become illegal, and the intended and unintended consequences of drug prohibition for communities and society.

**CJ 4023: Law and the Legal System**

A comprehensive study of judicial process and behavior in criminal and civil law.

**CJ 4033: Policing and Society**

Cross-listed: SOC 4033 Policing and Society

Prerequisites: SOC 1003 Introductory Sociology and CJ/SOC 2003 Introduction to Criminal Justice

A comprehensive study of historical and contemporary issues in American policing. Topics include theories of policing, police training and socialization, police discretion, technological advancements in policing, community policing, interaction with minority communities, and current controversies.



**CJ 4141: Seminar in Criminal Justice**

Prerequisites: CJ 2003 Introduction to Criminal Justice and consent of instructor.

This course is a directed seminar in an area of criminal justice selected by both the student and supervising faculty member. Topics will vary depending on the research underway, community or student need, and the unique educational opportunity available.

This course may be repeated for course credit if the content differs.

**CJ 4142: Seminar in Criminal Justice**

Prerequisites: CJ 2003 Introduction to Criminal Justice and consent of instructor.

This course is a directed seminar in an area of criminal justice selected by both the student and supervising faculty member. Topics will vary depending on the research underway, community or student need, and the unique educational opportunity available.

This course may be repeated for course credit if the content differs.

**CJ 4143: Seminar in Criminal Justice**

Prerequisites: CJ 2003 Introduction to Criminal Justice and consent of instructor.

This course is a directed seminar in an area of criminal justice selected by both the student and supervising faculty member. Topics will vary depending on the research underway, community or student need, and the unique educational opportunity available.

This course may be repeated for course credit if the content differs.

**CJ 4144: Seminar in Criminal Justice**

Prerequisites: CJ 2003 Introduction to Criminal Justice and consent of instructor.

This course is a directed seminar in an area of criminal justice selected by both the student and supervising faculty member. Topics will vary depending on the research underway, community or student need, and the unique educational opportunity available.

This course may be repeated for course credit if the content differs.

**CJ 4206: The Law in Action**

Cross-listed: SOC 4206 The Law in Action

Offered: Summer only

Prerequisites: CJ (SOC) 2043, 9 hours of Criminal Justice coursework, senior classification, and instructor permission.

An examination of sociological theories of law and main currents of legal philosophy is followed by participant observation of actual community legal agencies, including police, courts, and others as available.

Note: Requires insurance fee.

**CJ 4951: Undergraduate Research in Criminal Justice**

Offered: On demand

Prerequisite: Departmental approval

Advanced students carry out independent research activity relating to a significant problem in a major field of study. Supervised by faculty member. Formal report and presentation required. One to four credits depending on problem selected and effort made.

**CJ 4952: Undergraduate Research in Criminal Justice**

Offered: On demand

Prerequisite: Departmental approval

Advanced students carry out independent research activity relating to a significant problem in a major field of study. Supervised by faculty member. Formal report and presentation required. One to four credits depending on problem selected and effort made.

**CJ 4953: Undergraduate Research in Criminal Justice**

Offered: On demand

Prerequisite: Departmental approval

Advanced students carry out independent research activity relating to a significant problem in a major field of study. Supervised by faculty member. Formal report and presentation required. One to four credits depending on problem selected and effort made.

**CJ 4954: Undergraduate Research in Criminal Justice**

Offered: On demand

Prerequisite: Departmental approval

Advanced students carry out independent research activity relating to a significant problem in a major field of study. Supervised by faculty member. Formal report and presentation required. One to four credits depending on problem selected and effort made.

**CJ 4991: Special Problems in Criminal Justice**

Prerequisite: Prior approval of instructor and department.

Content is to be determined by faculty student conference and based on student background and interest.

**CJ 4992: Special Problems in Criminal Justice**

Prerequisite: Prior approval of instructor and department.

Content is to be determined by faculty student conference and based on student background and interest.

### **CJ 4993: Special Problems in Criminal Justice**

Prerequisite: Prior approval of instructor and department.

Content is to be determined by faculty student conference and based on student background and interest.

### **CJ 4994: Special Problems in Criminal Justice**

Prerequisite: Prior approval of instructor and department.

Content is to be determined by faculty student conference and based on student background and interest.

## **CYBERSECURITY (CSEC)**

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### **CSEC 1003: Introduction to Cybersecurity**

This course introduces general cybersecurity principles for majors or non-majors. This includes understanding cybersecurity offense and defense, the role of cybersecurity professionals, and legal and ethical principles.

### **CSEC 1113: Introduction to Networking**

Offered: Fall, Spring

Computer and communications networks are the very environment in which cyber operations are conducted. An understanding of these networks is essential to any discussion of cyber operations activities.

Specific topics to be covered to satisfy this knowledge unit must minimally include: Routing, network, and application protocols (TCP/IP (versions 4 and 6), ARP, BGP, SLL/TLS, DNS, SMTP, HTTP), network architectures, network security, wireless network technologies, network traffic analysis, protocol analysis (examining component-to-component communication to determine the protocol being used and what it is doing), and network mapping techniques (active and passive).

\$20 course fee.

### **CSEC 1213: Wireless and Cellular Security**

Offered: Spring

Prerequisite: CSEC 1113 Introduction to Networking

An overview of wireless and mobile security providing students with practical and theoretical experiences. Topics include threat analysis, security infrastructure, security services, wireless network security components. Topics include, but not limited to: overview of smart phone technologies, overview of embedded operating systems (e.g., iOS, Android), Wireless technologies (mobile: GSM, WCDMA, CDMA2000, LTE; and Internet: 802.00b/g/n), Infrastructure components (e.g., fiber optic network, evolved packet core, PLMN), Mobile protocols (SS7, RR, MM, CC), Mobile logical channel descriptions (BCCH, SDCH, RACH, AGCH, etc.), Mobile registration procedures, mobile encryptions standards, Mobile identifiers (IMSI, IMEI, MSIDN, ESN, Global Title, E.164), and Mobile and Location-based services.

### **CSEC 2113: Introduction to Information Systems**

Offered: Fall

Prerequisite: CSEC 1113 Introduction to Networking

Introduction to the infrastructure of information technology and systems. Topics include computer hardware and software, communication and networks, databases, e-commerce technology, design and development of information systems, Cloud computing, information security, privacy, ethics, and social impact.

### **CSEC 2213: Network Forensics and Incident Response**

Offered: Fall

Pre-requisite: CSEC 1113 Introduction to Networking

This course teaches the fundamentals of incident response and network forensics. An overview of operating systems will then lead to a systematic approach to incident response will be reviewed, focusing on a six step process (Preparation, Identification, Containment, Eradication, Recovery, Lessons Learned.) Network Forensics (tcpdump, Wireshark, nfsen,) and legal aspects of both investigation and preservation will be discussed.

### **CSEC 2223: Virtualization**

Offered: Fall

Prerequisites: CSEC 1113 Introduction to Networking

Virtualization technology has rapidly spread to encompass workstations, servers, infrastructure devices, storage, and networks, and such has become critical to cyber operations. Specific topics to be covered in this knowledge unit must minimally include, but are not limited to: Virtualization techniques, Virtual machine architectures, uses of virtualization for: security, efficiency, simplicity, and resource savings (space, admin overhead).

### **CSEC 3113: Assembly Programming**

Offered: Fall

Prerequisites: COMS 2104 and COMS 2903 Discrete Structures for Technical Majors

An introduction to the study of the basic structure and language of machines. Topics include basic concepts of Boolean algebra, number systems, language, addressing techniques, data representation, file organization, symbolic coding and assembly systems, using of macros, batch operation and job handling.

**CSEC 3123: Cyber Defense I**

Offered: Fall

Prerequisites: CSEC 2213 Network Forensics and Incident Response and CSEC 2223 Virtualization

This course introduces the fundamental principles of cyber defense. Topics covered include: security fundamental principles, vulnerability assessment, intrusion detection, cryptography protocols, network defense, trust relationships, and legal and ethical issues in computer security. A balance between theory and current practice will be presented. Topics to be covered include, but are not limited to: identification of reconnaissance operations, anomaly/intrusion detection, anomaly identification, identification of command and control operations, identification of data exfiltration activities, identifying malicious code based on signatures, behavior, and artifacts, networking security techniques and components (e.g., firewalls, IDS, etc.), cryptography (include PKI cryptography) and its uses in cybersecurity, malicious activity detection, system security architectures and concepts, defense in depth, and virtualization.

**CSEC 3223: Programming Embedded Systems**

Offered: Spring

Prerequisites: COMS 2213 Data Structures and CSEC 2223 Virtualization

The course involves the design, coding, debugging, and implementation of programs for securing embedded systems. Embedded software vulnerabilities and secure programming methods are introduced through hands-on projects. Buffer overflow attacks are discussed.

After completing the course content mapped to this knowledge unit, students will be able to develop programs that can be embedded into an OS kernel, such as a device driver, with the required complexity and sophistication to implement exploits for discovered vulnerabilities. Students will be able to write a program that implements a network stack to manage network communications.

\$30 course fee.

**CSEC 3233: Cyber Defense II**

Offered: Spring

Prerequisite: CSEC 3123 Cyber Defense I

This course introduces penetration testing for the purposes of learning about cyber security vulnerabilities. Topics include: vulnerability taxonomies, buffer overflow attacks, password attacks, trust relationship exploitation, race condition exploitations, and local vs remote exploitations. The topics will be enhanced with hands-on examples using Linux.

**CSEC 3243: Computer Architecture**

Offered: Fall

Prerequisites: COMS 2223 Computer Organization and Programming

Introduction to computer architecture. Aspects of computer systems, such as pipelining, memory hierarchy, and input/output systems. Performance metrics. Examines each component of a complicated computer system. Topics include: performance evaluation, instruction set architecture, machine arithmetic, data paths and pipelining, memory hierarchy, branch prediction, scheduling techniques, multiprocessors.

**CSEC 4123: Applied Cryptography**

Offered: Fall

Prerequisite: CSEC 3243 Computer Architecture

This course covers multiple cryptography protocols and their application to cybersecurity. Techniques in modern cryptography will be presented such as stream ciphers, DES, AES, block ciphers, etc. The course will discuss the level of security that various protocols provide and how to select an appropriate protocol for a specific application with an understanding of the limitations of key management systems, such as symmetric and asymmetric encryption, will be presented. Select protocols will be implemented in appropriate programming languages or systems.

**CSEC 4133: Large Scale Distributed Systems**

Offered: Fall

Prerequisite: CSEC 2223 Virtualization and junior standing in CSEC.

This course will provide an overview to large scale distributed systems. Topics include: concepts of distributed systems (threads, concurrency, dead/live lock, consistency, scalability, fault tolerant, etc.), design and development of large scale distributed systems (TCP/IP, UDP, networking data transfer, synchronization, threads, distributed locking, etc.), basic distributed algorithms that can be applied in practical systems, different kinds of cloud computing architecture models, services, and security issues, components (logical and physical) of cloud architecture, data paths within a given cloud design.

\$30 course fee.

**CSEC 4143: Building Secure Software**

Offered: Fall

Prerequisite: CSEC 3243 Computer Architecture

An overview of the principles and methodologies of secure programming and the techniques involved in creating, debugging, and testing secure software to ensure it is capable of mitigating vulnerabilities.

**CSEC 4153: Human Factors in Cybersecurity**

Offered: Fall

Prerequisite: CSEC 3233 Cyber Defense II

This course will address the interaction of human behavior, cybersecurity controls, and the resulting security and privacy concerns. Topics covered in the class include: development and analysis of information security policies for user governance, ethical considerations of the impact of security policies on employee privacy, and security training and compliance for employees.

### **CSEC 4213: Information Systems Risk Management**

Offered: Spring

Prerequisites: CSEC 2113 Introduction to Information Systems and CSEC 3233 Cyber Defense II

This course provides an overview for Information Security and Assurance to allow students to understand the key issues associated with protecting information assets, determining the levels of protection and response to security incidents, and designing a consistent, reasonable information security system, with appropriate intrusion detection and reporting features. Topics include but are not limited to: inspection and protection of information assets, detection of and reaction to threats to information assets, and examination of pre- and post- incident procedures.

### **CSEC 4233: Legal Issues in Cybersecurity**

Offered: Fall

Prerequisite: Junior standing in cybersecurity or related degree

This course will provide a high-level explanation of the legal issues governing the authorized conduct of cyber operations and the use of related tools, techniques, technology and data. Both international and U.S. laws that operations in cyberspace must be in compliance, will be introduced. Specific topics to be covered in this knowledge unit must minimally include:

International Law: Jus ad bellum, United Nations Charter; Jus in bello, Hague and Geneva Conventions.

U.S. Laws: Constitution, Article I (Legislative Branch), Article II (Presidency), Article III (Judiciary), Amendment 4 (Search and Seizure), and Article 14 (Due Process); Statutory Laws: Title 10 (Armed Forces), Title 50 (Espionage and Covert Action), and Title 18 (Crimes) 18 USC 1030 (Computer Fraud and Abuse Act), 18 USC 2510-22 Electronic Communications Privacy Act, 18 USC 2701-12 Stored Communications Act, 18 USC 1831-32 Economic Espionage Acts.

### **CSEC 4240: Software Security Analysis and Reverse Engineering Lab**

Offered: Spring

Co-requisite: CSEC 4243 Software Security Analysis and Reverse Engineering

This is a lab designed to support CSEC 4243 Software Security Analysis and Reverse Engineering.

### **CSEC 4243: Software Security Analysis and Reverse Engineering**

Offered: Spring

Prerequisite: COMS 2213 Data Structures and CSEC 4143 Building Secure Software

To learn code analysis techniques and apply testing methodologies to detect the presence of loopholes or weaknesses of software and to determine the effectiveness of security controls that are implemented in the software.

### **CSEC 4293: Cybersecurity Capstone Project**

Offered: Spring

Prerequisite: Departmental Approval

An integrative and intensive learning project which culminates the cyber security program during the senior year. Student will build on program course work to develop a strategic evaluation and plan for the management of secure information systems in an organization, either real or hypothetical. Student may use a start-up project as well. At the end of the project, the student will present their proposals or finding and recommendations to a panel of faculty and fellow students.

### **CSEC 4931: Cybersecurity Internship**

Prerequisite: Junior standing in the cybersecurity program

A supervised, practical experience providing cybersecurity majors with hands-on professional experience in a position relating to an area of career interests. The student should secure an approved internship prior to course enrollment. During the internship, the student will submit regular reports regarding their internship experience.

### **CSEC 4932: Cybersecurity Internship**

Prerequisite: Junior standing in the cybersecurity program

A supervised, practical experience providing cybersecurity majors with hands-on professional experience in a position relating to an area of career interests. The student should secure an approved internship prior to course enrollment. During the internship, the student will submit regular reports regarding their internship experience.

### **CSEC 4933: Cybersecurity Internship**

Prerequisite: Junior standing in the cybersecurity program

A supervised, practical experience providing cybersecurity majors with hands-on professional experience in a position relating to an area of career interests. The student should secure an approved internship prior to course enrollment. During the internship, the student will submit regular reports regarding their internship experience.

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## DRIVER EDUCATION (DE)

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### DE 4543: Driver and Traffic Education II

Prerequisites: A valid driver's license, admission to teacher education program, a driving record free from frequent and unusual violations.

This course is designed to prepare teachers to organize and teach driver education and traffic safety programs in secondary schools. It includes administration, supervision of personnel, design of facilities, and a research project.

Note: May not be repeated for credit as DE 5543 or equivalent.

### DE 4613: Driver and Traffic Education I

Prerequisites: A valid driver's license, admission to teacher education program, and a driving record free from frequent and unusual violations.

This course is designed to prepare teachers to organize and teach driver education and traffic safety programs in secondary schools. This course provides a survey of materials and methods of instruction plus evaluation of textbooks and in car training of a student driver.

Two hour lecture, two hours laboratory.

Note: May not be repeated for credit as DE 5613 or equivalent.

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## EARLY CHILDHOOD EDUCATION (AS) (ECE)

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### ECE 2113: Basic Child Growth and Development

A study of the various developmental principles affecting the individual from the prenatal period through early adolescence. The course includes observational experiences in settings for young children.

### ECE 2313: Foundations and Theories in Early Childhood Education

An introduction to the profession including historical and social foundations, awareness of value issues, ethical and legal issues, staff relations, and the importance of becoming an advocate for children and families.

### ECE 2513: Curriculum for Early Childhood Education

Prerequisite or Co-requisite: ECE 2113 Basic Child Growth and Development

A study and application in the field of the theoretical base for early learning. Covers curriculum for young children based on research and theory.

### ECE 2613: Methods and Materials Using Developmentally Appropriate Practices and Activities for Young Children

Prerequisite or Co-requisite: ECE 2113 Basic Child Growth and Development

A combination of classroom and field based experiences stressing developmentally appropriate techniques and materials fostering successful development and learning in young children.

### ECE 2991: Practicum in Early Childhood Education

Prerequisites: Completion of 12 hours of ECE courses taken for meeting assessment requirements for the Child Development Associate credential.

Variable credit available for documented early childhood training related to the principles and procedures which support the development and operation of an effective early childhood education program. Credit may also be awarded for portfolio development for the Child Development Associate assessment. Equivalencies for awarding credit will be determined by the advisor in accordance with guidelines of the National Association for the Education of Young Children (NAEYC). Additional coursework approved by the advisor may be applied toward any balance of credit needed to complete the nine hours.

### ECE 2992: Practicum in Early Childhood Education

Prerequisites: Completion of 12 hours of ECE courses taken for meeting assessment requirements for the Child Development Associate credential.

Variable credit available for documented early childhood training related to the principles and procedures which support the development and operation of an effective early childhood education program. Credit may also be awarded for portfolio development for the Child Development Associate assessment. Equivalencies for awarding credit will be determined by the advisor in accordance with guidelines of the National Association for the Education of Young Children (NAEYC). Additional coursework approved by the advisor may be applied toward any balance of credit needed to complete the nine hours.

### ECE 2993: Practicum in Early Childhood Education

Prerequisites: Completion of 12 hours of ECE courses taken for meeting assessment requirements for the Child Development Associate credential.

Variable credit available for documented early childhood training related to the principles and procedures which support the development and operation of an effective early childhood education program. Credit may also be awarded for portfolio development for the Child Development Associate assessment. Equivalencies for awarding credit will be determined by the advisor in accordance with guidelines of the National Association for the Education of Young Children (NAEYC). Additional coursework approved by the advisor may be applied toward any balance of credit needed to complete the nine hours.

\$40 course fee.

### ECE 2994: Practicum in Early Childhood Education

Prerequisites: Completion of 12 hours of ECE courses taken for meeting assessment requirements for the Child Development Associate credential.

Variable credit available for documented early childhood training related to the principles and procedures which support the development and operation of an effective early childhood education program. Credit may also be awarded for portfolio development for the Child Development Associate assessment. Equivalencies for awarding credit will be determined by the advisor in accordance with guidelines of the National Association for the Education of Young Children (NAEYC). Additional coursework approved by the advisor may be applied toward any balance of credit needed to complete the nine hours.

**ECE 2995: Practicum in Early Childhood Education**

Prerequisites: Completion of 12 hours of ECE courses taken for meeting assessment requirements for the Child Development Associate credential. Variable credit available for documented early childhood training related to the principles and procedures which support the development and operation of an effective early childhood education program. Credit may also be awarded for portfolio development for the Child Development Associate assessment. Equivalencies for awarding credit will be determined by the advisor in accordance with guidelines of the National Association for the Education of Young Children (NAEYC). Additional coursework approved by the advisor may be applied toward any balance of credit needed to complete the nine hours.

**ECE 2996: Practicum in Early Childhood Education**

Prerequisites: Completion of 12 hours of ECE courses taken for meeting assessment requirements for the Child Development Associate credential. Variable credit available for documented early childhood training related to the principles and procedures which support the development and operation of an effective early childhood education program. Credit may also be awarded for portfolio development for the Child Development Associate assessment. Equivalencies for awarding credit will be determined by the advisor in accordance with guidelines of the National Association for the Education of Young Children (NAEYC). Additional coursework approved by the advisor may be applied toward any balance of credit needed to complete the nine hours.  
\$40 course fee.

**ECE 2997: Practicum in Early Childhood Education**

Prerequisites: Completion of 12 hours of ECE courses taken for meeting assessment requirements for the Child Development Associate credential. Variable credit available for documented early childhood training related to the principles and procedures which support the development and operation of an effective early childhood education program. Credit may also be awarded for portfolio development for the Child Development Associate assessment. Equivalencies for awarding credit will be determined by the advisor in accordance with guidelines of the National Association for the Education of Young Children (NAEYC). Additional coursework approved by the advisor may be applied toward any balance of credit needed to complete the nine hours.

**ECE 2998: Practicum in Early Childhood Education**

Prerequisites: Completion of 12 hours of ECE courses taken for meeting assessment requirements for the Child Development Associate credential. Variable credit available for documented early childhood training related to the principles and procedures which support the development and operation of an effective early childhood education program. Credit may also be awarded for portfolio development for the Child Development Associate assessment. Equivalencies for awarding credit will be determined by the advisor in accordance with guidelines of the National Association for the Education of Young Children (NAEYC). Additional coursework approved by the advisor may be applied toward any balance of credit needed to complete the nine hours.

**ECE 2999: Practicum in Early Childhood Education**

Prerequisites: Completion of 12 hours of ECE courses taken for meeting assessment requirements for the Child Development Associate credential. Variable credit available for documented early childhood training related to the principles and procedures which support the development and operation of an effective early childhood education program. Credit may also be awarded for portfolio development for the Child Development Associate assessment. Equivalencies for awarding credit will be determined by the advisor in accordance with guidelines of the National Association for the Education of Young Children (NAEYC). Additional coursework approved by the advisor may be applied toward any balance of credit needed to complete the nine hours.

**EARLY CHILDHOOD EDUCATION (BS) (ECED)**

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**ECED 2003: Introduction to Early Childhood Education**

This course studies the social, historical, and philosophical foundations of American Education. Special emphasis will be placed on Early Childhood Education.

**ECED 3023: Foundations of Early Childhood Education**

Co-requisite: ECED 3033 Child Development  
An introduction to the field of early childhood education, including a history of the movement, influencing concepts and theories, and relevant issues.

**ECED 3033: Child Development**

Co-requisite: ECED 3023 Foundations of Early Childhood Education  
A study of the physical, cognitive, and psychosocial development of the individual beginning with the prenatal period and continuing through early adolescence. This course includes an on-site field experience in settings for young children.

**ECED 3043: Developmentally Appropriate Practice**

Prerequisites: ECED 3023 Foundations of Early Childhood Education and ECED 3033 Child Development and admission to Stage II.

Co-requisite: ECED 3053 Children and Families in a Diverse Society

A study of developmentally appropriate practice for young children, birth through age 9. This exploration is an integrated curricular study of appropriate early childhood curriculum, materials, environments, assessments, expectations, instructional strategies, and considerations for early childhood educators. Appropriate field observations and experiences are an integral part of this course, and will be integrated with course content.

**ECED 3053: Children and Families in a Diverse Society**

Prerequisites: ECED 3023 Foundations of Early Childhood Education and ECED 3033 Child Development and admission to Stage II.

Co-requisite: ECED 3043 Developmentally Appropriate Practice

A study of the characteristics of young children with developmental disabilities in the contexts of family theory and intervention. Particular emphasis will be placed on how these characteristics impact the child's family and educational needs.

**ECED 3113: Integrated Curriculum I (3-5 years)**

Prerequisites: ECED 3043 Developmentally Appropriate Practice and ECED 3053 Children and Families in a Diverse Society and admission to Stage II.

Co-requisites: ECED 3122 Practicum I, ECED 3162 Diagnosis and Assessment of Young Children I (3-5 years), ECED 3172 Guiding Young Children I (3-5 years), ECED 3183 Language and Literacy I (3-5 years), ECED 3192 Children's Literature I (3-5 years)

In this course, pre-service teachers build a working knowledge of curriculum strategies and techniques on which to base wise curriculum decision making for children ages 3-5. This course is connected to the ECED 3122 Practicum I Practicum.

**ECED 3122: Practicum I**

Prerequisites: ECED 3043 Developmentally Appropriate Practice and ECED 3053 Children and Families in a Diverse Society and admission to Stage II.

Co-requisites: ECED 3113 Integrated Curriculum I (3-5 years), ECED 3162 Diagnosis and Assessment of Young Children I (3-5 years), ECED 3172 Guiding Young Children I (3-5 years), ECED 3183 Language and Literacy I (3-5 years), ECED 3192 Children's Literature I (3-5 years)

Practicum I is designed to provide pre-service teachers with field-based experiences for children age 3-5 years.

**ECED 3162: Diagnosis and Assessment of Young Children I (3-5 years)**

Prerequisites: ECED 3043 Developmentally Appropriate Practice and ECED 3053 Children and Families in a Diverse Society and admission to Stage II.

Co-requisites: ECED 3113 Integrated Curriculum I (3-5 years), ECED 3122 Practicum I, ECED 3172 Guiding Young Children I (3-5 years), ECED 3183 Language and Literacy I (3-5 years), ECED 3192 Children's Literature I (3-5 years)

A study of observational and developmentally appropriate tools and methods of collecting data for decision making. Emphasis is on qualitative assessment techniques that are specific to 3-5 year-old children. This course is connected to the ECED 3122 Practicum I Practicum.

**ECED 3172: Guiding Young Children I (3-5 years)**

Prerequisites: ECED 3043 Developmentally Appropriate Practice and ECED 3053 Children and Families in a Diverse Society and admission to Stage II.

Co-requisites: ECED 3113 Integrated Curriculum I (3-5 years), ECED 3122 Practicum I, ECED 3162 Diagnosis and Assessment of Young Children I (3-5 years), ECED 3183 Language and Literacy I (3-5 years), ECED 3192 Children's Literature I (3-5 years)

Emphasis is placed on the guidance and management, individually and in groups, of young children ages 3-5 years. The course focuses on developmentally appropriate practices in early childhood settings. Creation of learning environments that foster social competence, build self-esteem in young children, and assist them in the exploration of ways to independently solve problems and gain self-control are emphasized. This course is connected to the ECED 3122 Practicum I Practicum.

**ECED 3183: Language and Literacy I (3-5 years)**

Prerequisites: ECED 3043 Developmentally Appropriate Practice and ECED 3053 Children and Families in a Diverse Society and admission to Stage II.

Co-requisites: ECED 3113 Integrated Curriculum I (3-5 years), ECED 3122 Practicum I, ECED 3162 Diagnosis and Assessment of Young Children I (3-5 years), ECED 3172 Guiding Young Children I (3-5 years), ECED 3192 Children's Literature I (3-5 years)

A study of teaching strategies and support systems for encouraging the various areas of literacy in the 3-5 year-old child. This course is connected to the ECED 3122 Practicum I Practicum.

**ECED 3192: Children's Literature I (3-5 years)**

Prerequisites: ECED 3043 Developmentally Appropriate Practice and ECED 3053 Children and Families in a Diverse Society and admission to Stage II.

Co-requisites: ECED 3113 Integrated Curriculum I (3-5 years), ECED 3122 Practicum I, ECED 3162 Diagnosis and Assessment of Young Children I (3-5 years), ECED 3172 Guiding Young Children I (3-5 years), ECED 3183 Language and Literacy I (3-5 years)

Study of sources and types of reading materials available for 3-5 year old children and ways to use them to enhance learning. This course is connected to the ECED 3122 Practicum I Practicum.

**ECED 3213: Integrated Curriculum II (6-9 years)**

Prerequisites: ECED 3113 Integrated Curriculum I (3-5 years) and admission to Stage II.

Co-requisites: ECED 3222 Practicum II, ECED 3262 Diagnosis and Assessment of Young Children II (6-9 years), ECED 3272 Guiding Young Children II (6-9 years), ECED 3283 Language and Literacy II (6-9 years), ECED 3292 Children's Literature II (6-9 years)

ECED 3213 Integrated Curriculum II (6-9 years) builds on the concepts presented in ECED 3113 Integrated Curriculum I (3-5 years) and emphasizes developmentally appropriate curriculum for children ages 6-9; mandated curriculum; and contemporary issues related to curriculum. This course is connected to the ECED 3222 Practicum II Practicum.

### **ECED 3222: Practicum II**

Prerequisites: ECED 3122 Practicum I and admission to Stage II.

Co-requisites: ECED 3213 Integrated Curriculum II (6-9 years), ECED 3262 Diagnosis and Assessment of Young Children II (6-9 years), ECED 3272 Guiding Young Children II (6-9 years), ECED 3283 Language and Literacy II (6-9 years), ECED 3292 Children's Literature II (6-9 years)  
Practicum II is designed to provide pre-service teachers with field- based experiences for children age 6-9 years.

### **ECED 3262: Diagnosis and Assessment of Young Children II (6-9 years)**

Prerequisites: ECED 3162 Diagnosis and Assessment of Young Children I (3-5 years) and admission to Stage II.

Co-requisites: ECED 3213 Integrated Curriculum II (6-9 years), ECED 3222 Practicum II, ECED 3272 Guiding Young Children II (6-9 years), ECED 3283 Language and Literacy II (6-9 years), ECED 3292 Children's Literature II (6-9 years)

A study of fundamental observation, assessment, and evaluation concepts and tools. Emphasis on both qualitative and quantitative methods of measuring and reporting student progress and learning. Designed to give the beginning teacher a background in the collection and interpretation of data with the goal of making valid data-driven decisions. This course is connected to the ECED 3222 Practicum II Practicum.

### **ECED 3272: Guiding Young Children II (6-9 years)**

Prerequisites: ECED 3172 Guiding Young Children I (3-5 years) and admission to Stage II.

Co-requisites: ECED 3213 Integrated Curriculum II (6-9 years), ECED 3222 Practicum II, ECED 3262 Diagnosis and Assessment of Young Children II (6-9 years), ECED 3283 Language and Literacy II (6-9 years), ECED 3292 Children's Literature II (6-9 years)

Emphasis is on the guidance and management, individually and in groups, of primary-aged children, 6-9 years. The course focuses on developmentally appropriate practices in multi-cultural school settings that encourage children to become self- regulated learners. Creation of a context for positive discipline and a guidance approach for an encouraging classroom are explored. This course is connected to the ECED 3222 Practicum II Practicum.

### **ECED 3283: Language and Literacy II (6-9 years)**

Prerequisites: ECED 3183 Language and Literacy I (3-5 years) and admission to Stage II.

Co-requisites: ECED 3213 Integrated Curriculum II (6-9 years), ECED 3222 Practicum II, ECED 3262 Diagnosis and Assessment of Young Children II (6-9 years), ECED 3272 Guiding Young Children II (6-9 years), ECED 3292 Children's Literature II (6-9 years)

A study of teaching strategies and support systems for encouraging the various areas of literacy in the 6-9 year-old child. This course is connected to the ECED 3222 Practicum II Practicum.

### **ECED 3292: Children's Literature II (6-9 years)**

Prerequisites: ECED 3192 Children's Literature I (3-5 years) and admission to Stage II.

Co-requisites: ECED 3213 Integrated Curriculum II (6-9 years), ECED 3222 Practicum II, ECED 3262 Diagnosis and Assessment of Young Children II (6-9 years), ECED 3272 Guiding Young Children II (6-9 years), ECED 3283 Language and Literacy II (6-9 years)

Study of sources and types of reading materials available for 6-9 year old children and ways to use them to enhance learning. This course is connected to the ECED 3222 Practicum II Practicum.

### **ECED 4915: Early Childhood Education Internship**

Prerequisite: Admission to Internship.

(Fifteen hour course.) An intensive field experience and campus seminar class which culminates the early childhood program. Students will spend time in early childhood environments and in campus seminars applying their knowledge and skills in reflective decision making with children and families. \$100 course fee.

## **ECONOMICS (ECON)**

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### **ECON 4XXX: ECONOMICS TRANSFER ELECTIVE**

Credit transferred from another institution and articulated for economics upper division elective.

### **ECON 3XXX: ECONOMICS TRANSFER ELECTIVE**

Credit transferred from another institution and articulated for economics upper division elective.

### **ECON 2003: Principles of Macroeconomics**

ACTS Common Course - ECON 2103 Honors Principles of Economics I

Macroeconomic analysis of output, income, employment, price level, and business fluctuations, including the monetary system, fiscal and monetary policy, and international economics.

### **ECON 2013: Principles of Microeconomics**

ACTS Common Course - ECON 2203

Microeconomic analysis of consumer and producer behavior. Includes theory of production and cost, the effects of market structure on resource allocation, distribution of income, and welfare economics.

### **ECON 2103: Honors Principles of Economics I**

Prerequisite: Admission to University Honors or permission of Honors Director.



Macroeconomic analysis of output, income, employment, price level, and business fluctuations, including the monetary system, fiscal and monetary economics, and international economics.

### **ECON 3003: Money and Banking**

Prerequisites: ACCT 2013 Accounting Principles II, ECON 2003 Principles of Macroeconomics and 2013, BDA 2003 Business Problem Solving, and (BUAD 2053 Business Statistics or PSY 2053 Statistics for the Behavioral Sciences or STAT 2163 Introduction to Statistical Methods). Additionally, must have a minimum GPA of 2.0.

An overview of money, banking, and financial markets in the United States economy. Includes the functions of money, interest rates, the financial system, central banking, and monetary policy.

### **ECON 3013: Economics of Labor Relations**

Prerequisites: ACCT 2013 Accounting Principles II, ECON 2003 Principles of Macroeconomics and 2013, BDA 2003 Business Problem Solving, and (BUAD 2053 Business Statistics or PSY 2053 Statistics for the Behavioral Sciences or STAT 2163 Introduction to Statistical Methods). Additionally, must have a minimum GPA of 2.0.

An overview of U.S. labor sector including demographic trends, labor unions, human capital issues and work-leisure values. A brief review of neo-classical wage theory with critiques. Selected labor sector issues such as global labor developments, public sector employment, migration/mobility and discrimination.

### **ECON 3023: Intermediate Macroeconomics**

Prerequisites: ECON 2003 Principles of Macroeconomics, 2013, and MATH 2243 Calculus for Business and Economics

This course provides a systematic introduction to macroeconomic analysis. The fundamental theories and models concerning the functioning of the overall aggregate economy will be introduced. The course mainly focuses on analyzing the causes for long-run economic growth and short-run economic fluctuations. Emphasis will also be placed on the implications of various macroeconomic policies (fiscal, monetary, and other types of policies) based on theoretical models.

### **ECON 3073: Intermediate Microeconomic Theory**

Prerequisites: ACCT 2013 Accounting Principles II, ECON 2003 Principles of Macroeconomics and 2013, BDA 2003 Business Problem Solving, and (BUAD 2053 Business Statistics or PSY 2053 Statistics for the Behavioral Sciences or STAT 2163 Introduction to Statistical Methods). Additionally, must have a minimum GPA of 2.0.

An examination of the theories of consumer behavior and demand, and the theories of production, cost and supply. The determination of product prices and output in various market structures and an analysis of factor pricing.

### **ECON 3093: Econometrics**

Prerequisites: ECON 2003 Principles of Macroeconomics, ECON 2013 Principles of Microeconomics, BDA 2003 Business Problem Solving, and (BUAD 2053 Business Statistics or PSY 2053 Statistics for the Behavioral Sciences or STAT 2163 Introduction to Statistical Methods), or permission of the instructor.

This course develops the theory and applications of regression analysis, which is the primary tool for empirical work in economics. Emphasis is placed on techniques for estimating economic relationships, economic modeling, inference, and testing economic hypotheses in the context of real world problems. Students will also be exposed to other empirical techniques to prepare them for further studies.

### **ECON 4003: Readings in Economic Theory**

Offered: On demand

Prerequisites: ACCT 2013 Accounting Principles II, ECON 2003 Principles of Macroeconomics, ECON 2013 Principles of Microeconomics, BDA 2003 Business Problem Solving, and (BUAD 2053 Business Statistics or PSY 2053 Statistics for the Behavioral Sciences or STAT 2163 Introduction to Statistical Methods). Additionally, must have a minimum GPA of 2.0 on 54 or more earned hours.

Advanced study on an individual basis is offered in money and banking, public finance, general economics, international trade, labor relations, transportation.

### **ECON 4033: Current Economic Problems**

Prerequisites: ACCT 2013 Accounting Principles II, ECON 2003 Principles of Macroeconomics and 2013, BDA 2003 Business Problem Solving, and (BUAD 2053 Business Statistics or PSY 2053 Statistics for the Behavioral Sciences or STAT 2163 Introduction to Statistical Methods). Additionally, must have a minimum GPA of 2.0 on 54 or more earned hours.

Emphasis is on a "way of thinking" about current economic problems including a conceptual context, critical thinking and problem solving approaches. Major domestic and global economic trends are reviewed. Current economic issues are selected for evaluation.

### **ECON 4073: World Economic Systems**

Offered: On demand

Prerequisites: ACCT 2013 Accounting Principles II, ECON 2003 Principles of Macroeconomics and 2013, BDA 2003 Business Problem Solving, and (BUAD 2053 Business Statistics or PSY 2053 Statistics for the Behavioral Sciences or STAT 2163 Introduction to Statistical Methods). Additionally, must have a minimum GPA of 2.0 on 54 or more earned hours.

A study of the institutional framework of an economic system selected by the instructor. The course includes a visit to the country being studied.

### **ECON 4093: International Economics and Finance**

Prerequisites: ACCT 2013 Accounting Principles II, ECON 2003 Principles of Macroeconomics and 2013, BDA 2003 Business Problem Solving, (BUAD 2053 Business Statistics or PSY 2053 Statistics for the Behavioral Sciences or STAT 2163 Introduction to Statistical Methods), and choice of FIN 3063 Business Finance, ECON 3003 Money and Banking, or ECON 3073 Intermediate Microeconomic Theory. Additionally, must have a minimum GPA of 2.0.

A course designed specifically for economics and finance majors desiring an understanding of the interplay of economic and financial forces between nations. While developing the theoretical base underlying these forces, the course will emphasize practical aspects of cross border flows of goods, services, and capital from the point of view of the firm and the economy. Lecture and discussion will be supplemented by analysis of cases and current events where appropriate. The content of the course should be readily applicable to any private or public sector policy making situation involving an international dimension in which students find themselves.

### **ECON 4103: Economics Special Topics**

Prerequisites: Junior or senior standing, minimum GPA of 2.000, and permission of the instructor.

Varies based on topics covered.

Note: May take for duplicate credit, up to 6 hours, if topic varies.

## **EDUCATIONAL FOUNDATIONS (EDFD)**

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### **EDFD 1001: Orientation to Teaching K-12**

A course designed to provide information and enhance skills that will enable students to make a successful transition to college. The course will expose students to college resources, requirements, and promote the development of practical skills for college success while being introduced to educational related topics and issues. In addition, the course will also discuss the current challenges and requirements for the education profession.

## **EDUCATIONAL MEDIA (EDMD)**

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### **EDMD 2013: Integrating Instructional Technology**

An instructional technology course for pre-service to teachers introducing students to the incorporation of technology into instructional situations. Students will become familiar with classroom computer utilization for instructional and classroom management technology, state and national standards for technology and curriculum areas, and create lessons centered upon these standards.

Note: A field experience is required in this course.

### **EDMD 3013: Integrating Instructional Technology**

An instructional technology course for pre-service to teachers introducing students to the incorporation of technology into instructional situations. Students will become familiar with classroom computer utilization for instructional and classroom management technology, state and national standards for technology and curriculum areas, and create lessons centered upon those standards.

Note: A field experience is required in this course

## **ELECTRICAL ENGINEERING (ELEG)**

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### **ELEG 4XXX: ELEG TRANSFER ELECTIVE**

Credit transferred from another institution and articulated for electrical engineering upper division elective.

### **ELEG 3XXX: ELEG TRANSFER ELECTIVE**

Credit transferred from another institution and articulated for electrical engineering upper division elective.

### **ELEG 1011: Introduction to Electrical Engineering**

Prerequisites: Math ACTE score of 24 or higher, or a grade of C or higher in MATH 1113 College Algebra, or MATH 1914 Precalculus, or MATH 1203 Plane Trigonometry, or consent of the instructor.

An introductory lecture/lab course to acquaint students with the fundamental techniques in the field of electrical engineering. Topics include technical aspects of electrical engineering including an introduction to computational techniques/software, basic introduction to computer-aided drafting (CAD), an introduction to programming, and basic circuit prototyping.

\$25 per credit hour curriculum content fee.

### **ELEG 2103: Electric Circuits I**

Prerequisite: MATH 2924 Calculus II with a grade of C or better.

An introduction to circuit theory and electrical devices. Topics include resistive circuits, independent and dependent sources; analysis methods, network theorems; RC and RL first order circuits, and RLC second order circuits.

\$25 per credit hour curriculum content fee.

### **ELEG 2111: Electric Circuits Laboratory**

Prerequisite: ELEG 2103 Electric Circuits I

Report writing; use of basic electrical measurement devices; voltmeters, ammeters, R meters, wattmeters, and oscilloscopes. Computer modeling and data analysis of AC and DC circuits. Emphasis on developing laboratory techniques through experiments paralleling topics in ELEG 2103 Electric Circuits I and ELEG 2113 Electric Circuits II.

Laboratory three hours per week. \$40 laboratory fee. \$25 per credit hour curriculum content fee.

### **ELEG 2113: Electric Circuits II**

Prerequisites: ELEG 2103 Electric Circuits I with a C or better and MATH 3243 Differential Equations I or consent of instructor

A continuation of ELEG 2103 Electric Circuits I covering phasor analysis, steady state power, complex network functions, frequency response, transformers, Laplace methods.

\$25 per credit hour curriculum content fee.

### **ELEG 2130: Digital Logic Design Lab**

Co-requisite: ELEG 2134 Digital Logic Design or consent of instructor

Laboratory must be taken during the same semester as the lecture, ELEG 2134 Digital Logic Design. A study of basic digital logic circuit design and implementation. Circuit schematic development utilizing computerized automated design tools. Computer modeling and simulation of digital systems. Emphasis will be placed on proper laboratory techniques, including data collection, data reduction, and report preparation.

Laboratory three hours. \$40 laboratory fee.

### **ELEG 2134: Digital Logic Design**

Prerequisite: ELEG 1011 Introduction to Electrical Engineering or COMS 1013 Programming Foundations I

Co-requisites: ELEG 2130 Digital Logic Design Lab

Binary numbers and codes, Boolean algebra, combinational and sequential logic including: minimization techniques, memory systems, register transfers, control logic design, and state machines.

\$25 per credit hour curriculum content fee.

### **ELEG 3000: Engineering Internship/Research Experience**

Cross-listed: MCEG 3000 Engineering Internship/Research Experience

Offered: As needed

Prerequisite: A minimum of 60 hours applicable toward the ATU Electrical/Mechanical engineering program requirements with a minimum 3.5 GPA; and acceptance in an Engineering Internship or Research Experience for Undergraduates Program.

A minimum of six weeks of supervised on-the-job training with a university research program, engineering firm, manufacturer, municipality, or company employing engineers. A written report is required within one week of internship completion. Students will also present their internship experience to an engineering class or at a student engineering RSO meeting.

Note: Satisfies College of Distinction requirement.

### **ELEG 3003: System Modeling and Analysis**

Cross-listed: MCEG 3003 System Modeling and Analysis

Prerequisites: COMS 1013 Programming Foundations I or MCEG 2203 Computational Methods in Engineering and MATH 3243 Differential Equations I

Reduction of engineering systems to mathematical models; methods of analysis using computers; interpretation of numerical results; optimization of design variables. Examples are drawn from various engineering disciplines.

\$25 per credit hour curriculum content fee.

### **ELEG 3103: Electronics I**

Prerequisites: ELEG 2111 Electric Circuits Laboratory and ELEG 2113 Electric Circuits II

Physics and electrical characteristics of diodes, bipolar transistors, and field effect transistors, behavior of these devices as circuit elements; common electronic circuits in discrete and integrated form; digital circuits including standard IC gates and flip flops, linear circuits including standard discrete and integrated amplifier configurations and their characteristics.

\$25 per credit hour curriculum content fee.

### **ELEG 3123: Signals and Systems**

Prerequisites: MATH 3243 Differential Equations I and ELEG 2113 Electric Circuits II

Signal and system modeling, time and frequency domain analysis, singularity functions, the Dirac Delta function, impulse response, the superposition integral and convolution, Fourier series and Fourier and Laplace transformations.

\$25 per credit hour curriculum content fee.

### **ELEG 3133: Microprocessor Systems Design**

Prerequisites: ELEG 2134 Digital Logic Design and ELEG 2130 Digital Logic Design Lab

Digital design using microprocessors. Microcomputer architecture, memory structures, I/O interfaces, addressing modes, interrupts, assembler programming, and development tools. This course should also attract computer science students interested in hardware.

\$25 per credit hour curriculum content fee.

### **ELEG 3143: Electromagnetics**

Prerequisites: MATH 2934 Calculus III and PHYS 2124 Calculus-Based Physics II

An introduction to static and dynamic electromagnetic fields using vector methods. Transmission lines, electrostatic fields, magnetostatic fields, Maxwell's equations, plane electromagnetic wave propagation, reflection, refraction, attenuation, antennas, reciprocity, and gain.  
\$25 per credit hour curriculum content fee.

### **ELEG 3153: Electrical Machines**

Prerequisite: ELEG 2113 Electric Circuits II

Steady state analysis of single phase and polyphase transformers, direct current machines, synchronous machines, induction machines, and special purpose machines. Special emphasis will be given to the modeling and control of these machines.

\$25 per credit hour curriculum content fee.

### **ELEG 3163: Electric Power Systems**

Prerequisites: ELEG 2113 Electric Circuits II and PHYS 2124 Calculus-Based Physics II

Introduction to power system analysis and operation. Topics included: mathematical modeling of power system components, power flow analysis, symmetric and asymmetric faults and economic operation of power systems.

\$25 per credit hour curriculum content fee.

### **ELEG 3203: Renewable Energy Technology**

Prerequisite: ELEG 2113 Electric Circuits II

An introduction and comprehensive overview of renewable energy technology. Topics include distributed generations and renewable energies including wind power, solar power, fuel cells and hydropower. Emphasis will be placed on basic concepts, operation principles and economics of existing and emerging renewable energy technologies.

\$25 per credit hour curriculum content fee.

### **ELEG 4103: Electronics II**

Prerequisite: ELEG 3103 Electronics I

A continuation of ELEG 3103 Electronics I specializing in characteristics and applications of both linear and digital integrated circuits; amplifiers, feedback analysis, frequency response, oscillators, amplifier stabilization, microprocessors, memory systems, emphasis on design.

\$25 per credit hour curriculum content fee.

### **ELEG 4113: Digital Signal Processing**

Prerequisites: ELEG 3123 Signals and Systems and ELEG(MCEG) 3003

The study of discrete-time signals and systems, convolution, correlation, z-transform, discrete-time Fourier transform, analysis and design of digital filters.

\$25 per credit hour curriculum content fee.

### **ELEG 4122: Electrical Systems Lab**

Offered: Spring

Prerequisite: ELEG 3103 Electronics I

The course presents advanced topics in electrical engineering system design. Topics include discrete components, ICs, PLCs, and data acquisition systems.

\$40 laboratory fee. \$25 per credit hour curriculum content fee.

### **ELEG 4133: Advanced Digital Design**

Prerequisite: ELEG 2134 Digital Logic Design

Principles of digital systems design and the use of hardware description languages (HDL) are targeted toward the development of programmable logic devices in this project oriented course. The basic tenets of HDL will be presented including design flow, structural and behavioral descriptions, data types, concurrent and sequential statements, processes, procedures, functions, and packages. Approximately one hour per week will be devoted to supervised project development.

\$25 per credit hour curriculum content fee.

### **ELEG 4143: Communication Systems I**

Prerequisite: ELEG 3123 Signals and Systems

An introduction to design and analysis of analog and digital communication systems. Amplitude and angle modulation and demodulation, bandwidth, frequency division multiplexing, sampling and pulse-code modulation, detection error statistics in digital communication.

\$25 per credit hour curriculum content fee.

### **ELEG 4153: Communication Systems II**

Prerequisite: ELEG 4143 Communication Systems I

Continuation of ELEG 4143 Communication Systems I. Design and analysis of analog and digital communication systems, taking into account the effects of noise. Random variables, random processes, analog and digital communication systems in the presence of noise.

\$25 per credit hour curriculum content fee.

**ELEG 4191: Electrical Design Project I**

Prerequisite: ELEG/MCEG 4202 Engineering Design

First of a two part sequence of courses to complete a group project in electrical engineering design. Emphasis will be placed on designing an electrical system or subsystem with due regard for Safety, environmental concerns, reliability, longevity, ease of manufacture, maintainability, and cost effectiveness. A written and oral report are required.

\$25 per credit hour curriculum content fee.

**ELEG 4192: Electrical Design Project II**

Prerequisite: ELEG 4191 Electrical Design Project I

Second of a two part sequence of courses to complete a group project in electrical engineering design. Emphasis will be placed on designing an electrical system or subsystem with due regard for Safety, environmental concerns, reliability, longevity, ease of manufacture, maintainability, and cost effectiveness. A written and oral report are required.

\$50 course fee. \$25 per credit hour curriculum content fee.

**ELEG 4202: Engineering Design**

Cross-listed: MCEG 4202 Engineering Design

Prerequisites: ELEG 3103 Electronics I

This course serves as the first part of a two course sequence in which the student completes a senior design project. Design methodologies and tools including real world design considerations such as environmental impact, engineering ethics, economics, safety, product costing and liability are introduced. Design for manufacture, project management, scheduling and proposal writing will be covered. Successful completion of this course shall require completion of a proposal for a senior design project being accepted by the faculty design project review process.

\$25 per credit hour curriculum content fee.

**ELEG 4303: Control Systems**

Prerequisites: ELEG (MCEG) 3003 and ELEG 2113 Electric Circuits II

An introduction to the field of control system engineering. Topics include: open and closed loop systems; mathematical modeling of electrical and mechanical systems; linearization; stability; block diagram reduction; signal flow graphs; transient analysis; stability analysis; root locus analysis; frequency analysis; and an introduction to compensator design.

\$25 per credit hour curriculum content fee.

**ELEG 4313: Modern Control Systems**

Prerequisite: ELEG 4303 Control Systems

A continuation of ELEG 4303 Control Systems Control Systems. Topics include: frequency response design, state space analysis, controllability, observability, state space design, robustness, and an introduction to digital control.

\$25 per credit hour curriculum content fee.

**ELEG 4951: Undergraduate Research in Electrical Engineering**

Offered: On demand

Prerequisite: Departmental approval

Advanced students carry out independent research activity relating to a significant problem in a major field of study. Supervised by faculty member. Formal report and presentation required. One to four credits depending on problem selected and effort made.

\$25 per credit hour curriculum content fee.

**ELEG 4952: Undergraduate Research in Electrical Engineering**

Offered: On demand

Prerequisite: Departmental approval

Advanced students carry out independent research activity relating to a significant problem in a major field of study. Supervised by faculty member. Formal report and presentation required. One to four credits depending on problem selected and effort made.

\$25 per credit hour curriculum content fee.

**ELEG 4953: Undergraduate Research in Electrical Engineering**

Offered: On demand

Prerequisite: Departmental approval

Advanced students carry out independent research activity relating to a significant problem in a major field of study. Supervised by faculty member. Formal report and presentation required. One to four credits depending on problem selected and effort made.

\$25 per credit hour curriculum content fee.

**ELEG 4954: Undergraduate Research in Electrical Engineering**

Offered: On demand

Prerequisite: Departmental approval

Advanced students carry out independent research activity relating to a significant problem in a major field of study. Supervised by faculty member. Formal report and presentation required. One to four credits depending on problem selected and effort made.

\$25 per credit hour curriculum content fee.

**ELEG 4991: Special Problems in Engineering**

Prerequisite: Minimum of three hours at the junior level in area of study.

Individual study in advanced area of the student's choice under the direction of a faculty advisor.

\$25 per credit hour curriculum content fee.

**ELEG 4992: Special Problems in Engineering**

Prerequisite: Minimum of three hours at the junior level in area of study.

Individual study in advanced area of the student's choice under the direction of a faculty advisor.

\$25 per credit hour curriculum content fee.

**ELEG 4993: Special Problems in Engineering**

Prerequisite: Minimum of three hours at the junior level in area of study.

Individual study in advanced area of the student's choice under the direction of a faculty advisor.

\$25 per credit hour curriculum content fee.

**ELEG 4994: Special Problems in Engineering**

Prerequisite: Minimum of three hours at the junior level in area of study.

Individual study in advanced area of the student's choice under the direction of a faculty advisor.

\$25 per credit hour curriculum content fee.

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**ELEMENTARY EDUCATION (ELED)**

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**ELED 2003: Educational Research and the Teacher as a Lifelong Learner**

This course provides potential teacher education candidates with the knowledge base and practice in the skills needed to locate educational research information; analyze, synthesize, and evaluate the compiled materials; professionally communicate these findings to others; and examine, observe, and reflect upon research applications in the school setting.

Note: A field experience is required in this course

**ELED 2113: Human Development and Learning Theories**

This course is a study of the physical, cognitive, and psychosocial development of the individual beginning with the early childhood period and continuing through early adolescence. This course also provides lateral entry teachers an introduction to learning theory, various styles of learning, and motivational factors involved in the learning process. Emphasis is placed on the development of cognitive skills using the eight types of intelligence and applying these to practical classroom situations. Upon completion, students should be able to describe theories and styles of learning. This course includes an on-site field experience.

Note: A field experience is required in this course.

**ELED 3123: Diagnosis and Assessment of Elementary Students**

Prerequisite: Admission to Stage II of the Teacher Education Program.

This course is designed to develop pre-service teachers with who can successfully implement the design and implementation of current best practices in assessment and who can utilize assessment data to plan, evaluate and promote instructional achievement in a 21st Century standards-based classroom.

Note: A field experience is required in this course

**ELED 3133: Integrated Curriculum**

Prerequisite: Admission to Stage II of the Teacher Education Program.

This course is designed to provide teacher candidates with an overview of how to develop teaching/learning strategies and to integrate curriculum in the elementary classroom. Emphasis is placed on helping teachers adapt techniques, choose materials, and design units that integrate multiple content areas across a student-centered curriculum.

Note: A field experience is required in this course

**ELED 3143: Teaching Methods K-6 Social Studies**

Prerequisite: Admission to Stage II of the Teacher Education Program.

This course is an introduction to teaching powerful social studies in the elementary classroom. Based on current theory and research and with particular emphasis on active citizenship and diversity, the course develops instructional decision-makers who will utilize innovative and effective practice and resources for teaching meaningful social studies. This course also informs about best practice in the field.

Note: A field experience is required in this course

**ELED 4003: Seminar in Elementary Education**

Prerequisite: Admission to Stage II and ELED 4903 Residency A in Elementary Education.

This course is to be taken concurrently with ELED 4903 Residency A in Elementary Education Residency A in Elementary Education. This course is designed to provide elementary teacher candidates with knowledge and understanding of the history of American Education, school law, content area reading, and other contemporary education issues.

**ELED 4033: Classroom and Behavior Management**

Prerequisite: Admission to Stage II of the Teacher Education Program.

Co-requisite: RDNG 4003 Literacy Assessment and Intervention

This course is designed to provide elementary teacher candidates a foundation for operating an effective and efficient 21st Century classroom. Best practices in creating a respectful and responsive culture for learning will be presented. Emphasis will be placed on establishing high expectations for learning, achievement and behavior, including ways to manage the classroom environment and organizational approaches that encourage elementary students to take responsibility for their own learning and their own behavior. Strategies for classroom management, classroom organization and behavior management will be analyzed.

Note: A field experience is required in this course

**ELED 4903: Residency A in Elementary Education**

Prerequisites: Stage II Acceptance, Residency A application, approved Arkansas Educators License System (AELS) background check, degree audit, 2.7 or higher GPA, Arkansas IDEAS account.

This course is to be taken concurrently with ELED 4003 Seminar in Elementary Education Seminar in Elementary Education. Part I of an intensive yearlong residency in elementary education. Students will spend time in elementary education (K-6) environments applying their knowledge and skills in reflective decision making with children and families.

This course involves professional applications of pedagogical and professional practice of elementary educators. The course is structured around the professional expectations including state requirements for pedagogical and professional assessments through the Teacher Excellence Support Systems (TESS). A complete handbook regarding Residency A expectations and requirements is located on the Arkansas Tech Teacher Education website.

This course involves the completion of requirements for teacher licensure required for by Arkansas Act 416 of 2017.

**ELED 4909: Residency B in Elementary Education**

Prerequisites: Stage II acceptance, Residency B application, approved Arkansas Educators License System (AELS) background check, degree audit, 2.7 or higher GPA, Arkansas IDEAS account.

This course involves professional applications of pedagogical and professional practice of elementary educators. The course is structured around the professional expectations including state requirements for pedagogical and professional assessments through the Teacher Excellence Support System (TESS). A complete handbook regarding residency expectations and requirements are located on the Arkansas Tech Teacher Education website.

This course involves the completion of requirements for teacher licensure required for by Arkansas Act 416 of 2017.

**ELED 4991: Special Problems in Elementary Education**

Individual study of significant topics or problems relating to education under the guidance of an assigned faculty member.

**ELED 4992: Special Problems in Elementary Education**

Individual study of significant topics or problems relating to education under the guidance of an assigned faculty member.

**ELED 4994: Special Problems in Elementary Education**

Individual study of significant topics or problems relating to education under the guidance of an assigned faculty member.

**EMERGENCY ADMIN/MGMT (EAM)****EAM 1003: Living in a Hazardous Environment**

Overview of emergency management systems with analyses of the causes, characteristics, nature and effects of natural and technological hazards. Required for major.

**EAM 1013: Aim and Scope of Emergency Management**

Provides a broad overview of Emergency Management in the context of Mitigation, Preparedness, Response, and Recovery. Required for major.

**EAM 2033: Citizen/Family/Community Disaster Preparedness Education**

The course covers the need for citizen disaster preparedness; research findings on the subject; program design models; team and coalition building, materials and approaches, effective presentation skills, overcoming disaster denial and apathy; preparedness with children, the elderly, and other high-risk populations.

**EAM 2413: UAVs in Emergency Management**

Prerequisite: ENGL 1013 Composition I

Provides a broad overview of unmanned aerial vehicles (UAVs) in the emergency management context with practical and hands-on experience. \$20 course fee.

**EAM 2881: Special Topics**

Prerequisites: EAM 1013 Aim and Scope of Emergency Management or consent of department head.

The topics will vary to reflect the continual changes in the emergency management field. This course may also serve as an independent study course upon recommendation of the advisor and approval by the dean.

Note: This course may be repeated for credit if course content differs.

**EAM 2882: Special Topics**

Prerequisites: EAM 1013 Aim and Scope of Emergency Management or consent of department head.

The topics will vary to reflect the continual changes in the emergency management field. This course may also serve as an independent study course upon recommendation of the advisor and approval by the dean.

Note: This course may be repeated for credit if course content differs.

**EAM 2883: Special Topics**

Prerequisites: EAM 1013 Aim and Scope of Emergency Management or consent of department head.

The topics will vary to reflect the continual changes in the emergency management field. This course may also serve as an independent study course upon recommendation of the advisor and approval by the dean.

Note: This course may be repeated for credit if course content differs.

**EAM 2991: Special Problems**

Prerequisites: EAM 1013 Aim and Scope of Emergency Management or consent of department head.

The topics will vary to reflect the continual changes in the emergency management field. This course may also serve as an independent study course upon recommendation of the advisor and approval by the dean.

Note: This course may be repeated for credit if course content differs.

**EAM 2992: Special Problems**

Prerequisites: EAM 1013 Aim and Scope of Emergency Management or consent of department head.

The topics will vary to reflect the continual changes in the emergency management field. This course may also serve as an independent study course upon recommendation of the advisor and approval by the dean.

Note: This course may be repeated for credit if course content differs.

**EAM 2993: Special Problems**

Prerequisites: EAM 1013 Aim and Scope of Emergency Management or consent of department head.

The topics will vary to reflect the continual changes in the emergency management field. This course may also serve as an independent study course upon recommendation of the advisor and approval by the dean.

Note: This course may be repeated for credit if course content differs.

**EAM 3003: Developing Emergency Management Skills**

Co-requisites or Prerequisites: EAM 1013 Aim and Scope of Emergency Management or consent of the department head.

Provides practical and fundamental skills for individuals entering the emergency management profession. Required for major.

**EAM 3013: Public Policy and Politics in Emergency Management**

Prerequisites: EAM 1013 Aim and Scope of Emergency Management or consent of the department head.

Analyzes the role of public policy and politics within emergency management. Required for major.

**EAM 3023: Principles of Preparedness and Response Operations**

Prerequisites: EAM 1013 Aim and Scope of Emergency Management or consent of the department head.

Co-requisites or Prerequisites: 3003 or consent of the department head.

Examines topics of preparedness and response operations. Required for major.

**EAM 3033: The Social Dimension of Disaster**

Co-requisites or Prerequisites: EAM 1013 Aim and Scope of Emergency Management or consent of department head.

Overview of empirical vs. theoretical approaches; human behavior in disaster, myths and reality; group disaster behavior; community social systems and disaster; cultures, demographics and disaster behavior distinctions, and model-building in sociological disaster research.

**EAM 3053: Introduction to Ethical and Legal Issues in Emergency Management**

Prerequisites: EAM 1013 Aim and Scope of Emergency Management or consent of the department head.

Co-requisites or Prerequisites: 3003 or consent of the department head.

Explores ethical and legal issues in emergency management.

**EAM 3063: Emergency Management Doctrine**

Prerequisites: EAM 1013 Aim and Scope of Emergency Management or consent of the department head.

Co-requisites or Prerequisites: 3003 or consent of the department head.

Provides a basic understanding of doctrine associated with comprehensive emergency management. Required for major.

**EAM 3073: Safety Standards for Emergency Managers**

This course provides students with broad based knowledge and practical skills in the safety field. Students will receive an introduction to accident investigation, hazardous materials, accident prevention, ergonomics, and safety programs. Students are familiarized with OSHA general industry



standards, including responsibilities under OSHA regulations, inspections, citations, appeals, and record keeping. Explores safety standards from ANSL, NFPA, and DOT.

### **EAM 3123: Public Information Skills for Emergency Managers**

This course provides the student with experience in dealing with the media before, during and after a crisis or disaster. The student will be able to demonstrate presentation skills using a variety of communication styles, graphics integration, informational brochures, and electronic resources.

Note: Much of the course will involve working at onsite locations with actual media contact.

### **EAM 3143: The Economics of Disaster**

Co-requisites or Prerequisites: EAM 1013 Aim and Scope of Emergency Management or consent of the department head.

The course concentrates on the implications of disaster on state, regional, national, and international economies; case studies in false economies; economics of disaster modeling; and current issues in state, federal, and global economic disaster policy.

### **EAM 3243: Terrorism and Counterterrorism**

This course is an overview of terrorism in which students will explore various aspects of terrorism in a Post 9/11 world leading to a basic understanding of a global phenomenon. Subject matter will include the history of terrorism, its strategies, and why those strategies are effective. The student will examine the psychology of fundamentalist religious movements and extreme political organizations. While studying the effects of terrorism the student will examine governmental concerns, preparedness, response, and defensive operations of dealing with terrorism.

### **EAM 3903: Public Health Emergency Management**

Provides an introduction to public health from an emergency management stance.

### **EAM 4003: Principles of Disaster Relief and Recovery**

Prerequisites: EAM 1013 Aim and Scope of Emergency Management or consent of the department head.

Studies recovery issues at different phases of emergency management. Required for major.

### **EAM 4013: Mitigation and Continuity of Operations**

Prerequisites: EAM 1013 Aim and Scope of Emergency Management or consent of the department head.

Explores continuity of business and government operations, including risk assessment, hazard analysis, and resumption of operations with an emphasis of disaster mitigation. Required for major.

### **EAM 4023: Geographic Information Systems in Emergency Management**

Introduces location-based computer technology emphasizing geographic information systems (GIS) as it applies to emergency management. Required for major.

### **EAM 4033: Emergency Management Research Methods/Analysis**

Prerequisites: ENGL 1023 Composition II or consent of the department head.

Covers basic research to be utilized for decision-making and policy development in emergency management. Required for major.

### **EAM 4043: Disaster and Emergency Management Ethics**

Prerequisites: EAM 3053 Introduction to Ethical and Legal Issues in Emergency Management or consent of the department head.

Examines a variety of ethical theories and principles foundational to emergency management. A review of specific ethical dilemmas per disaster phase is examined in light of professional ethics, overcoming biases, avoiding discrimination, and developing sensitivity.

### **EAM 4053: Community Management of Hazardous Materials**

The course addresses chemical properties of hazardous materials and wastes; legal requirements for their handling, storage, transportation, and disposal; and methods for protecting employees, facilities, and the community.

### **EAM 4063: Leadership**

Co-requisites or Prerequisites: EAM 1013 Aim and Scope of Emergency Management or consent of the department head.

Provides a basic introduction to leadership by emphasizing planning for a potential disaster and coordination during a crisis.

### **EAM 4083: Legal Issues in Emergency Management**

Prerequisites: EAM 3053 Introduction to Ethical and Legal Issues in Emergency Management or consent of the department head.

Provides an in-depth study of legal issues in each phase of emergency management and addresses interaction between the government, private, and volunteer sectors from a legal perspective.

### **EAM 4093: Grants**

Prerequisites: ENGL 1013 Composition I and EAM 1013 Aim and Scope of Emergency Management or consent of the Department Head.

This course will cover the federal grant funding streams used by emergency management at the local, state, and federal levels. Students will learn the strategy behind each grant funding stream, eligibility qualifications, developing of grant budgets and justifications. Students will learn the basics of

grant writing, budgeting, purchasing, filing for reimbursement, and requirements for audit. Each basic step will be broken down into a series of tasks assigned each week throughout the semester.

**EAM 4103: Critical Infrastructure**

Examines the nation's critical infrastructure protection, risk management, and resilience from a policy perspective.

**EAM 4106: Internship/Practicum**

Prerequisites: Departmental approval.

Provides practical experience in the emergency management field and applies emergency management theory to actual problems in a non-classroom situation. A minimum of 400 hours of relevant work experience must be completed in an approved internship site OR for those currently working in an emergency management related position, a practicum with a minimum of 150 hours must be completed. The student will work with an advisor to have a site approved by the internship coordinator prior to course enrollment. Required for major.

\$100 course fee.

**EAM 4606: Capstone**

Prerequisites: EAM 3003 Developing Emergency Management Skills, 3013, 3023, 3053, 3063, 4003, 4013, 4023 and 4033, or consent of department head.

Provides the opportunity to synthesize knowledge of previous undergraduate coursework and to link service learning experience to future goals. To be taken during last semester. Required for major.

**EAM 4881: Advanced Special Topics**

Prerequisites: EAM 1013 Aim and Scope of Emergency Management or consent of department head.

The topics will vary to reflect the continual changes in the emergency management field. This course may also serve as an independent study course upon recommendation of the advisor and approval by the dean.

Note: This course may be repeated for credit if course content differs.

**EAM 4882: Advanced Special Topics**

Prerequisites: EAM 1013 Aim and Scope of Emergency Management or consent of department head.

The topics will vary to reflect the continual changes in the emergency management field. This course may also serve as an independent study course upon recommendation of the advisor and approval by the dean.

Note: This course may be repeated for credit if course content differs.

**EAM 4883: Advanced Special Topics**

Prerequisites: EAM 1013 Aim and Scope of Emergency Management or consent of department head.

The topics will vary to reflect the continual changes in the emergency management field. This course may also serve as an independent study course upon recommendation of the advisor and approval by the dean.

Note: This course may be repeated for credit if course content differs.

**EAM 4951: Undergraduate Research in Emergency Administration and Management**

Offered: On demand

Prerequisite: Departmental approval

Advanced students carry out independent research activity relating to a significant problem in a major field of study. Supervised by faculty member. Formal report and presentation required. One to four credits depending on problem selected and effort made.

**EAM 4952: Undergraduate Research in Emergency Administration and Management**

Offered: On demand

Prerequisite: Departmental approval

Advanced students carry out independent research activity relating to a significant problem in a major field of study. Supervised by faculty member. Formal report and presentation required. One to four credits depending on problem selected and effort made.

**EAM 4953: Undergraduate Research in Emergency Administration and Management**

Offered: On demand

Prerequisite: Departmental approval

Advanced students carry out independent research activity relating to a significant problem in a major field of study. Supervised by faculty member. Formal report and presentation required. One to four credits depending on problem selected and effort made.

**EAM 4954: Undergraduate Research in Emergency Administration and Management**

Offered: On demand

Prerequisite: Departmental approval

Advanced students carry out independent research activity relating to a significant problem in a major field of study. Supervised by faculty member. Formal report and presentation required. One to four credits depending on problem selected and effort made.

**EAM 4991: Special Problems**

Prerequisites: EAM 1013 Aim and Scope of Emergency Management or consent of department head.

The topics will vary to reflect the continual changes in the emergency management field. This course may also serve as an independent study course upon recommendation of the advisor and approval by the dean.

Note: This course may be repeated for credit if course content differs.

**EAM 4992: Special Problems**

Prerequisites: EAM 1013 Aim and Scope of Emergency Management or consent of department head.

The topics will vary to reflect the continual changes in the emergency management field. This course may also serve as an independent study course upon recommendation of the advisor and approval by the dean.

Note: This course may be repeated for credit if course content differs.

**EAM 4993: Special Problems**

Prerequisites: EAM 1013 Aim and Scope of Emergency Management or consent of department head.

The topics will vary to reflect the continual changes in the emergency management field. This course may also serve as an independent study course upon recommendation of the advisor and approval by the dean.

Note: This course may be repeated for credit if course content differs.

**ENGLISH (ENGL)****ENGL 3XXX: ENGLISH TRANSFER ELECTIVE**

Credit transferred from another institution and articulated for English upper division elective.

**ENGL 2XXX: ENGLISH TRANSFER ELECTIVE**

Credit transferred from another institution and articulated for English lower division elective.

**ENGL 0303: Composition Workshop**

A composition workshop that complements and supports instruction in ENGL 1013 Composition I Composition I.

May be repeated for credit.

Note: The grade in ENGL 0303 Composition Workshop will be recorded as pass or fail. The hours earned in ENGL 0303 Composition Workshop may not be used to satisfy general education requirements nor provide credit toward any degree.

Note: A student who is placed in ENGL 0303 Composition Workshop must register concurrently in an assigned section of ENGL 1013 Composition I.

**ENGL 1013: Composition I**

ACTS Common Course - ENGL 1013 Composition I

Prerequisite: Score of 19 or above on English section of the ACTE; 500 or above on the evaluation based read/writing section of the RSAT; 251 or above on the writing section of ACCUPLACER; or a grade of C or better in ENGL 0303 Composition Workshop or BST 1003.

A review of grammar, introduction to research methods, and practice in writing exposition using reading to provide ideas and patterns.

Note: A grade of C or better must be earned in each of the two composition courses used to satisfy the general education requirement of English.

Note: May not be taken for credit after successful completion of ENGL 1043.

**ENGL 1023: Composition II**

ACTS Common Course - ENGL 1023 Composition II

Prerequisite: Minimum grade of C in ENGL 1013 Composition I or 1043.

A continuation of ENGL 1013 Composition I with readings in poetry, fiction, and drama.

Note: A grade of C or better must be earned in each of the two composition courses used to satisfy the general education requirement of English.

Note: May not be taken for credit after successful completion of ENGL 1053.

**ENGL 2003: Introduction to World Literature**

ACTS Common Course - ENGL 2113

Prerequisite: ENGL 1013 Composition I or equivalent.

An exploration of significant authors and themes in world literature.

Note: ENGL 2003 Introduction to World Literature may be used to fulfill the general education humanities requirements.

**ENGL 2013: Introduction to American Literature**

ACTS Common Course - ENGL 2653

Prerequisite: ENGL 1013 Composition I or equivalent.

An exploration of significant authors and themes in American literature.

Note: ENGL 2013 Introduction to American Literature may be used to fulfill the general education humanities requirement.

**ENGL 2023: Honors World Literature**

Prerequisites: Successful completion of ENGL 1013 Composition I or 1043 and admission to the Tech Honors Program, or permission of the Honors Program Director.

An honors course that explores significant authors and themes in world literature.

Note: ENGL 2023 Honors World Literature may be used to fulfill the general education humanities requirement.

**ENGL 2043: Introduction to Creative Writing**

ACTS Common Course - ENGL 2013 Introduction to American Literature

Prerequisite: ENGL 1023 Composition II or equivalent.

Introduction to techniques of writing both fiction and poetry.

**ENGL 2053: Technical Writing**

ACTS Common Course - ENGL 2023 Honors World Literature

Prerequisite: ENGL 1023 Composition II or equivalent.

Practice in composing abstracts, instructions, visuals, proposals, questionnaires, letters, memos, and a variety of informal and formal reports.

**ENGL 2063: Introduction to Literary Studies**

Prerequisite: ENGL 1023 Composition II or equivalent.

Practice in the analytic, research, and writing skills necessary for literary study.

**ENGL 2173: Introduction to Film**

Cross-listed: Jour 2173

Prerequisite: ENGL 1013 Composition I or equivalent.

A study of film as an art form with particular attention given to genres, stylistic technique and film's relation to popular culture.

Note: ENGL 2173 Introduction to Film may be used to fulfill the General Education fine arts requirement.

Note: ENGL 2173 Introduction to Film may not be repeated for credit after the completion of JOUR 2173 Introduction to Film.

**ENGL 2183: Honors Introduction to Film**

Prerequisites: Successful completion of ENGL 1013 Composition I or ENGL 1043 and admission to the Tech Honors Program or permission of the Honors Program Director.

A study of film as an art form with particular attention given to genres, stylistic technique and film's relation to popular culture.

**ENGL 2213: Introduction to Drama**

Prerequisite: ENGL 1013 Composition I or equivalent.

A study of drama as literature; a study of terminology and elements of drama and the reading of selected works, including both classic and contemporary.

**ENGL 2223: Introduction to Poetry**

Prerequisite: ENGL 1013 Composition I or equivalent.

A study of basic form, terminology and specific works.

**ENGL 2233: Introduction to Fiction**

Prerequisite: ENGL 1013 Composition I or equivalent.

A study of form, terminology, and specific works of fiction.

**ENGL 2263: Mythology**

Prerequisite: ENGL 1013 Composition I or equivalent.

An introduction to the Western mythologies and a study of their influence on Western literature.

**ENGL 2283: Science Fiction and Fantasy**

Prerequisite: ENGL 1013 Composition I or equivalent.

A survey course which covers classics of the science fiction and fantasy genres. Approach to the works is both historical and thematic.

**ENGL 2881: Practicum-Literary Journal Publication**

Prerequisite: ENGL 1013 Composition I or equivalent.

Students will work as staff members of NEBO: A Literary Journal.

Note: May be repeated for a maximum of five semester hours. Cumulative hours in ENGL 2881 Practicum-Literary Journal Publication and ENGL 4881 Practicum-Editing Literary Journal-4 may not exceed nine.

**ENGL 3013: Systems of Grammar**

Prerequisite: ENGL 1023 Composition II or equivalent.

Students are recommended to complete ENGL 3023 Introduction to Linguistics before enrolling in this course. A synthesis of the most useful elements of traditional, transformational, and structural grammar.

**ENGL 3023: Introduction to Linguistics**

Cross-listed: COMM 3023 Introduction to Linguistics, FR 3023 Introduction to Linguistics, GER 3023 Introduction to Linguistics, and SPAN 3023 Introduction to Linguistics

Prerequisite: ENGL 1023 Composition II or equivalent.

A study of basic concepts in language, comparative characteristics of different languages, and the principles of linguistic investigation.

**ENGL 3043: Literary Editing and Publishing**

Prerequisite: ENGL 2043 Introduction to Creative Writing.

A study of literary editing and publishing in print and online.

**ENGL 3073: Creative Nonfiction Workshop**

Prerequisite: ENGL 2043 Introduction to Creative Writing

Concentration in the writing and evaluation of creative nonfiction.

Note: May be repeated once for credit as ENGL 3073 Creative Nonfiction Workshop.

**ENGL 3083: Fiction Workshop**

Prerequisite: ENGL 2043 Introduction to Creative Writing.

Concentration in the writing and evaluation of fiction.

Note: May be repeated once for credit as ENGL 3083 Fiction Workshop.

**ENGL 3093: Poetry Workshop**

Prerequisite: ENGL 2043 Introduction to Creative Writing.

Concentration in the writing and evaluation of poetry.

Note: May be repeated once for credit as ENGL 3093 Poetry Workshop.

**ENGL 3173: Studies in Film**

Prerequisite: ENGL 1023 Composition II or equivalent.

A focused study of selected films. Course content will vary.

Note: May be repeated for credit as ENGL 3173 Studies in Film if course content differs.

**ENGL 3183: Studies in Television**

Prerequisite: ENGL 1023 Composition II.

A focused study of selected television shows. Course content will vary.

Note: This course may be repeated for credit as ENGL 3183 Studies in Television if course content differs.

**ENGL 3203: Modern Novel**

Prerequisite: ENGL 1023 Composition II or equivalent.

Reading in representative novels written since 1900.

**ENGL 3223: Young Adult Literature**

Prerequisite: ENGL 1023 Composition II or equivalent.

A survey of young adult literature.

**ENGL 3243: Early Novel**

Prerequisite: ENGL 1023 Composition II or equivalent.

Reading in representative novels written before 1900.

**ENGL 3293: Studies in Literature and Language**

Prerequisite: ENGL 1023 Composition II or equivalent.

A focused study of selected literary works or selected language topics. Course content will vary.

Note: May be repeated for credit as ENGL 3293 Studies in Literature and Language if course content differs.

**ENGL 3303: Literature of the South**

Prerequisite: ENGL 1023 Composition II or equivalent.

Reading in representative works by writers in the South since the Civil War.

**ENGL 3313: American Literature to 1900**

Prerequisite: ENGL 1023 Composition II or equivalent.

Readings in the works of colonial and nineteenth-century American authors.

**ENGL 3323: Modern American Literature**

Prerequisite: ENGL 1023 Composition II or equivalent.

Readings in the works of twentieth century American authors.

**ENGL 3413: British Literature to 1800**

Prerequisite: ENGL 1023 Composition II or equivalent.

Readings in the works of selected early British authors.

**ENGL 3423: British Literature since 1800**

Prerequisite: ENGL 1023 Composition II or equivalent.

Readings in the works of nineteenth-and twentieth-century British authors.

**ENGL 3453: Chaucer**

Prerequisite: ENGL 1023 Composition II or equivalent.

A study of representative works.

**ENGL 3463: Shakespeare**

Prerequisite: ENGL 1023 Composition II or equivalent.

A study of selected comedies, histories, and tragedies.

**ENGL 3513: Methods of Research**

Prerequisite: ENGL 2063 Introduction to Literary Studies, equivalent, or consent.

A study of techniques for research.

**ENGL 4013: History of the English Language**

Prerequisite: ENGL 1023 Composition II, equivalent, or consent.

The development of English sounds, inflections and vocabulary.

**ENGL 4023: Second Language Acquisition**

Prerequisite: ENGL 1023 Composition II, equivalent, or permission of the instructor.

An introduction to the major theories of language acquisition and their application to the instruction of English language learners.

Note: ENGL 4023 Second Language Acquisition may be used toward fulfilling the ESL endorsement in Arkansas.

**ENGL 4053: Seminar in Technical Communication**

Prerequisite: ENGL 2053 Technical Writing or consent.

Course content will vary.

Note: May be repeated for credit as ENGL 4053 Seminar in Technical Communication if course content differs.

**ENGL 4083: Seminar: English Language**

Prerequisite: ENGL 1023 Composition II or equivalent.

Course content will vary.

Note: May be repeated for credit as ENGL 4083 Seminar: English Language or ENGL 5083 if course content differs.

**ENGL 4093: Seminar in Creative Writing**

Prerequisite: ENGL 2043 Introduction to Creative Writing.

Course content will vary.

Note: May be repeated for credit as ENGL 4093 Seminar in Creative Writing if course content varies.

**ENGL 4103: Literary Theory**

Prerequisite: ENGL 1023 Composition II or equivalent.

A study of contemporary critical approaches to literature.

**ENGL 4173: Seminar in Film Studies**

Prerequisite: ENGL 1023 Composition II or equivalent.

Course content will vary.

Note: May be repeated for credit as ENGL 4173 Seminar in Film Studies or ENGL 5173 if course content differs.

**ENGL 4213: American Folklore**

Prerequisite: ENGL 1023 Composition II or equivalent.

A study of the forms and subjects of American folklore, folklore scholarship and bibliography; field work in collecting folklore.

Note: May not be repeated for credit as ENGL 5213.

**ENGL 4283: Seminar: World Literature**

Prerequisite: ENGL 1023 Composition II or equivalent.

Course content will vary.

Note: May be repeated for credit as ENGL 4283 Seminar: World Literature or ENGL 5283 if course content differs.

**ENGL 4383: Seminar: American Literature**

Prerequisite: ENGL 1023 Composition II or equivalent.

Course content will vary.

Note: May be repeated for credit as ENGL 4383 Seminar: American Literature or ENGL 5383 if course content differs.

**ENGL 4483: Seminar: British Literature**

Prerequisite: ENGL 1023 Composition II or equivalent.

Course content will vary.

Note: May be repeated for credit as ENGL 4483 Seminar: British Literature or ENGL 5483 if course content differs.

**ENGL 4683: Seminar in Gender Studies**

Prerequisite: ENGL 1023 Composition II or equivalent.

Course content will vary.

Note: May be repeated for credit as ENGL 4683 Seminar in Gender Studies or ENGL 5683 if course content differs.

**ENGL 4703: Teaching English as a Second Language**

Prerequisite: ENGL 1023 Composition II, equivalent, or consent.

An introduction to the principles and methods in teaching English as a second language.

Note: ENGL 4703 Teaching English as a Second Language may be used toward fulfilling the ESL endorsement in Arkansas.

**ENGL 4713: ESL Assessment**

Prerequisite: ENGL 1023 Composition II, equivalent, or consent.

An introduction to the tools and procedures for evaluating the language proficiency and development of English language learners.

Note: ENGL 4713 ESL Assessment may be used toward fulfilling the ESL endorsement in Arkansas.

**ENGL 4723: Teaching People of Other Cultures**

Prerequisite: ENGL 1023 Composition II, equivalent, or consent.

An introduction to the complex relationship of language and culture and its impact on teaching English language learners.

Note: ENGL 4723 Teaching People of Other Cultures may be used toward fulfilling the ESL endorsement in Arkansas.

**ENGL 4733: Teaching English in the Secondary School**

Prerequisite: COMM 2003 Public Speaking, ENGL 2003 Introduction to World Literature, and admission to Stage II of the teacher education program.

To be taken within one year before student teaching. An introduction to methods and materials used to teach secondary English.

**ENGL 4813: Senior Project in Creative Writing**

Prerequisites: Completion or concurrent enrollment in ENGL 3083 Fiction Workshop and ENGL 3093 Poetry Workshop.

Completion of a significant creative writing project approved by the instructor.

**ENGL 4881: Practicum-Editing Literary Journal**

Prerequisites: ENGL 3083 Fiction Workshop, 3093, or consent.

To select and edit writing for publication and to direct staff members in the production of NEBO: A Literary Journal. Candidates for editorial positions must apply to the English Department at the start of the spring semester.

Note: May be repeated for a maximum of six semester hours. Cumulative hours in ENGL 2881 Practicum-Literary Journal Publication and ENGL 4881 Practicum-Editing Literary Journal-4 may not exceed nine.

**ENGL 4882: Practicum-Editing Literary Journal**

Prerequisites: ENGL 3083 Fiction Workshop, 3093, or consent.

To select and edit writing for publication and to direct staff members in the production of NEBO: A Literary Journal. Candidates for editorial positions must apply to the English Department at the start of the spring semester.

Note: May be repeated for a maximum of six semester hours. Cumulative hours in ENGL 2881 Practicum-Literary Journal Publication and ENGL 4881 Practicum-Editing Literary Journal-4 may not exceed nine.

**ENGL 4883: Practicum-Editing Literary Journal**

Prerequisites: ENGL 3083 Fiction Workshop, 3093, or consent.

To select and edit writing for publication and to direct staff members in the production of NEBO: A Literary Journal. Candidates for editorial positions must apply to the English Department at the start of the spring semester.

Note: May be repeated for a maximum of six semester hours. Cumulative hours in ENGL 2881 Practicum-Literary Journal Publication and ENGL 4881 Practicum-Editing Literary Journal-4 may not exceed nine.

**ENGL 4884: Practicum-Editing Literary Journal**

Prerequisites: ENGL 3083 Fiction Workshop, 3093, or consent.

To select and edit writing for publication and to direct staff members in the production of NEBO: A Literary Journal. Candidates for editorial positions must apply to the English Department at the start of the spring semester.

Note: May be repeated for a maximum of six semester hours. Cumulative hours in ENGL 2881 Practicum-Literary Journal Publication and ENGL 4881 Practicum-Editing Literary Journal-4 may not exceed nine.

**ENGL 4951: Undergraduate Research in English**

Offered: On demand

Prerequisite: Departmental approval.

Advanced students carry out independent research activity relating to a significant problem in a major field of study. Supervised by faculty member. Formal report and presentation required. One to four credits depending on problem selected and effort made.

**ENGL 4952: Undergraduate Research in English**

Offered: On demand

Prerequisite: Departmental approval.

Advanced students carry out independent research activity relating to a significant problem in a major field of study. Supervised by faculty member. Formal report and presentation required. One to four credits depending on problem selected and effort made.

**ENGL 4953: Undergraduate Research in English**

Offered: On demand

Prerequisite: Departmental approval.

Advanced students carry out independent research activity relating to a significant problem in a major field of study. Supervised by faculty member. Formal report and presentation required. One to four credits depending on problem selected and effort made.

**ENGL 4954: Undergraduate Research in English**

Offered: On demand

Prerequisite: Departmental approval.

Advanced students carry out independent research activity relating to a significant problem in a major field of study. Supervised by faculty member. Formal report and presentation required. One to four credits depending on problem selected and effort made.

**ENGL 4991: Special Problems in English**

Prerequisites: English major or minor and consent of instructor and department head.

Course content and credit are designed to meet the needs of the student.

**ENGL 4992: Special Problems in English**

Prerequisites: English major or minor and consent of instructor and department head.

Course content and credit are designed to meet the needs of the student.

**ENGL 4993: Special Problems in English**

Prerequisites: English major or minor and consent of instructor and department head.

Course content and credit are designed to meet the needs of the student.

**ENGL 4994: Special Problems in English**

Prerequisites: English major or minor and consent of instructor and department head.

Course content and credit are designed to meet the needs of the student.

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**ENVIRONMENTAL SCIENCE (ENVS)**

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**ENVS 1004: Principles of Environmental Science**

Cross-listed: BIOL 1004 Principles of Environmental Science and PHSC 1004 Principles of Environmental Science

This course is designed to bring the student to a basic but informed awareness of and responsible behavior toward our environment and the role of the human race therein. The content will include a study of the philosophical and scientific basis for the study of ecosystems and the environment, the nature of ecosystems, the techniques used to study the environment, the origin and development of current environmental problems, the interdisciplinary nature of environmental studies, the processes of critical thinking and problem solving, and the moral and ethical implications of environmentally-mandated decisions.

Lecture three hours, laboratory three hours. \$40 laboratory fee.



**ENVS 3043: Conservation**

Cross-listed: BIOL 3043 Conservation

Prerequisite: BIOL/ENVS/PHSC 1004 Principles of Environmental Science.

A study of natural resources, their utilization in a technical society, and factors leading to their depletion.

**ENVS 3111: Environmental Seminar**

Cross-listed: BIOS 3111, CHEM 3111 Environmental Seminar, and GEOL 3111 Environmental Seminar

A seminar for students pursuing the environmental option of biology, chemistry, or geology and other students interested in environmental sciences.

**ENVS 4112: Environmental Science Internship**

Prerequisite: Consent of biology program director.

A supervised, practical experience providing ENVS majors with a hands-on, professional experience related to their career interests. Approximately 200 clock hours, a proposal, a log book, and a written and oral report are required.

**ENVS 4114: Environmental Science Internship**

Prerequisite: Consent of biology program director.

A supervised, practical experience providing ENVS majors with a hands-on, professional experience related to their career interests. Approximately 400 clock hours, a proposal, a log book, and a written and oral report are required.

**ENVS 4124: Biological Assessment of Water Quality**

Cross-listed: BIOL 4124 Biological Assessment of Water Quality

Offered: Spring

Prerequisites: BIOL/ENVS/PHSC 1004 Principles of Environmental Science, BIOL/FW 3114 Principles of Ecology, and three semesters of chemistry.

This course is an in-depth study of assessment of water quality by analyzing biological and chemical data.

This course may include topics and case studies from the following list:

Compare and contrast biological and chemical techniques for assessing water quality

Physical and chemical properties of water,

Connecting flows and water quality

Nutrient pollution,

Point and non-point sources

Effects of petroleum pollution from extraction, transportation, refining, and combustion on biological systems

SOPs, industry, and government standard practices and procedures for analyzing water quality

Species richness, species evenness, and rank abundance curves

Techniques from microbiology

Plants as assessment tools

Cladocerans and other zooplankton in laboratory or field

Macro invertebrates as indicators

Fighting Back Against Invasive Plants

Watch-dogging Wetlands Mitigation

Tackling the Dead Zone & Restoring the Mississippi

Volunteer monitoring helps identify problems and improve clean-up

Lecture 3 hours, laboratory 3 hours. This course includes several required field trips. \$40 laboratory fee.

**ENVS 4133: Environmental Policy**

Offered: Spring

Prerequisites: BIOL/ENVS/PHSC 1004 Principles of Environmental Science and BIOL/ENVS 3043 Conservation

This course is an in-depth study of environmental policy and law, including federal and state regulations, federal and state agencies, policies, enforcement, historic legal actions, and important procedures for compliance.

This course may include topics and case studies from the following list:

Introduction to the Clean Water Act Water Quality Standards

Pollution Discharge Permits

Storm water Pollution Discharge Permits Identifying Impaired Waters

Restoring Impaired Waters

Water Quality Certification Dredge & Fill Permits

Non-point Source Control State Revolving Funds Enforcement

Other Laws

Phosphorus Pollution Controls

Kentucky Waterways Alliance antidegradation case

Using the Clean Water Act to Restore Flows: Fay Creek

Watershed-based approach to storm water permits

Creative ways to use Section 319 funds

Hard infrastructure dollars pay for stream restoration

An industrial success in Oregon

Pursuing alternatives to wetland destruction

Using 401 to protect stream flow in the Dosewallips River

**ENVS 4881: Advanced Topics in Environmental Science**

Prerequisites: an upper level science course and consent of the instructor.

This course offers advanced instruction in an area of biological sciences that is not otherwise covered in the curriculum. The focus of the course will vary from offering to offering, thus the course may be taken more than once.

**ENVS 4882: Advanced Topics in Environmental Science**

Prerequisites: an upper level science course and consent of the instructor.

This course offers advanced instruction in an area of biological sciences that is not otherwise covered in the curriculum. The focus of the course will vary from offering to offering, thus the course may be taken more than once.

**ENVS 4883: Advanced Topics in Environmental Science**

Prerequisites: an upper level science course and consent of the instructor.

This course offers advanced instruction in an area of biological sciences that is not otherwise covered in the curriculum. The focus of the course will vary from offering to offering, thus the course may be taken more than once.

**ENVS 4884: Advanced Topics in Environmental Science**

Prerequisites: an upper level science course and consent of the instructor.

This course offers advanced instruction in an area of biological sciences that is not otherwise covered in the curriculum. The focus of the course will vary from offering to offering, thus the course may be taken more than once.

**ENVS 4951: Undergraduate Research in Environmental Science**

Prerequisites: an upper level science course and consent of the instructor.

Advanced students carry out independent research activity relating to a significant problem in a major field of study and supervised by faculty member. Formal report and presentation required. One to four credits depending on problem selected and effort made.

\$40 laboratory fee.

**ENVS 4952: Undergraduate Research in Environmental Science**

Prerequisites: an upper level science course and consent of the instructor.

Advanced students carry out independent research activity relating to a significant problem in a major field of study and supervised by faculty member. Formal report and presentation required. One to four credits depending on problem selected and effort made.

\$40 laboratory fee.

**ENVS 4953: Undergraduate Research in Environmental Science**

Prerequisites: an upper level science course and consent of the instructor.

Advanced students carry out independent research activity relating to a significant problem in a major field of study and supervised by faculty member. Formal report and presentation required. One to four credits depending on problem selected and effort made.

\$40 laboratory fee.

**ENVS 4954: Undergraduate Research in Environmental Science**

Prerequisites: an upper level science course and consent of the instructor.

Advanced students carry out independent research activity relating to a significant problem in a major field of study and supervised by faculty member. Formal report and presentation required. One to four credits depending on problem selected and effort made.

\$40 laboratory fee.

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**FINANCE (FIN)**

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**FIN 2013: Personal Finance**

A course designed to provide students with the fundamental skills of personal financial planning and goal achievement. Topics covered include financial planning, cash and credit management, insurance, investment, and retirement and estate planning.

**FIN 3023: Financial Markets and Institutions**

Prerequisites: ECON 2003 Principles of Macroeconomics, 2013, and FIN 3063 Business Finance.

Course coverage includes an analysis of financial markets and institutions; regulation, money market operations, global impact of central banking principles and monetary policy, and determinants of interest rates with financial asset pricing.

**FIN 3033: Principles of Real Estate**

Prerequisite: FIN 3063 Business Finance

This course provides an overview of real estate investment and financing. The topics of this course include mortgage loans, residential property and income-producing property investing and financing, financing real estate development, alternative real estate financing, and investment vehicles. The goal of this course is to teach students the fundamental factors that affect the real estate markets. The course will also teach students the role of valuation,

tax, law, and accounting related to the real estate investing and financing as well as applications of the above knowledge to the real world real estate markets.

### **FIN 3043: Investments**

Prerequisite: FIN 3063 Business Finance

This course provides the fundamental concepts of the investment area including markets, stocks, bonds, investment environments, economic, industry and security analysis.

### **FIN 3063: Business Finance**

Prerequisites: ACCT 2013 Accounting Principles II, ECON 2003 Principles of Macroeconomics, ECON 2013 Principles of Microeconomics, and (PSY 2053 Statistics for the Behavioral Sciences or STAT 2163 Introduction to Statistical Methods). Additionally, must have a minimum GPA of 2.0.

Nature of business finance and its relation to economics, accounting, and law; role of the financial manager and financial markets; financial forecasting, planning, and budgeting; securities valuation, capital budgeting, and cost of capital; capital structure and working capital management; international finance.

### **FIN 4023: Portfolio Management**

Prerequisites: FIN 3063 Business Finance. Additionally, must have a minimum GPA of 2.0.

This course begins with an emphasis on fundamental portfolio theory and management. It also includes portfolio concepts related to investments in mutual funds, hedge funds, stocks, bonds, and investments in derivatives. Finally, the course addresses behavioral finance theory.

### **FIN 4033: Financial Modeling**

Prerequisite: FIN 4023 Portfolio Management

This is an application based course, where students will learn how to apply financial concepts and theories to real world applications. Students will learn how to use financial functions and commands in Excel for financial calculations. Students will also be able to perform data combining techniques. Students will gain hands-on knowledge of how to customize financial analysis for different situations. Furthermore, students will develop, analyze, update, and reevaluate an investment portfolio consisting of different asset classes.

### **FIN 4043: Principles of Risk and Insurance**

Prerequisites: FIN 3063 Business Finance. Additionally, must have a minimum GPA of 2.0.

A course designed to provide an understanding of the insurance field. Course content includes a survey of the extent and types of risk in business; ways of dealing with business risk; and a survey of insurance for risk-bearing purposes.

### **FIN 4053: Internship I in Economics/Finance**

Prerequisites: Permission of the instructor, department head, and Dean; minimum 2.5 GPA on total earned hours and on at least 15 earned hours from ATU.

A supervised, practical experience providing undergraduate ECON/FIN majors with a hands-on, professional experience in a position relating to an area of career interest. The student will work in a local cooperating business establishment under the supervision of a member of management of that firm. A School of Business faculty member will observe and consult with the students and the management of the cooperating firm periodically during the period of the internship. Students will be required to make a classroom presentation, maintain an internship log, and prepare a final term paper.

Note: Only three hours of internship may be used to satisfy the curriculum requirements for economics and finance electives. Additional hours may be used to satisfy the curriculum requirements for general electives.

### **FIN 4083: Financial Institution Management**

Prerequisite: FIN 3023 Financial Markets and Institutions

A study of major financial institutions and the markets in which they operate, with emphasis on financial decision making and risk management. Topics include financial intermediation theory; measurement and management of interest rate risk, credit risk, off-balance-sheet risk, foreign exchange risk, country risk, and liquidity risk; capital adequacy; and product/market diversification.

### **FIN 4093: Advanced Financial Management**

Prerequisites: FIN 3063 Business Finance. Additionally, you must have a minimum GPA of 2.0.

This is an advanced survey of financial management issues. The course emphasizes planning and decision making. It covers specific topics such as discounted cash flow analysis, stock and bond valuation, financial intermediation, organizing, raising and managing capital, capital investment, risk analysis, and financial statement analysis. Lectures and class discussion are heavily supplemented with sample problems, and outside readings. Quantitative techniques are introduced to facilitate analysis.

### **FIN 4101: Special Topics in Finance**

Prerequisites: FIN 3063 Business Finance, a minimum GPA of 2.0, and instructor approval

This course provides in-depth exploration of selected finance topics. The primary topic will vary from offering to offering; thus the course may be taken more than once.

### **FIN 4102: Special Topics in Finance**

Prerequisites: FIN 3063 Business Finance, a minimum GPA of 2.0, and instructor approval

This course provides in-depth exploration of selected finance topics. The primary topic will vary from offering to offering; thus the course may be taken more than once.

### **FIN 4103: Special Topics in Finance**

Prerequisites: FIN 3063 Business Finance, a minimum GPA of 2.0, and instructor approval

This course provides in-depth exploration of selected finance topics. The primary topic will vary from offering to offering; thus the course may be taken more than once.

## **FINE ARTS/HUMANITIES (FAH)**

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### **FAH 1XXX: Fine Arts and Humanities Courses**

Fine Arts and Humanities

ART 2123 Experiencing Art Experiencing Art

ENGL 2003 Introduction to World Literature Introduction to World Literature

ENGL 2013 Introduction to American Literature Introduction to American Literature

ENGL 2023 Honors World Literature Honors World Literature

ENGL 2173 Introduction to Film Introduction to Film

ENGL 2183 Honors Introduction to Film Honors Introduction to Film

JOUR 2173 Introduction to Film Introduction to Film

MUS 2003 Introduction to Music Introduction to Music

PHIL 2003 Introduction to Philosophy Introduction to Philosophy

PHIL 2043 Honors Introduction to Philosophy Honors Introduction to Philosophy

PHIL 2053 Introduction to Critical Thinking Introduction to Critical Thinking

TH 2273 Introduction to Theatre Introduction to Theatre

## **FISHERIES WILDLIFE SCIENCE (FW)**

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### **FW 4XXX: FW TRANSFER ELECTIVE**

Credit transferred from another institution and articulated for fisheries wildlife biology upper division elective.

### **FW 3XXX: FW TRANSFER ELECTIVE**

Credit transferred from another institution and articulated for fisheries wildlife biology upper division elective.

### **FW 1001: Orientation to Fisheries and Wildlife Science**

Offered: Fall

An introduction to professions in fisheries and wildlife science. Required of fisheries and wildlife students during their first fall term on the Tech campus.

### **FW 2003: Elements of Fish and Wildlife Management**

Offered: Fall

Principles of fish and wildlife management for the non-major, including fish and wildlife identification and the role of various natural resource organizations in conservation.

\$40 laboratory fee.

### **FW 2013: Natural Resources Communications**

Offered: Fall

Prerequisite: ENGL 1023 Composition II or alternate

An investigation and practice of effective communication techniques typically used in natural resources management. The focus of this course is to teach students to effectively communicate complex scientific messages to diverse audiences. Specific types of communication explored will include construction of figures, graphs and tables, power point presentations, abstracts and technical reports specific to the natural resources discipline.

### **FW 2833: Introduction to Geographic Information Systems**

Cross-listed: GEOG 2833 Introduction to Geographic Information Systems

An introductory course dealing with computer organized spatial and attribute data. GIS is a system of specialized computer programs with the capability to manipulate and analyze data for problem solving.

### **FW 3053: Fisheries and Wildlife Administration**

Offered: Fall

Prerequisites: Fisheries and Wildlife Science or Environmental Science majors or approval of instructor.

Administration of fish and wildlife agencies, including organizational designs and policies, planning, directing, budgeting, personnel management, and public relations. Special consideration will be given to public, scientific, and economic considerations in the decision making process.

**FW 3074: Habitat Evaluation**

Introduction to aquatic and terrestrial habitat mensuration and evaluation for field biologists, with emphasis on the description and demonstration of evaluation procedures and software.

Lecture two hours, laboratory four hours. \$40 laboratory fee.

**FW 3084: Ichthyology**

Offered: Fall

Cross-listed: BIOL 3084 Ichthyology

Prerequisite: BIOL 2124 Principles of Zoology

Systematics, collection, identification, natural history, and importance of fishes.

Lecture two hours, laboratory four hours. \$40 laboratory fee.

**FW 3114: Principles of Ecology**

Cross-listed: BIOL 3114 Principles of Ecology

Prerequisites: BIOL 2124 Principles of Zoology, BIOL 2134 Principles of Botany, and one semester of chemistry.

Responses of organisms to environmental variables, bioenergetics, population dynamics, community interactions, ecosystem structure and function, and major bio geographical patterns.

Lecture two hours, laboratory four hours. \$40 laboratory fee.

**FW 3144: Ornithology**

Offered: Spring of even years

Cross-listed: BIOL 3144 Ornithology

Prerequisite: BIOL 2124 Principles of Zoology

An introduction to the biology of birds. The course covers aspects of anatomy, physiology, behavior, natural history, evolution, and conservation of birds. Laboratories address field identification and natural history of the birds of Arkansas.

Note: Students will be expected to participate in an extended 5-7day field trip.

Lecture two hours, laboratory four hours. \$40 laboratory fee.

**FW 3154: Mammalogy**

Offered: Fall

Cross-listed: BIOL 3154 Mammalogy

Prerequisite: BIOL 2124 Principles of Zoology

Taxonomy identification, ecology, and study natural history of the mammals.

Lecture three hours, laboratory two hours. \$40 laboratory fee.

**FW 3173: Biostatistics**

Offered: Fall

Prerequisite: one semester of statistics.

An analysis and interpretation of fisheries and wildlife data including descriptive statistics, hypothesis testing, analysis of variance, simple linear regression, correlation, goodness of fit, and contingency tables.

**FW 3204: Aquaculture**

Offered: Spring

Prerequisite: BIOL 2124 Principles of Zoology or permission of instructor.

Course is designed to provide students with the essentials of successful warm water aquaculture including crayfish and alligators. Basics of cool and cold water aquaculture are also covered. Emphasis ranges from maintenance of brood stock and culture of fingerlings to production of market size fish.

Lecture three hours, laboratory two hours plus several full-day field trips that may involve weekend or overnight travel. \$40 laboratory fee.

**FW 3224: Herpetology**

Offered: Spring of odd years

Cross-listed: BIOL 3224 Herpetology

Prerequisite: BIOL 2124 Principles of Zoology.

The phylogeny, classification, physiology, behavior, and distribution of reptiles and amphibians. The Laboratory will stress identification of the species found in Arkansas.

Lecture two hours, laboratory four hours. \$40 laboratory fee.

**FW 4001: Senior Seminar in Fisheries and Wildlife Biology**

Offered: Fall

Prerequisite: Senior fisheries and wildlife biology major or by consent of instructor.

Designed to integrate various aspects of fisheries and wildlife biology by covering current topics and to acquaint students with areas not covered elsewhere in the curriculum.

**FW 4003: Principles of Wildlife Management**

Offered: Spring

Prerequisite: FW (BIOL) 3114 or permission of instructor.

Principles of managing wildlife resources with emphasis on the history of wildlife resources in the United States, population ecology, wildlife values, and the administration of wildlife resources and resources agencies.

**FW 4013: Wildlife Techniques**

Offered: Spring

Prerequisite: FW (BIOL) 3114 or permission of instructor.

Instruction in current wildlife techniques including habitat evaluation and manipulation, estimation of wildlife abundance, capturing and marking, identification, aging, and scientific writing. Course is structured around a research project that requires use of popular wildlife techniques.

Lecture one hour, laboratory four hours. \$40 laboratory fee.

**FW 4014: Forest Ecology and Management**

Offered: Fall of odd years

Prerequisite: FW (BIOL) 3114

An in-depth coverage of ecological interactions in forested ecosystems. Lectures cover biotic and abiotic factors that influence development and species compositions of forest stands. Wildlife habitat relationships in forested ecosystems will also be discussed. Laboratories will familiarize students with field techniques and management activities important in the major forest types of Arkansas.

Lecture two hours, laboratory four hours. \$40 laboratory fee.

**FW 4024: Limnology**

Offered: Spring

Cross-listed: BIOL 4024 Limnology

Prerequisite: FW (BIOL) 3114.

A study of physical and chemical processes in fresh water and their effects on organisms in lakes and streams. Laboratory sessions and field trips demonstrate limnological instrumentation and methodology.

Lecture two hours, laboratory four hours. \$40 laboratory fee.

**FW 4034: Advanced Geographic Information Systems Applications**

Offered: Spring

Prerequisite: An introductory course in GIS or permission of instructor.

Use of GIS technology in wildlife and fisheries management and research. Emphasis placed on creation, maintenance, and analysis of spatially explicit data.

Lecture three hours, laboratory two hours. \$40 laboratory fee.

**FW 4043: Fisheries Techniques**

Offered: Fall

Prerequisites: FW (BIOL) 3114 and a computer science elective, or permission of instructor.

The techniques and practices of warm water fish management. Major emphasis will be placed on survey techniques, data collection, and data analysis techniques.

Lecture one hour, laboratory four hours. \$40 laboratory fee.

**FW 4054: Waterfowl Ecology and Management**

Prerequisite: BIOL (FW) 3114.

Ecology and management of North American waterfowl and their habitats. Laboratory exercises will focus on identification, life histories, sex and age determination, and abundance survey methods. Lectures and discussions will cover behavioral ecology, reproductive ecology, winter ecology, harvest management, and habitat management and conservation.

Lecture two hours, laboratory four hours. \$40 laboratory fee.

**FW 4064: Wetland Ecology and Management**

Offered: Fall of even years

Prerequisite: A course in ecology or permission of instructor

An in-depth coverage of wetlands including occurrence, morphology, hydrology, soils, ecology, and regulation. The types of wetlands and their functions are discussed, as are local, state and federal regulations pertaining to their use, management and protection. Laboratory focuses on identification of common wetland vegetation, delineation of wetland boundaries, as well as field techniques and management activities commonly used in Arkansas wetlands.

Lecture two hours, laboratory four hours. \$40 laboratory fee

**FW 4083: Principles of Fisheries Management**

Offered: Spring

Prerequisites: FW (BIOL) 3114, one semester of statistics, and one semester of calculus, or permission of instructor.

The principles and theory of warm water fish management with major emphasis on the human dimension in fisheries management, fishery assessment, population dynamics, and common management practices.

### **FW 4103: Human Dimensions of Fisheries and Wildlife Management**

Offered: Fall

Prerequisite: BIOL (FW) 3114 or permission of instructor.

Exploration of the complex interactions of social, political, institutional, economic and ecological processes that contribute to natural resource use and management. The primary focus is on interactions and conflict resolution among various stakeholders, resource management agencies, and wildlife and fisheries resources. Topics covered include public attitudes and expectations; agency structure and policy; values of fishes, wildlife; and public relations.

### **FW 4112: Internship**

Prerequisite: Consent of program director.

A supervised, practical experience providing FW majors with a hands-on, professional experience related to their career interests. Approximately 200 clock hours, a proposal, a log book, and a written report are required.

Note: A maximum of four credit hours is allowed for FW internship.

### **FW 4114: Internship**

Prerequisite: Consent of program director.

A supervised, practical experience providing FW majors with a hands-on, professional experience related to their career interests. Approximately 400 clock hours, a proposal, a log book, and a written and oral report are required.

Note: A maximum of four credit hours is allowed for FW internship.

### **FW 4163: Biodiversity and Conservation Biology**

Offered: Fall

Cross-listed: BIOL 4163 Biodiversity and Conservation Biology

Prerequisite: a course in ecology or permission of instructor

The concepts of, processes that produce, and factors that threaten biological diversity are introduced and examined. Further emphasis is placed on unique problems associated with small population size, management of endangered species and practical applications of conservation biology.

### **FW 4881: Advanced Topics**

Offered: On demand

Prerequisite: Consent of instructor. Open to junior and senior students only.

Offers special instruction on fisheries and wildlife topics that are not otherwise covered in the curriculum. The primary focus of the course will vary from offering to offering, thus the course may be taken more than once.

\$40 laboratory fee.

### **FW 4882: Advanced Topics**

Offered: On demand

Prerequisite: Consent of instructor. Open to junior and senior students only.

Offers special instruction on fisheries and wildlife topics that are not otherwise covered in the curriculum. The primary focus of the course will vary from offering to offering, thus the course may be taken more than once.

\$40 laboratory fee.

### **FW 4883: Advanced Topics**

Offered: On demand

Prerequisite: Consent of instructor. Open to junior and senior students only.

Offers special instruction on fisheries and wildlife topics that are not otherwise covered in the curriculum. The primary focus of the course will vary from offering to offering, thus the course may be taken more than once.

\$40 laboratory fee.

### **FW 4884: Advanced Topics**

Offered: On demand

Prerequisite: Consent of instructor. Open to junior and senior students only.

Offers special instruction on fisheries and wildlife topics that are not otherwise covered in the curriculum. The primary focus of the course will vary from offering to offering, thus the course may be taken more than once.

\$40 laboratory fee.

### **FW 4951: Undergraduate Research in Fisheries and Wildlife**

Offered: On demand

Prerequisite: Departmental approval

Advanced students carry out independent research activity relating to a significant problem in a major field of study. Supervised by faculty member. Formal report and presentation required. One to four credits depending on problem selected and effort made.

\$40 laboratory fee.

**FW 4952: Undergraduate Research in Fisheries and Wildlife**

Offered: On demand

Prerequisite: Departmental approval

Advanced students carry out independent research activity relating to a significant problem in a major field of study. Supervised by faculty member. Formal report and presentation required. One to four credits depending on problem selected and effort made. \$40 laboratory fee.

**FW 4953: Undergraduate Research in Fisheries and Wildlife**

Offered: On demand

Prerequisite: Departmental approval

Advanced students carry out independent research activity relating to a significant problem in a major field of study. Supervised by faculty member. Formal report and presentation required. One to four credits depending on problem selected and effort made. \$40 laboratory fee.

**FW 4954: Undergraduate Research in Fisheries and Wildlife**

Offered: On demand

Prerequisite: Departmental approval

Advanced students carry out independent research activity relating to a significant problem in a major field of study. Supervised by faculty member. Formal report and presentation required. One to four credits depending on problem selected and effort made. \$40 laboratory fee.

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**FRENCH (FR)**

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**FR 4XXX: FRENCH TRANSFER ELECTIVE**

Credit transferred from another institution and articulated for french upper division elective.

**FR 3XXX: FRENCH TRANSFER ELECTIVE**

Credit transferred from another institution and articulated for french upper division elective.

**FR 1013: Beginning French I**

ACTS Common Course - FR 1013 Beginning French I

Training in the elements of French communication (speaking and writing) and comprehension (listening and reading) within a variety of cultural contexts.

Three hours of applied class work and one hour of foreign language lab per week is required.

Note: Advanced placement and credit by examination are available to students who have previously studied French.

**FR 1023: Beginning French II**

ACTS Common Course - FR 1023 Beginning French II

Prerequisite: FR 1013 Beginning French I or equivalent

Continued training in basic French communication (speaking and writing) and comprehension (listening and reading) skills to increase proficiency in the language within a variety of cultural contexts.

Three hours of applied class work and one hour of foreign language lab per week is required.

Note: Advanced placement and credit by examination are available to students who have previously studied French.

**FR 2013: Intermediate French I**

ACTS Common Course - FR 2013 Intermediate French I

Prerequisite: FR 1023 Beginning French II or equivalent

Development of the language skills necessary for communication (speaking and writing) and comprehension (listening and reading) skills to increase proficiency in the language at the intermediate level within a variety of cultural contexts.

Three hours of applied class work and one hour of foreign language lab per week is required.

Note: Advanced placement and credit by examination are available to students who have previously studied French.

**FR 2023: Intermediate French II**

ACTS Common Course - FR 2023 Intermediate French II

Prerequisite: FR 2013 Intermediate French I or equivalent

Further development of the language skills necessary for communication (speaking and writing) and comprehension (listening and reading) skills to provide mastery of the fundamental tools in a variety of cultural contexts.

Three hours of applied class work and one hour of foreign language lab per week is required.

Note: Advanced placement and credit by examination are available to students who have previously studied the language.

**FR 3003: Conversation and Composition I**

Prerequisite: FR 2023 Intermediate French II or permission of instructor



Development of advanced control of French communication and comprehension through conversation and composition based on analysis of authentic short texts and media.

Three hours of applied course work.

Note: Advanced placement and credit by examination are available to students who have previously studied or are proficient in French.

### **FR 3013: Conversation and Composition II**

Prerequisite: FR 3003 Conversation and Composition I or permission of instructor

Continuation of FR 3003 Conversation and Composition I. Further development of advanced proficiency of French communication and comprehension through conversation and composition based on analysis of authentic short texts and media.

Three hours of applied course work.

Note: Advanced placement and credit by examination are available to students who have previously studied or are proficient in French.

### **FR 3023: Introduction to Linguistics**

Cross-listed: COMM 3023 Introduction to Linguistics, ENGL 3023 Introduction to Linguistics, GER 3023 Introduction to Linguistics, and SPAN 3023 Introduction to Linguistics

Prerequisites: ENGL 1023 Composition II or equivalent and FR 2023 Intermediate French II or equivalent.

A study of basic concepts in language, comparative characteristics of different languages, and the principles of linguistic investigation.

### **FR 3113: Culture and Civilization**

Prerequisite: FR 3013 Conversation and Composition II or permission of instructor.

Development of an understanding of French life through study and analysis of French history and geography texts, film, advertising, and mass media.

### **FR 3143: Study Abroad**

Prerequisite: Enrollment in a Tech-sanctioned study program in a French-speaking country, completion of FR 2023 Intermediate French II or equivalent, and permission of the Study Abroad supervisor.

Study of the contemporary language and culture in a French speaking country.

Note: May substitute for FR 3003 Conversation and Composition I or FR 3013 Conversation and Composition II, depending on the student's proficiency level.

### **FR 4701: Foreign Language Pedagogy**

Cross-listed: GER 4701 Foreign Language Pedagogy, SPAN 4701 Foreign Language Pedagogy

Prerequisite: Admission to student teaching phase of the teacher education program.

Co-requisite: SEED 4909 Teaching in the Secondary School

Intensive on-campus exploration of the principles of curriculum construction, applied methods, professional collaboration, and evaluation as related to teaching French, German, or Spanish, followed by professional internship application of these principles under the supervision of a qualified departmental instructor.

### **FR 4703: Foreign Language Teaching Methods**

Cross-listed: GER 4703 Foreign Language Teaching Methods, SPAN 4703 Foreign Language Teaching Methods

Prerequisites: FR 3013 Conversation and Composition II and FR 3113 Culture and Civilization or equivalent; admission to Stage II of the Secondary Education sequence or equivalent.

Survey of instructional methods with discussions and demonstrations of practical techniques for the teaching of foreign language.

### **FR 4801: Cultural Immersion and Research**

Prerequisites: Enrollment in French Immersion Weekend and permission of instructor.

Intensive study of French cultural topics followed by individual research projects. May be repeated for credit if content varies.

### **FR 4951: Undergraduate Research in French**

Offered: On demand

Prerequisite: Departmental approval

Advanced students carry out independent research activity relating to a significant problem in a major field of study. Supervised by faculty member.

Formal report and presentation required. One to four credits depending on problem selected and effort made.

### **FR 4952: Undergraduate Research in French**

Offered: On demand

Prerequisite: Departmental approval

Advanced students carry out independent research activity relating to a significant problem in a major field of study. Supervised by faculty member.

Formal report and presentation required. One to four credits depending on problem selected and effort made.

### **FR 4953: Undergraduate Research in French**

Offered: On demand

Prerequisite: Departmental approval

Advanced students carry out independent research activity relating to a significant problem in a major field of study. Supervised by faculty member. Formal report and presentation required. One to four credits depending on problem selected and effort made.

**FR 4954: Undergraduate Research in French**

Offered: On demand

Prerequisite: Departmental approval

Advanced students carry out independent research activity relating to a significant problem in a major field of study. Supervised by faculty member. Formal report and presentation required. One to four credits depending on problem selected and effort made.

**FR 4993: Special Problems in French**

Prerequisites: FR 2023 Intermediate French II and consent of the instructor and the department head.

Designed to provide advanced students with a course of study in an area not covered by departmental course offerings.

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**GAME/INTERACTIVE MEDIA DESIGN (GAME)**

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**GAME 1003: Intro to Game Development**

Offered: Fall

A practical introduction to game art, design, and coding through the conception, creation, and evaluation of simple digital game(s).  
\$36 course fee.

**GAME 2003: Digital 3-D Foundations**

Offered: Spring

Prerequisite: ART 2213 Digital Skills

A practical introduction to all aspects of 3D development for film and game, including modeling, texturing, animation, rigging, and rendering.  
\$36 course fee.

**GAME 2013: Digital Audio Production**

Cross-listed: MUS 2013 Digital Audio Production

An introduction to digital audio production through lectures, practical assignments, and in-class exercises. Open to students in all majors.  
\$45 course fee.

**GAME 3013: Game Development I**

Offered: Fall

Prerequisite: GAME 1003 Intro to Game Development

This course is an introduction to the fundamentals of game design and development.  
\$45 course fee.

**GAME 3023: Game Development II**

Offered: Spring

Prerequisite: GAME 2003 Digital 3-D Foundations and GAME 3013 Game Development I

This course is a continuation of the fundamentals of game design and development through the design and production of more complex games and utilization of game engines.  
\$45 course fee.

**GAME 4013: Senior Game Project I**

Offered: Fall

Prerequisites: GAME 3023 Game Development II, GAME 4263 3D Modeling, and GAME 4633 3D Animation.

Senior Game Project I is the first course of the senior capstone experience of the Game Design Major. Students will work in teams to design and develop their project in preparation for the production phase, simulating the "real world" experience of the game and interactive media industry.  
\$45 course fee.

**GAME 4023: Senior Game Project II**

Offered: Spring

Prerequisite: GAME 4013 Senior Game Project I

Senior Game Project II is one of two capstone courses in the Game Design and Interactive Media Major. Students develop project-ready assets while working in an environment that simulates the "real world" experience of working in the game and interactive media field.  
\$45 course fee.

**GAME 4263: 3D Modeling**

Offered: Spring

Prerequisites: GAME 2003 Digital 3-D Foundations

This course introduces the fundamentals of object and character creation using 3D modeling software such as Autodesk's Mud Box and Maya.

\$45 course fee.

### **GAME 4633: 3D Animation**

Offered: Spring

Prerequisite: GAME 2003 Digital 3-D Foundations

This course introduces the fundamental 3D theories and principles of computer modeling and animation using software such as Autodesk's Mud Box and Maya.

\$45 course fee.

### **GAME 4803: Game Design Theory**

Offered: Fall

Prerequisite: ART 3001 Sophomore Review

This course will serve as an introduction to the interdisciplinary study of commercial videogames as texts, examining their cultural, educational, and social functions in contemporary settings.

### **GAME 4901: Professional Portfolio**

Offered: Spring

Prerequisite: GAME 4013 Senior Game Project I

The Game and Interactive Media Design course prepares the student for entry into the professional world through the development of a resume, portfolio, and the presentation of their work.

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## **GENERAL EDUC BIOLOGICAL SCIENC (GEBL)**

### **GEBL 1XXX: GEN ED BIOLOGICAL SCIENCE**

Credit transferred from another institution and articulated for general education biological science with required lab.

### **GEBL 3XXX: GEN ED BIOLOGICAL SCIENCE**

Credit transferred from another institution and articulated for general education biological science with required lab.

### **GEBL 2XXX: GEN ED BIOLOGICAL SCIENCE**

Credit transferred from another institution and articulated for general education biological science with required lab.

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## **GENERAL EDUC BIOLOGICAL SCIENC (GEBO)**

### **GEBO 1XXX: GEN ED BIOL SCIENCE W/O LAB**

Credit transferred from another institution and articulated for general education biological science without required lab.

### **GEBO 4XXX: GEN ED BIOL SCIENCE W/O LAB**

Credit transferred from another institution and articulated for general education biological science without required lab.

### **GEBO 3XXX: GEN ED BIOL SCIENCE W/O LAB**

Credit transferred from another institution and articulated for general education biological science without required lab.

### **GEBO 2XXX: GEN ED BIOL SCIENCE W/O LAB**

Credit transferred from another institution and articulated for general education biological science without required lab.

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## **GENERAL EDUC PHYSICAL ACTIVITY (GEPE)**

### **GEPE 1XXX: PHYSICAL ACTIVITY**

Credit transferred from another institution and articulated for general education physical activity.

### **GEPE 3XXX: PHYSICAL ACTIVITY**

Credit transferred from another institution and articulated for general education physical activity.

### **GEPE 2XXX: PHYSICAL ACTIVITY**

Credit transferred from another institution and articulated for general education physical activity.

## **GENERAL EDUC PHYSICAL SCIENCE (GEPO)**

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### **GEPO 1XXX: GEN ED PHYS SCIENCE W/O LAB**

Credit transferred from another institution and articulated for general education physical science without required lab.

### **GEPO 4XXX: GEN ED PHYS SCIENCE W/O LAB**

Credit transferred from another institution and articulated for general education physical science without required lab.

### **GEPO 3XXX: GEN ED PHYS SCIENCE W/O LAB**

Credit transferred from another institution and articulated for general education physical science without required lab.

### **GEPO 2XXX: GEN ED PHYS SCIENCE W/O LAB**

Credit transferred from another institution and articulated for general education physical science without required lab.

## **GENERAL EDUC PHYSICAL SCIENCE (GEPS)**

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### **GEPS 1XXX: GEN ED PHYSICAL SCIENCE**

Credit transferred from another institution and articulated for general education physical science with required lab.

### **GEPS 3XXX: GEN ED PHYSICAL SCIENCE**

Credit transferred from another institution and articulated for general education physical science with required lab.

### **GEPS 2XXX: GEN ED PHYSICAL SCIENCE**

Credit transferred from another institution and articulated for general education physical science with required lab.

## **GENERAL EDUC SCIENCE LAB (GELB)**

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### **GELB 1XXX: GEN ED SCIENCE LAB**

Credit transferred from another institution and articulated for general education science lab.

### **GELB 4XXX: GEN ED SCIENCE LAB**

Credit transferred from another institution and articulated for general education science lab.

### **GELB 3XXX: GEN ED SCIENCE LAB**

Credit transferred from another institution and articulated for general education science lab.

### **GELB 2XXX: GEN ED SCIENCE LAB**

Credit transferred from another institution and articulated for general education science lab.

## **GENERAL EDUC SOCIAL SCIENCE (GESS)**

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### **GESS 1XXX: GEN ED SOCIAL SCIENCES**

Credit transferred from another institution and articulated for general education social sciences.

### **GESS 3XXX: GEN ED SOCIAL SCIENCES**

Credit transferred from another institution and articulated for general education social sciences.

### **GESS 2XXX: GEN ED SOCIAL SCIENCES**

Credit transferred from another institution and articulated for general education social sciences.

## **GENERAL EDUC US HISTORY (GEUS)**

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### **GEUS 1XXX: GEN ED US HIST SOC SCI**

Credit transferred from another institution and articulated for general education social sciences U. S. history requirement.

### **GEUS 3XXX: GEN ED US HIST SOC SCI**

Credit transferred from another institution and articulated for general education social sciences U. S. history requirement.

**GEUS 2XXX: GEN ED US HIST SOC SCI**

Credit transferred from another institution and articulated for general education social sciences U. S. history requirement.

**GENERAL EDUCATION FINE ART (GEFA)**

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**GEFA 1XXX: GEN ED FINE ART**

Credit transferred from another institution and articulated for general education fine art.

**GEFA 3XXX: GEN ED FINE ART**

Credit transferred from another institution and articulated for general education fine art.

**GEFA 2XXX: GEN ED FINE ART**

Credit transferred from another institution and articulated for general education fine art.

**GENERAL EDUCATION HUMANITIES (GEHM)**

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**GEHM 1XXX: GEN ED HUMANITIES**

Credit transferred from another institution and articulated for general education humanities.

**GEHM 3XXX: GEN ED HUMANITIES**

Credit transferred from another institution and articulated for general education humanities.

**GEHM 2XXX: GEN ED HUMANITIES**

Credit transferred from another institution and articulated for general education humanities.

**GENERAL EDUCATION SPEECH (GESP)**

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**GESP 1XXX: GEN ED SPEECH**

Credit transferred from another institution and articulated for general education speech.

**GESP 3XXX: GEN ED SPEECH**

Credit transferred from another institution and articulated for general education speech.

**GESP 2XXX: GEN ED SPEECH**

Credit transferred from another institution and articulated for general education speech.

**GEOGRAPHY (GEOG)**

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**GEOG 4XXX: GEOGRAPHY TRANSFER ELECTIVE**

Credit transferred from another institution and articulated for geography upper division elective.

**GEOG 3XXX: GEOGRAPHY TRANSFER ELECTIVE**

Credit transferred from another institution and articulated for geography upper division elective.

**GEOG 2XXX: GEOGRAPHY TRANSFER ELECTIVE**

Credit transferred from another institution and articulated for geography lower division elective.

**GEOG 1XXX: GEOGRAPHY TRANSFER ELECTIVE**

Credit transferred from another institution and articulated for geography lower division elective.

**GEOG 2013: Regional Geography of the World**

ACTS Common Course - GEOG 2103

A survey of major regions with particular emphasis upon Europe, the Commonwealth of Independent States, the Orient, the Mid East, Africa, and Latin America.

**GEOG 2023: Human Geography**

ACTS Common Course - GEOG 1113

A systematic treatment of the major concepts of human geography and their application to modern problems, consideration of population, cultural patterns and processes, political organization of space, agricultural and rural land use, industrialization and economic development, and cities and urban land use.

**GEOG 2833: Introduction to Geographic Information Systems**

Cross-listed: FW 2833 Introduction to Geographic Information Systems

An introductory course dealing with computer organized spatial and attribute data. GIS is a system of specialized computer programs with the capability to manipulate and analyze data for problem solving.

**GEOG 3033: Physical Geography**

An overview of Earth's natural environment, focused on the spatial variety of land forms, climate, soils, vegetation, and water, along with human-environment interactions.

**GEOG 3113: Geography of the United States and Canada**

A regional study emphasizing the physical and cultural aspects of Anglo America.

**GEOG 3203: Arkansas Geography**

A study of the geography of modern Arkansas, with an emphasis on the differences, human geographies, and physical settings of the various geographic regions of the state.

**GEOG 3303: Geography of Latin America**

A regional study of the lands and people of Latin America and their interrelationships. Particular attention will be given to Mexico, Brazil, and Argentina.

**GEOG 3403: GIS II - Planning Applications**

A GIS mapping course specializing in the collection and manipulation of spatial data in support of metropolitan planning and community development. Emphasis will be placed on techniques in editing, raster methods, spatial analysis, and GIS modeling.

**GEOG 3413: Geography of Europe**

A regional study of the physical and cultural aspects of Europe (including the C.I.S.) and their interrelationships.

**GEOG 3603: URBAN GEOGRAPHY**

A course on urban geography and urbanization, with focus on the development and problems of U.S. cities.

**GEOG 3703: Geography of Asia**

A regional study of the lands and peoples of Asia and their interrelationships with particular emphasis on India, China, and Japan.

**GEOG 3803: Historical Geography**

A study of how space and place is transformed through time. Through a focus on the geographies of the past throughout North America, this course examines the ways humans interact with the environment to create a material-cultural landscape.

**GEOG 4023: Economic Geography**

An overview of economic geography, focused on the spatial arrangement of patterns of economic activity at global, national, regional, and local scales, with additional emphasis on location theory, transportation, resources, and globalization.

**GEOG 4203: Place and Collective Memory**

An examination of the way society remembers the past and portrays this collective memory through socially constructed monuments.

**GEOG 4803: Seminar in Global Studies**

A seminar on current world geographic influences that affect the nations of the world, such as demographics, complex environmental and physical changes, and political and economic relationships.

**GEOG 4951: Undergraduate Research in Geography**

Offered: On demand

Prerequisite: Departmental approval

Advanced students carry out independent research activity relating to a significant problem in a major field of study. Supervised by faculty member. Formal report and presentation required. One to four credits depending on problem selected and effort made.

**GEOG 4952: Undergraduate Research in Geography**

Offered: On demand

Prerequisite: Departmental approval

Advanced students carry out independent research activity relating to a significant problem in a major field of study. Supervised by faculty member. Formal report and presentation required. One to four credits depending on problem selected and effort made.

### **GEOG 4953: Undergraduate Research in Geography**

Offered: On demand

Prerequisite: Departmental approval

Advanced students carry out independent research activity relating to a significant problem in a major field of study. Supervised by faculty member. Formal report and presentation required. One to four credits depending on problem selected and effort made.

### **GEOG 4954: Undergraduate Research in Geography**

Offered: On demand

Prerequisite: Departmental approval

Advanced students carry out independent research activity relating to a significant problem in a major field of study. Supervised by faculty member. Formal report and presentation required. One to four credits depending on problem selected and effort made.

### **GEOG 4983: Geography Seminar:**

A directed seminar in an area of cultural geography. The specific focus will depend upon research under way, community or student need, and the unique educational opportunity available.

May be repeated for a maximum of six credit hours if course content changes.

### **GEOG 4993: Special Problems in Geography**

Admission requires consent of department head.

## **GEOLOGY (GEOL)**

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### **GEOL 4XXX: GEOLOGY TRANSFER ELECTIVE**

Credit transferred from another institution and articulated for geology upper division elective.

### **GEOL 3XXX: GEOLOGY TRANSFER ELECTIVE**

Credit transferred from another institution and articulated for geology upper division elective.

### **GEOL 2XXX: GEOLOGY TRANSFER ELECTIVE**

Credit transferred from another institution and articulated for geology lower division elective.

### **GEOL 1XXX: GEOLOGY TRANSFER ELECTIVE**

Credit transferred from another institution and articulated for geology lower division elective.

### **GEOL 1004: Essentials of Earth Science**

ACTS Common Course - PHSC 1104

An introduction to the fundamental topics of earth science including physical and historical geology, oceanography, meteorology, and astronomy. Laboratory exercises will serve to enhance/support lecture topics. Laboratory work will stress the use of the scientific method of problem solving. This course is designed as a general education science requirement and for prospective elementary and middle level educators.

Note: Duplicate credit for GEOL 1004 Essentials of Earth Science and GEOL 1014 Physical Geology will not be allowed.

Lecture three hours, laboratory two hours. \$40 laboratory fee.

### **GEOL 1014: Physical Geology**

ACTS Common Course - GEOL 1114

A survey of the earth's features and processes which include minerals, rocks, plate tectonics, geologic time, earthquakes, volcanoes, groundwater, development of landscapes, erosion, and climate change. Laboratory exercises will serve to support/enhance lecture topics.

Note: Duplicate credit for GEOL 1014 Physical Geology and GEOL 1004 Essentials of Earth Science will not be allowed.

Lecture three hours, laboratory three hours. \$40 laboratory fee.

### **GEOL 2001: Seminar**

Prerequisites: GEOL 1014 Physical Geology and GEOL 2001 Seminar

Participants will prepare oral and written reports and participate in discussions of the reports. Topics for the seminar will be determined by the instructors but will be subjects which are beyond the scope of other geology courses.

### **GEOL 2024: Historical Geology**

ACTS Common Course - GEOL 1134

Offered: Spring

Prerequisite: GEOL 1014 Physical Geology

A survey of the geological and biological history of the Earth through interpretation of the sedimentary rock record, fossils, paleo geographic maps, geologic maps, and cross-sections. Laboratory and field exercises enhance lecture subjects.

Lecture three hours, laboratory three hours. \$40 laboratory fee.

### **GEOL 2111: Environmental Seminar**

Cross-listed: BIOL 2111 Environmental Seminar, CHEM 2111 Environmental Seminar

Offered: Spring of odd years

A seminar for students pursuing the environmental option of geology, biology, or chemistry and other students interested in environmental sciences.

### **GEOL 3001: Seminar**

Prerequisites: GEOL 1014 Physical Geology and GEOL 2001 Seminar

Participants will prepare oral and written reports and participate in discussions of the reports. Topics for the seminar will be determined by the instructors but will be subjects which are beyond the scope of other geology courses.

### **GEOL 3004: Structural Geology**

Offered: Spring

Prerequisites: GEOL 1014 Physical Geology and GEOL 2024 Historical Geology

A study and analysis of the structural features of the earth's crust.

Lecture three hours, laboratory two hours. \$40 laboratory fee.

### **GEOL 3014: Mineralogy**

Offered: Fall

Prerequisites: GEOL 1014 Physical Geology, CHEM 1113 A Survey of Chemistry, CHEM 1111 Survey of Chemistry Laboratory or CHEM 2124 General Chemistry I. GEOL 2024 Historical Geology recommend.

A study of crystallography, physical and chemical properties, origin, occurrence, and structure theory of minerals.

Lecture two hours, laboratory four hours. \$40 laboratory fee.

### **GEOL 3023: Geologic Field Techniques**

Offered: Fall

Prerequisites: GEOL 1014 Physical Geology, GEOL 2024 Historical Geology and GEOL 3004 Structural Geology

Interpretation of aerial photographs; mensuration techniques using the Brunton compass, hand level, and Jacob's staff, measurement and description of stratigraphic sections; construction of and geologic maps; collecting, sampling, and collation procedures.

Lecture/laboratory four hours. \$40 laboratory fee.

### **GEOL 3044: Geomorphology**

Offered: Fall

Prerequisites: GEOL 1014 Physical Geology, GEOL 2024 Historical Geology, GEOL 3004 Structural Geology

A study of land forms and the processes which shape the earth's surface. Special emphasis will be placed on slope forming and fluvial processes.

Lecture three hours, laboratory three hours. \$40 laboratory fee.

### **GEOL 3053: Geology of Ore Deposits**

Offered: Fall of even years

Prerequisites: GEOL 1014 Physical Geology, GEOL 3014 Mineralogy, and GEOL 3164 Petrology

A study of the principal earth materials essential to local and national economies. Location, genesis, methods of extraction, and primary utilization and conservation are emphasized.

### **GEOL 3083: Hydrogeology**

Offered: Fall of odd years

Prerequisites: MATH 1113 College Algebra and GEOL 1014 Physical Geology or permission of the instructor.

The earth's hydrologic system is studied in terms of both empirical and quantitative aspects of the steady-state condition of groundwater and its interaction with surface water, as well as transient behavior from the influence of wells. Basic water chemistry is also covered along with transport and fate of pollutants in groundwater.

### **GEOL 3111: Environmental Seminar**

Cross-listed: BIOL 3111 Environmental Seminar, ENVS 3111 Environmental Seminar, and CHEM 3111 Environmental Seminar

Offered: Spring of odd years

A seminar for students pursuing the environmental option of geology, biology, or chemistry and other students interested in environmental sciences.

### **GEOL 3124: Invertebrate Paleontology**

Offered: Spring of odd years

Prerequisite: GEOL 2024 Historical Geology

A systematic study of invertebrate fossils and their geologic significance.

Lecture laboratory six hours. \$40 laboratory fee.



**GEOL 3153: Environmental Geology**

Offered: Fall

Prerequisite: GEOL 1014 Physical Geology

A study of the geological factors which influence the pollution of land, water, and biological resources; the role of rock and soil in the geobiological community; hydrology; land sliding and faulting in the human environment, natural resource problems; urban and land use planning based on geological data.

**GEOL 3164: Petrology**

Offered: Spring

Prerequisite: GEOL 3014 Mineralogy

A study of the classification, origin, geologic occurrence, physical and chemical properties of igneous, sedimentary, and metamorphic rocks. Lecture three hours, laboratory three hours. \$40 laboratory fee.

**GEOL 3174: Computer Applications in Geology**

Offered: Spring of odd years

Prerequisites: GEOL 1014 Physical Geology, GEOL 2024 Historical Geology, FW/GEOG 2833 Introduction to Geographic Information Systems, COMS 1003 Introduction to Computer Based Systems

Participants will focus on mastering common geotechnical, oil and gas, and Geographic Information Systems (GIS) software utilized throughout the geologic profession. Course will include techniques on GIS analysis; generating stratigraphic sections, cross-sections, structure contours, fence diagrams, rose diagrams, and other geologic documents; geologic data management.

\$40 course fee.

**GEOL 4001: Seminar**

Prerequisites: GEOL 1014 Physical Geology and GEOL 2001 Seminar

Participants will prepare oral and written reports and participate in discussions of the reports. Topics for the seminar will be determined by the instructors but will be subjects which are beyond the scope of other geology courses.

\$100 exam fee.

**GEOL 4006: Field Geology**

Offered: Each summer by arrangement

Prerequisites: GEOL 1014 Physical Geology, GEOL 2024 Historical Geology, GEOL 3004 Structural Geology, GEOL 3014 Mineralogy, GEOL 3023 Geologic Field Techniques, GEOL 3124 Invertebrate Paleontology, and GEOL 3164 Petrology

A six week summer course of instruction in the use of geologic mapping instruments, interpretation of aerial photographs and their use in the construction of geologic maps, development of techniques necessary in geological field work, recognition and interpretation of geologic phenomena, and potentially in environmental evaluation. The course is offered through arrangements with various universities. Students have the option of picking the field camp that best meets their interest from a list of pre-approved camps.

Note: Field camp expenses will vary, but the average cost for room/board and tuition is \$3,000.

\$40 laboratory fee.

**GEOL 4023: Principles of Stratigraphy and Sedimentation**

Offered: Fall

Prerequisite: GEOL 3164 Petrology

A study of sediments, sedimentary environments, and the stratigraphic relationships among sedimentary rock layers.

**GEOL 4034: Subsurface Geology**

Offered: Spring of even years

Prerequisites: GEOL 3004 Structural Geology, GEOL 3164 Petrology, GEOL 4023 Principles of Stratigraphy and Sedimentation, MATH 1113 College Algebra

A study of analytic procedures in selected topics in geophysics, well logging, and subsurface geological relationships.

Lecture three hours, laboratory two hours. \$40 laboratory fee.

**GEOL 4043: Geochemistry**

Offered: Fall of odd years

Prerequisites: GEOL 3014 Mineralogy, CHEM 2124 General Chemistry I, and CHEM 2134 General Chemistry II

Primarily low-temperature geochemistry with some high-temperature geochemical principles: aqueous geochemistry (including carbonate equilibria), biogeochemical cycles, basic organic chemistry, thermodynamics, phase diagrams, major and trace-element geochemistry, stable and radiogenic isotopic geochemistry (as applied primarily to low-, but also to high-temperature geochemistry). Applications to fresh surface water, ground water, oceans, air (climate), interactions with solid rock, as well as geochemical evolution of the Earth.

**GEOL 4111: Environmental Seminar**

Cross-listed: BIOL 4111 Environmental Seminar, CHEM 4111 Environmental Seminar

Offered: Spring of odd years

A seminar for students pursuing the environmental option of geology, biology, or chemistry and other students interested in environmental sciences.

**GEOL 4433: Advanced Topics in Geology**

Prerequisite: Consent of Instructor

Various advanced topics from any specialty area in geology.

Note: May be repeated for credit if course content differs.

**GEOL 4434: Advanced Topics in Geology**

Prerequisite: Consent of Instructor

Various advanced topics from any specialty area in geology.

Note: May be repeated for credit if course content differs.

\$40 laboratory fee.

**GEOL 4951: Undergraduate Research in Geology**

Offered: On demand

Prerequisite: Departmental approval

Advanced students carry out independent research activity relating to a significant problem in a major field of study. Supervised by faculty member.

Formal report and presentation required. One to four credits depending on problem selected and effort made.

\$40 laboratory fee.

**GEOL 4952: Undergraduate Research in Geology**

Offered: On demand

Prerequisite: Departmental approval

Advanced students carry out independent research activity relating to a significant problem in a major field of study. Supervised by faculty member.

Formal report and presentation required. One to four credits depending on problem selected and effort made.

\$40 laboratory fee.

**GEOL 4953: Undergraduate Research in Geology**

Offered: On demand

Prerequisite: Departmental approval

Advanced students carry out independent research activity relating to a significant problem in a major field of study. Supervised by faculty member.

Formal report and presentation required. One to four credits depending on problem selected and effort made.

\$40 laboratory fee.

**GEOL 4954: Undergraduate Research in Geology**

Offered: On demand

Prerequisite: Departmental approval

Advanced students carry out independent research activity relating to a significant problem in a major field of study. Supervised by faculty member.

Formal report and presentation required. One to four credits depending on problem selected and effort made.

\$40 laboratory fee.

**GEOL 4991: Special Problems in Geology**

Open to geology majors with the approval of the department head.

\$40 laboratory fee.

**GEOL 4992: Special Problems in Geology**

Open to geology majors with the approval of the department head.

\$40 laboratory fee.

**GEOL 4993: Special Problems in Geology**

Open to geology majors with the approval of the department head.

\$40 laboratory fee.

**GEOL 4994: Special Problems in Geology**

Open to geology majors with the approval of the department head.

\$40 laboratory fee.

**GERMAN (GER)**

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**GER 3XXX: GERMAN TRANSFER ELECTIVE**

Credit transferred from another institution and articulated for german upper division elective.

**GER 1013: Beginning German I**

ACTS Common Course - GERM 1013

Training in the elements of German communication (speaking and writing) and comprehension (listening and reading) within a variety of cultural contexts.

Three hours of applied class work and one hour of foreign language lab per week is required.

Note: Advanced placement and credit by examination are available to students who have previously studied German.

### **GER 1023: Beginning German II**

ACTS Common Course - GERM 1023

Prerequisite: GER 1013 Beginning German I or equivalent

Continued training in basic German communication (speaking and writing) and comprehension (listening and reading) skills to increase proficiency in the language within a variety of cultural contexts.

Three hours of applied class work and one hour of foreign language lab per week is required.

Note: Advanced placement and credit by examination are available to students who have previously studied German.

### **GER 2013: Intermediate German I**

ACTS Common Course - GERM 2013

Prerequisite: GER 1023 Beginning German II or equivalent

Development of the language skills necessary for communication (speaking and writing) and comprehension (listening and reading) skills to increase proficiency in the language at the intermediate level within a variety of cultural contexts.

Three hours of applied class work and one hour of foreign language lab per week is required.

Note: Advanced placement and credit by examination are available to students who have previously studied German.

### **GER 2023: Intermediate German II**

ACTS Common Course - GERM 2023

Prerequisite: GER 2013 Intermediate German I or equivalent

Further development of the language skills necessary for communication (speaking and writing) and comprehension (listening and reading) skills to provide mastery of fundamental tools in a variety of cultural contexts.

Three hours of applied class work and one hour of foreign language lab per week is required.

Note: Advanced placement and credit by examination are available to students who have previously studied German.

### **GER 3003: Conversation and Composition I**

Prerequisite: GER 2023 Intermediate German II or permission of instructor

Development of advanced control of German communication and comprehension through conversation and composition based on analysis of authentic short texts and media.

Three hours of applied course work.

Note: Advanced placement and credit by examination are available to students who have previously studied or are proficient in German.

### **GER 3013: Conversation and Composition II**

Prerequisite: GER 3003 Conversation and Composition I or permission of instructor

Continuation of GER 3003 Conversation and Composition I. Further development of advanced proficiency of German communication and comprehension through conversation and composition based on analysis of authentic short texts and media.

Three hours of applied course work.

Note: Advanced placement and credit by examination are available to students who have previously studied or are proficient in German.

### **GER 3023: Introduction to Linguistics**

Cross-listed: COMM 3023 Introduction to Linguistics, ENGL 3023 Introduction to Linguistics, FR 3023 Introduction to Linguistics, and SPAN 3023 Introduction to Linguistics

Prerequisites: ENGL 1023 Composition II or equivalent and GER 2023 Intermediate German II or equivalent

A study of basic concepts in language, comparative characteristics of different languages, and the principles of linguistic investigation.

### **GER 3113: Culture and Civilization**

Prerequisite: GER 3013 Conversation and Composition II or permission of instructor

Study of the geography, history, arts, institutions, customs, and contemporary life of the German speaking peoples.

### **GER 3143: Study Abroad**

Prerequisites: Enrollment in a Tech-sanctioned study program in a German-speaking country, completion of GER 2023 Intermediate German II or equivalent, and permission of the Study Abroad supervisor.

Study of the contemporary language and culture in a German speaking country.

Note: May substitute for GER 3003 Conversation and Composition I or GER 3013 Conversation and Composition II, depending on the student's proficiency level.

### **GER 3213: Advanced Grammar and Usage**

Prerequisite: GER 3013 Conversation and Composition II or permission of instructor.

The course is designed to build writing competence and strengthen grammatical competence. Grammar will be studied within the context of writing assignments. The course will deepen the knowledge of the language through the usage of applied linguistics, syntax, grammar, and semantics.

**GER 3223: Short Story**

Prerequisite: GER 3013 Conversation and Composition II or permission of instructor.

An introductory study of German short stories. Students will analyze short texts to strengthen their reading and text interpretation skills and to increase their knowledge of vocabulary.

**GER 4003: Oral Communication**

Prerequisite: GER 3013 Conversation and Composition II or permission of instructor.

This course is designed to strengthen students' oral communication skills by enabling them to converse easily with native speakers on everyday topics in preparation for the oral proficiency interview (OPI).

**GER 4213: German Literature to 1832**

Prerequisite: GER 3223 Short Story or permission of instructor.

A survey of major writers and representative works from early Middle Ages through the Age of Goethe.

**GER 4223: German Literature since 1832**

Prerequisite: GER 3223 Short Story or permission of instructor.

A survey of major writers and representative works since the Age of Goethe.

**GER 4701: Foreign Language Pedagogy**

Cross-listed: FR 4701 Foreign Language Pedagogy, SPAN 4701 Foreign Language Pedagogy

Prerequisite: Admission to student teaching phase of the teacher education program.

Co-requisite: SEED 4909 Teaching in the Secondary School

Intensive on-campus exploration of the principles of curriculum construction, applied methods, professional collaboration, and evaluation as related to teaching French, German, or Spanish, followed by professional internship application of these principles under the supervision of a qualified departmental instructor.

**GER 4703: Foreign Language Teaching Methods**

Cross-listed: FR 4073, SPAN 4703 Foreign Language Teaching Methods

Prerequisites: GER 3013 Conversation and Composition II and GER 3113 Culture and Civilization or equivalent; admission to Stage II of the Secondary Education sequence or equivalent.

Survey of instructional methods with discussions and demonstrations of practical techniques for teaching of foreign language.

**GER 4951: Undergraduate Research in German**

Offered: On demand

Prerequisite: Departmental approval

Advanced students carry out independent research activity relating to a significant problem in a major field of study. Supervised by faculty member. Formal report and presentation required. One to four credits depending on problem selected and effort made.

**GER 4952: Undergraduate Research in German**

Offered: On demand

Prerequisite: Departmental approval

Advanced students carry out independent research activity relating to a significant problem in a major field of study. Supervised by faculty member. Formal report and presentation required. One to four credits depending on problem selected and effort made.

**GER 4953: Undergraduate Research in German**

Offered: On demand

Prerequisite: Departmental approval

Advanced students carry out independent research activity relating to a significant problem in a major field of study. Supervised by faculty member. Formal report and presentation required. One to four credits depending on problem selected and effort made.

**GER 4954: Undergraduate Research in German**

Offered: On demand

Prerequisite: Departmental approval

Advanced students carry out independent research activity relating to a significant problem in a major field of study. Supervised by faculty member. Formal report and presentation required. One to four credits depending on problem selected and effort made.

**GER 4991: Special Problems in German**

Prerequisites: GER 2023 Intermediate German II and consent of the instructor and the department head.

Designed to provide advanced students with a course of study in an area not covered by departmental course offerings.

**GER 4992: Special Problems in German**

Prerequisites: GER 2024 and consent of the instructor and the department head.

Designed to provide advanced students with a course of study in an area not covered by departmental course offerings.

**GER 4993: Special Problems in German**

Prerequisites: GER 2023 Intermediate German II and consent of the instructor and the department head.

Designed to provide advanced students with a course of study in an area not covered by departmental course offerings.

**GER 4994: Special Problems in German**

Prerequisites: GER 2024 and consent of the instructor and the department head.

Designed to provide advanced students with a course of study in an area not covered by departmental course offerings.

**HEALTH EDUCATION (HLED)****HLED 1513: Lifetime Health and Fitness**

ACTS Common Course - HEAL 1003

The course is designed to motivate students toward an individual responsibility for their health status and an improved quality of life. An introspective study of personal lifestyle behavior is encouraged. The interrelationship of the multi causal factors which directly affect health status and the various dimensions of personal health are addressed.

Note: A grade of C or better is required for Health and Physical Education Majors.

**HLED 3203: Consumer Health Programs**

A study of current health services and the products offered by health providers to the health consumer and an examination of various diseases and disorders.

Note: A grade of C or better is required for Health and Physical Education Majors.

**HLED 4303: Methods and Materials in Health for Grades K-12**

Exploration of teaching methods and strategies, use of school and community resources, and evaluation related to teaching health in grades K 12.

Note: A grade of C or better is required for Health and Physical Education Majors.

**HLED 4403: Sport and Exercise Nutrition**

Prerequisite: PE 2653 Anatomy and Physiology and PE 4033 Exercise Physiology

A health education course which is designed to familiarize students with food as it relates to optimal health and performance. Focus is on nutrition as it affects the physical work capacity of humans from resting states to high output performance.

Note: A grade of C or better is required for Health and Physical Education Majors.

**HLED 4991: Special Problems in Health**

Prerequisite: Consent of department head

Independent work on approved health topics under the individual guidance of a faculty member.

**HLED 4992: Special Problems in Health**

Prerequisite: Consent of department head

Independent work on approved health topics under the individual guidance of a faculty member.

**HLED 4993: Special Problems in Health**

Prerequisite: Consent of department head

Independent work on approved health topics under the individual guidance of a faculty member.

**HEALTH INFORMATION MANAGEMENT (HIM)****HIM 3023: Introduction to Health Information Management**

Offered: Fall

Prerequisite: Admission to the HIM Program.

A study of the history of health records, professional ethics, the functions of a health information department, retention of records, medical forms, health information practices, and responsibilities to healthcare administration, medical staff, and other medical professionals.

**HIM 3033: Basic Coding Principles**

Offered: Spring

Prerequisites: BIOL 2004 Basic Human Anatomy and Physiology, AHS 2013 Medical Terminology, or permission of instructor.

An in depth study of the principles of disease and procedural coding using the ICD classification system. Areas emphasized during the course include: the purpose of coding, the definition of key terms, accurate application of coding principles, methods to assure quality data, and a review of the impact of prospective reimbursement on the function of coding.

### **HIM 3043: Advanced Concepts in Health Information**

Offered: Spring

Prerequisite: HIM 3023 Introduction to Health Information Management

A study of such advanced concepts as quality improvement, utilization review, licensure and accreditation standards, medical staff, and interdisciplinary relationships.

### **HIM 3132: Health Data and Statistics**

Offered: Spring

Prerequisite: HIM 3023 Introduction to Health Information Management or permission of instructor.

A study of the methods of recording diagnoses and operations by recognized systems of disease, procedural and pathological nomenclatures and classification systems, manual and computerized systems of indexing and abstracting, research and statistical techniques, and health information data handling.

### **HIM 3133: Alternative Health Records**

Offered: Spring

Prerequisite: HIM 3023 Introduction to Health Information Management

A study of health record requirements in non- traditional settings such as cancer programs, ambulatory care facilities, mental health centers, and long term care facilities.

### **HIM 3153: Current Issues in Health Information Management**

Offered: Fall

Prerequisite: HIM 3023 Introduction to Health Information Management

An in-depth study of the latest issues affecting the field of health information management. Specific topics will vary to reflect emerging trends in the health information field.

### **HIM 4034: Advanced Coding Principles**

Offered: Fall

Prerequisite: HIM 3033 Basic Coding Principles

A continuation of HIM 3033 Basic Coding Principles, dealing with advanced principles of coding using ICD and CPT. Experience with coding of health records as well as DRG grouping and the administrative aspects of coding will be emphasized.

Note: May not be taken for credit after completion of HIM 4032.

\$80 course fee.

### **HIM 4063: Organization and Administration**

Offered: Fall

Prerequisites: HIM 3023 Introduction to Health Information Management and senior standing.

A study of the application of the principles of organization, administration, supervision, human relations, work methods, and organizational patterns in the health information department. The duties and relationships of the health information manager and the social forces affecting the department and current trends in hospital and medical care are investigated.

### **HIM 4073: Legal Concepts for the Health Fields**

Offered: Spring

Prerequisites: HIM 3023 Introduction to Health Information Management and senior standing, or permission of instructor.

A study of the principles of law as applied to the health field. Consideration is given to the importance of health records as legal documents as well as a general introduction to the law, administration of the law, legal aspects of healthcare facility and medical staff organization, release of information, confidential communication and consents and authorizations.

### **HIM 4083: Health Organization Trends**

Offered: Spring

Prerequisites: HIM 3023 Introduction to Health Information Management and senior standing, or permission of instructor.

A comprehensive review of the trends and changes in the healthcare field. Historical aspects of healthcare organization and governmental health agencies are reviewed. Emphasis is placed on current events in the healthcare arena.

### **HIM 4093: Research in Health Information Management**

Offered: Fall

Prerequisites: HIM 3023 Introduction to Health Information Management and senior standing.

A study of the specific research methodology used in a health information management setting. Emphasis will be given to the evaluation and critique of scholarly work in the field. Formal presentation of research will also be a component of the course.

**HIM 4153: Principles of Disease**

Offered: Fall

Prerequisites: AHS 2013 Medical Terminology, BIOL 2004 Basic Human Anatomy and Physiology, and permission of instructor.

An introduction to medical science, including the etiology, treatment and prognosis of various diseases. Emphasis is given to the medical information as viewed from the standpoint of a health information management professional.

**HIM 4182: Professional Practice Experience I**

Offered: Fall

Prerequisites: HIM 3023 Introduction to Health Information Management, HIM 3043 Advanced Concepts in Health Information, HIM 3133 Alternative Health Records, HIM 3132 Health Data and Statistics and HIM 3033 Basic Coding Principles

An interactive course where the student will complete simulation exercises utilizing various health information software systems. Students will gain hands-on experience with technology that is used in the industry by health information professionals.

\$40 course fee.

**HIM 4203: Healthcare Reimbursement**

Offered: Spring

Prerequisites: HIM 3033 Basic Coding Principles and HIM 4034 Advanced Coding Principles

This course covers the various systems used for reimbursement methods in a range of healthcare facility types. A review of the regulations and role of coding systems surrounding healthcare reimbursement will also be investigated.

**HIM 4292: Professional Practice Experience II**

Offered: Spring

Prerequisite: HIM 4182 Professional Practice Experience I

A supervised learning experience through which the student learns to recognize the contribution of and learns to work with other professional and non professional personnel, learns to recognize and deal with personnel problems in a health information department.

\$40 course fee.

**HIM 4892: Seminar in Health Information**

Offered: First summer term

Co-requisite: HIM 4895 Affiliation

A seminar, utilizing the case method approach, on problem situations encountered in the field of health information management. This course includes discussion of problems that arise during their affiliation experience.

**HIM 4895: Affiliation**

Offered: First summer session

Prerequisites: Successful completion of all required HIM courses except HIM 4892 Seminar in Health Information.

Provides the student with a four-week management experience in the activities and responsibilities of the health information management professional. Augments theoretical instruction received during previous courses. Student is actively involved in the management process while under direct supervision of a qualified health information management professional.

Note: Although every effort is made to secure a convenient locale, the student must assume full financial responsibility for this assignment.

\$100 course fee.

**HIM 4951: Undergraduate Research in Health Information Management**

Offered: On demand

Prerequisite: Departmental approval

Advanced students carry out independent research activity relating to a significant problem in a major field of study. Supervised by faculty member. Formal report and presentation required. One to four credits depending on problem selected and effort made.

**HIM 4952: Undergraduate Research in Health Information Management**

Offered: On demand

Prerequisite: Departmental approval

Advanced students carry out independent research activity relating to a significant problem in a major field of study. Supervised by faculty member. Formal report and presentation required. One to four credits depending on problem selected and effort made.

**HIM 4953: Undergraduate Research in Health Information Management**

Offered: On demand

Prerequisite: Departmental approval

Advanced students carry out independent research activity relating to a significant problem in a major field of study. Supervised by faculty member. Formal report and presentation required. One to four credits depending on problem selected and effort made.

**HIM 4954: Undergraduate Research in Health Information Management**

Offered: On demand

Prerequisite: Departmental approval

Advanced students carry out independent research activity relating to a significant problem in a major field of study. Supervised by faculty member. Formal report and presentation required. One to four credits depending on problem selected and effort made.

### **HIM 4983: Systems Analysis for Health Information Management**

Offered: Fall

Prerequisites: COMS 1003 Introduction to Computer Based Systems, COMS 2003 Microcomputer Applications, HIM 3023 Introduction to Health Information Management, and senior standing.

A course designed to provide a detailed study of the relationship between health information management departments and computerized information systems. Students will learn from a variety of projects related directly to the clinical setting.

### **HIM 4991: Special Problems in Health Information Management**

Open to health information management senior students only. The problems will vary to fit the needs of the student and reflect the continual changes in the allied health field.

### **HIM 4992: Special Problems in Health Information Management**

Open to health information management senior students only. The problems will vary to fit the needs of the student and reflect the continual changes in the allied health field.

### **HIM 4993: Special Problems in Health Information Management**

Open to health information management senior students only. The problems will vary to fit the needs of the student and reflect the continual changes in the allied health field.

### **HIM 4994: Special Problems in Health Information Management**

Open to health information management senior students only. The problems will vary to fit the needs of the student and reflect the continual changes in the allied health field.

## **HEALTH AND EXERCISE SCIENCE (HES)**

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### **HES 1002: Physical Health and Fitness**

The course provides students with the opportunity to assess their current lifestyle and consider the possible consequences for the present and the future. The class provides a mechanism for change by actively involving the student in self-analysis and a trial exercise program.

Note: This course will satisfy two credit hours of PE activity.

Note: A grade of C or better is required for HPE majors

Two scheduled class meetings and two hours arranged. \$25 course fee.

This is an activity course. No more than four hours of activity credit may be counted toward graduation. A student registering for an activities course in excess of these limits receives no credit for the additional course and the grade is not included in the computation of grade point.

### **HES 1003: Introduction to Exercise Programming**

This course will introduce students to four components of fitness (muscular strength & endurance; cardiorespiratory endurance; flexibility; and body composition), the F.I.T.T. principle (Frequency - Intensity - Type - Time), basic physical adaptations, and basic strength & endurance exercises. Students will be taken through example applications of programming, led through programs by the instructor and tested on knowledge of basic programming knowledge.

\$25 course fee.

### **HES 2003: Field-Based Experience in Health and Exercise Science**

Prerequisites: Level 2 courses require completion of the following with a grade of C or better: PE 1201 Orientation to Health, Physical Education, and Wellness Science, HES 1002 Physical Health and Fitness, ENGL 1013 Composition I, ENGL 1023 Composition II, MATH 1113 College Algebra, BIOL 1014 Introduction to Biological Science, and COMM 2173 Business and Professional Speaking.

The class provides the prospective Wellness/Fitness professional with an opportunity to observe on-site a community-based wellness/fitness agency or business. A combination of classroom and on-site experiences will direct the student's focus to various aspects of commercial or institutional programs and services aimed at lifestyle enhancement.

Specific lecture-class meetings and at least 30 hours of observation in an agency or business setting will be required.

Note: A grade of C or better is required for Health and Physical Education majors.

### **HES 2013: Weight Training for Personal Trainers, High School Coaches, and Physical Education**

Prerequisite: HES 1003 Introduction to Exercise Programming

This course is designed to provide students with practical knowledge of the biomechanical variables, physiological adaptations and coaching methods for drills (i.e. cleans, snatches, front squats, bent over rows, etc.) that can be integrated into a weight training for the development of muscular strength, hypertrophy, and power. Coaching and teaching strategies will be discussed and practices that includes weight training safety, exercise technique assessment, testing, and programming methods.

\$20 course fee.



**HES 2023: Endurance Programming and Conditioning**

Prerequisite: HES 1003 Introduction to Exercise Programming

This course is designed to provide students the opportunity to understand the various methods of coaching and teaching endurance focused exercises, activities, and programming. Basic endurance principles, techniques, and application of programming will meet the instructional needs of personal trainers, strength & conditioning coaches, and sport coaches.

\$20 course fee.

**HES 2043: Applied Fitness Assessment and Development**

Prerequisites: PE 2653 Anatomy and Physiology and PE 3663 Kinesiology; level 2 courses require completion of the following with a grade of C or better: PE 1201 Orientation to Health, Physical Education, and Wellness Science, HES 1002 Physical Health and Fitness, ENGL 1013 Composition I, ENGL 1023 Composition II, MATH 1113 College Algebra, BIOL 1014 Introduction to Biological Science, and COMM 2173 Business and Professional Speaking.

A survey and application of the knowledge and experiences in assessing and developing all components of physical fitness.

Note: A grade of C or better is required for Health and Physical Education majors.

**HES 3003: Exercise Prescription**

Prerequisites: HES 2043 Applied Fitness Assessment and Development or consent of department head; level 2 courses require completion of the following with a grade of C or better: PE 1201 Orientation to Health, Physical Education, and Wellness Science, HES 1002 Physical Health and Fitness, ENGL 1013 Composition I, ENGL 1023 Composition II, MATH 1113 College Algebra, BIOL 1014 Introduction to Biological Science, and COMM 2173 Business and Professional Speaking.

A course designed to expose the student to the aspects of health-related and skill-related physical fitness, with particular attention given to prescribing exercise programs. Attention will be given to choosing appropriate fitness assessments, along with development of appropriate goals for clientele.

Note: A grade of C or better is required for Health and Physical Education majors.

**HES 3013: Coaching Power, Speed, and Agility**

Prerequisite: HES 1003 Introduction to Exercise Programming

This course is designed to provide students with practical knowledge of the biomechanical variables, physiological adaptations and coaching methods for drills (i.e. plyometrics, springs, 5-10-5, etc.) that can be integrated into a strength and conditioning program for the improvement in athletic performance.

\$20 course fee.

**HES 3023: Exercise Behavior and Adherence**

Prerequisites: Level 2 courses require completion of the following with a grade of C or better: PE 1201 Orientation to Health, Physical Education, and Wellness Science, HES 1002 Physical Health and Fitness, ENGL 1013 Composition I, ENGL 1023 Composition II, MATH 1113 College Algebra, BIOL 1014 Introduction to Biological Science, and COMM 2173 Business and Professional Speaking.

The course provides the student with the opportunity to learn about the components which impact exercise behaviors and adherence to physical exercise programs. Emphasis is placed on the identification of components which directly impact on personal motivation for the development of appropriate exercise behaviors, and the development of incentives which assist in adherence to health enhancement programs.

Note: A grade of C or better is required for Health and Physical Education majors.

**HES 4003: Senior Seminar**

Prerequisites: Completion of all 1000- and 2000-level Health and Exercise Science required classes; level 2 courses require completion of the following with a grade of C or better: PE 1201 Orientation to Health, Physical Education, and Wellness Science, HES 1002 Physical Health and Fitness, ENGL 1013 Composition I, ENGL 1023 Composition II, MATH 1113 College Algebra, BIOL 1014 Introduction to Biological Science, and COMM 2173 Business and Professional Speaking; 90 earned hours.

This course provides the advanced wellness/fitness major with a setting in which research and contemporary topics critical to the profession may be explored. The student will perform literature research, data gathering, and professional writing/presentation throughout the class.

Note: A grade of C or better is required for Health and Physical Education majors.

**HES 4012: Health and Exercise Science Internship**

Twelve hour course

Prerequisites: Admission to internship program and 2.00 grade point average; level 3 requires completion of all HES, PE, and HLED content area courses with a grade of C or better and a cumulative GPA of 2.00 or better.

Intensive on-campus classroom exploration of professional principles and procedures used in the areas of health and fitness promotion for the first three weeks of the semester. The remaining portion of the semester is spent in a supervised full-time internship at a designated site.

Note: A grade of C or better is required for Health and Physical Education majors.

**HES 4013: Health and Exercise Science Practicum**

Prerequisites: WS 2031 and HES 2043 Applied Fitness Assessment and Development and 3003

This program is designed to expose majors to training in a community or corporate wellness setting. Students will organize, develop, market, and implement wellness programming for Arkansas Tech University students and employees.

Note: A grade of C or better is required for Health and Physical Education majors.

### **HES 4023: Principles of Strength and Conditioning**

Offered: Fall

Prerequisites: PE 2653 Anatomy and Physiology, 3661, and 4033.

This course is designed to provide a comprehensive overview of strength and conditioning. Emphasis is placed on the exercise sciences (including anatomy, exercise physiology, and biomechanics) and nutrition, exercise technique, program design, organization and administration, and testing and evaluation. Additionally, this course is designed to prepare students for the nationally accredited Certified Strength and Conditioning Specialist (CSCS) certification exam.

Note: A grade of C or better is required for Health and Physical Education majors.

### **HES 4043: Exercise Physiology Lab**

Prerequisite: PE 4033 Exercise Physiology

This course will involve the study, calculation, and understanding of how exercise physiology is tested, assessed, and applies to training, athletics, and physical activity. Laboratory experiences will apply to the concepts bioenergetics, fatigue, oxygen consumption, muscular performance, and cardiovascular functions.

\$20 course fee.

### **HES 4053: Biomechanics**

Prerequisite: PE 4033 Exercise Physiology

This course will involve the study, calculation, and understanding of the biomechanical principles that contribute to human movements, exercise, and athletics. Laboratory experiences of biomechanical principles through kinematic and kinetic analysis will facilitate advancement of the students understanding of human/athletic performance.

\$20 course fee.

### **HES 4063: Wellness and Fitness Programming**

Prerequisites: Level 2 courses require completion of the following with a grade of C or better: PE 1201 Orientation to Health, Physical Education, and Wellness Science, HES 1002 Physical Health and Fitness, ENGL 1013 Composition I, ENGL 1023 Composition II, MATH 1113 College Algebra, BIOL 1014 Introduction to Biological Science, COMM 2173 Business and Professional Speaking, and PE 4033 Exercise Physiology.

The course is designed to provide the student with the opportunity to discover various methods employed in planning and implementing wellness and fitness programs in multiple settings. Special emphasis is placed on the administration of client-specific health enhancement programs designed for persons in corporate settings, fitness center clientele, and patients in physical rehabilitation.

Note: A grade of C or better is required for Health and Physical Education majors.

### **HES 4991: Special Problems in Health and Exercise Science**

Prerequisites: Level 2 courses require completion of the following with a grade of C or better: PE 1201 Orientation to Health, Physical Education, and Wellness Science, HES 1002 Physical Health and Fitness, ENGL 1013 Composition I, ENGL 1023 Composition II, MATH 1113 College Algebra, BIOL 1014 Introduction to Biological Science, and COMM 2173 Business and Professional Speaking.

Independent work on approved wellness science topics under the individual guidance of a faculty member. Admission requires the consent of the department head.

### **HES 4992: Special Problems in Health and Exercise Science**

Prerequisites: Level 2 courses require completion of the following with a grade of C or better: PE 1201 Orientation to Health, Physical Education, and Wellness Science, HES 1002 Physical Health and Fitness, ENGL 1013 Composition I, ENGL 1023 Composition II, MATH 1113 College Algebra, BIOL 1014 Introduction to Biological Science, and COMM 2173 Business and Professional Speaking.

Independent work on approved wellness science topics under the individual guidance of a faculty member. Admission requires the consent of the department head.

### **HES 4993: Special Problems in Health and Exercise Science**

Prerequisites: Level 2 courses require completion of the following with a grade of C or better: PE 1201 Orientation to Health, Physical Education, and Wellness Science, HES 1002 Physical Health and Fitness, ENGL 1013 Composition I, ENGL 1023 Composition II, MATH 1113 College Algebra, BIOL 1014 Introduction to Biological Science, and COMM 2173 Business and Professional Speaking.

Independent work on approved wellness science topics under the individual guidance of a faculty member. Admission requires the consent of the department head.

## **HISTORY (HIST)**

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### **HIST 4XXX: HISTORY TRANSFER ELECTIVE**

Credit transferred from another institution and articulated for history upper division elective.

### **HIST 3XXX: HISTORY TRANSFER ELECTIVE**

Credit transferred from another institution and articulated for history upper division elective.

**HIST 2XXX: HISTORY TRANSFER ELECTIVE**

Credit transferred from another institution and articulated for history lower division elective.

**HIST 1XXX: HISTORY TRANSFER ELECTIVE**

Credit transferred from another institution and articulated for history lower division elective.

**HIST 1503: World History to 1500**

ACTS Common Course - HIST 1113

The history of humanity from prehistoric times to the sixteenth century.

**HIST 1513: World History since 1500**

ACTS Common Course - HIST 1123

The history of humanity from the sixteenth century to the present.

**HIST 1543: Honors World History to 1500**

Prerequisite: Admission to University Honors or permission of Honors Director.

The history of humanity from prehistoric times to the sixteenth century with an emphasis on the critical analysis of primary source documents and the methods by which historians and other scholars interpret historical evidence.

**HIST 1903: Survey of American History**

Survey of American History. An overview of American history from the pre-colonial period to the present.

Note: May not be taken for credit after completion of HIST 2003 United States History to 1877 or 2013.

**HIST 2003: United States History to 1877**

ACTS Common Course - HIST 2113

The study of the development of the American nation to the Civil War and Reconstruction Era.

**HIST 2013: United States History since 1877**

ACTS Common Course - HIST 2123

The study of the development of the American nation since the Civil War and Reconstruction Era.

**HIST 2043: Honors United States History to 1877**

Prerequisite: Admission to University Honors or permission of Honors Director.

History 2043 concentrates on the development of the American nation with emphasis upon the winning of independence, the origin of the Constitution, the rise of Jeffersonian Democracy, European influence upon America, Jacksonian Democracy, westward expansion, the emergence of sectionalism, and the Civil War.

**HIST 2153: Introduction to Arkansas History**

An introductory course on the history of Arkansas. Lectures, discussions, and applied activities will be central to this course.

Note: This course is a professional education requirement for Early Childhood and Middle Level Education majors, and may not be counted toward the History degree, the Public History degree, or the Social Studies for teacher licensure degree.

Note: Students may not take this course after completion of HIST 4153 History of Arkansas.

**HIST 2203: Introduction to Public History**

An introduction to the theory and disciplines of public history, including museum studies, historic preservation, archive and manuscript management, and historical editing. The course also explores the current theoretical and practical issues confronting public historians.

**HIST 2513: Sources and Methods in History**

This course is designed as an introduction to the field of historical research. This course introduces techniques and methods of historical research, basic historiography, bibliographical aids, and the study and writing of history. It is a hands-on course where students will use the skills learned to evaluate social science research

**HIST 3013: Colonial America**

The European background, the settlement of British colonies, the development of provincial institutions, and the emergence of an American civilization in the seventeenth and eighteenth centuries.

**HIST 3023: The Era of the American Revolution**

The deterioration of empire relationships from 1763 to 1776, with an examination of the causes and consequences of the American Revolution and the post war problems leading to the establishment of a new government under the Constitution in 1789.

### **HIST 3033: The Early American Republic**

The social, cultural, economic, and political climate in which Jeffersonian Jacksonian democracy developed.

### **HIST 3043: Civil War and Reconstruction**

The social, political, economic, and intellectual backgrounds of the war; the military operations; analysis of Reconstruction.

### **HIST 3063: The Gilded Age/Progressive Era, 1877-1914**

Explores the major issues associated with Gilded Age America (immigration, industrialization, urbanization, imperialism, rise of organized labor) and examines the origins, goals, and legacies of the Populist and Progressive reform movements.

Note: May not be taken for credit after completion of HIST 3053.

### **HIST 3073: The United States: 1914-1945**

Examines the American entry and contribution in World War One; the post-war settlement; the various social, economic, and political trends of the 1920s; the Great Depression; the New Deal; American foreign policy in the inter-war era; and the American role in World War Two, and its effects on American society and culture.

### **HIST 3083: The United States: 1945-Present**

Explores the origins of and American responses to the Cold War, the rise of various reform movements in the 1950s-60s, the New Frontier and Great Society programs, the Vietnam War, and the rise of the New Right.

Note: May not be taken for credit after completion of HIST 4003.

### **HIST 3103: The Old South**

A survey of the political, social, and economic development of the American South before the Civil War.

### **HIST 3123: The New South**

A survey of the political, social, and economic development of the American South from the end of the Civil War to the present.

### **HIST 3223: Local and Oral History**

The course has two main, inter-related themes, local history and oral history. This course examines the nature and practice of local history and explores the various methods and approaches central to local history research. In addition, this course introduces students to the literature and theory of oral history and trains them in related fieldwork methodologies.

### **HIST 3243: Archive and Manuscript Management**

An introduction to the administration of archival and manuscript collections in various types of institutions. This course explores the basic theoretical principles and archival practices of appraisal, acquisition, accessioning, arrangement, description, preservation, and user services. Topics will include: records management programs, collecting archives programs, legal and ethical issues, public programming and advocacy, and the impact of the new information technologies for preservation and access.

### **HIST 3273: Digital History**

This is an experimental class, and has no official description other than it is a directed seminar in an area of social science. This class has been structured to focus on unique educational opportunities.

### **HIST 3281: Grant Writing for Historians**

An introductory course designed to provide students with the basic tools necessary to successfully compete for external grant funds. The focus of the course is public history grants, although the skills and knowledge presented will also benefit historians who propose professional development proposals on research and study plans.

### **HIST 3283: Historical Editing**

An introduction to historical editing in both print and electronic applications. Students will gain practical experience by editing documents and surveying the relevant literature.

### **HIST 3313: Colonial Latin America**

A survey of the political, economic, social and cultural aspects of Latin America to 1825. Emphasis is on cross-cultural accommodation and the role of indigenous, African, and European cultures in shaping Latin American development.

### **HIST 3323: Modern Latin America**

A survey of the political, economic, social and cultural aspects of Latin America since 1825. Emphasis is on cultural values and structures from the colonial period, continuing patterns of authoritarianism, the struggle to establish democratic institutions, and Latin America's role in world affairs.

**HIST 3413: History of Classical Greece and Rome**

The origins and development of Classical civilization in ancient Greece, the rise of the Roman Republic, and the ascendancy and decline of the Roman Empire.

**HIST 3423: History of the Middle Ages, 300-1300**

Decline of the ancient Roman civilization; rise, ascendancy, and decline of medieval civilization; emphasis upon the Christian church and the rise of national monarchies.

**HIST 3433: The Renaissance and European Expansion, 1300-1550**

Fueled by a growing urban economy and despite the setbacks of the Black Death, Europeans during the Renaissance revived and adapted models of classical learning, created new forms of artistic and vernacular expression, forged national identities, opened up new trade routes, and encountered a New World.

**HIST 3443: The Reformation and Early Modern Europe, 1500-1688**

A study of the social, political, intellectual and cultural impact of the Protestant Reformation, the Roman Catholic response, the sixteenth and seventeenth-century Wars of Religion, the development of confessional cultures, and the continued rise of the European nation-state in both its absolutist and constitutional forms.

**HIST 3463: The Enlightenment, French Revolution, and Napoleonic Eras**

This upper-division course will address the intellectual, social, and political events of the turbulent eighteenth century in Europe, a period known for the Enlightenment, as well as for the French Revolution and the rise and fall of Napoleon's Empire. Historians often argue that this period ushered in many of the hallmarks of the modern world, including nationalism, open class conflict, and popular democracy. The intent of this course is to examine the period in the context of its long-lasting influence upon world events.

**HIST 3483: Reaction and Reform, 1815-1871**

A study of the changes in the political, cultural, intellectual, and social environments which characterized Europe during the period between the Congress of Vienna through the rise of the modern nation states.

**HIST 3493: The Age of Empire, 1871-1919**

A study of the changes in the political, cultural, intellectual, and social environments which characterized Europe during the period between the rise of the modern nation states to the end of the First World War.

**HIST 3503: Europe between the Wars, 1919-1939**

A study of the changes in the political, cultural, intellectual, and social environments which characterized Europe during the period between the end of the First World War to the beginning of the Second World War.

**HIST 3513: Europe Since 1939**

A study of the changes in the political, cultural, intellectual, and social environments which characterized Europe during the period between the beginning of the Second World War to the present.

**HIST 3533: History of Russia**

A study of the cultural and political history of Russia from the reign of Peter the Great to the present, emphasizing trends in the nineteenth century which culminated in the Bolshevik Revolution.

Note: May not be repeated for credit as HIST 5463 or equivalent.

**HIST 3563: History of England**

A study of the history of England from national origins to modern times.

**HIST 3573: History of Eastern Europe**

A study of the cultural and political history of Eastern Europe from the Napoleonic Wars to the present.

**HIST 3603: History of Modern East Asia**

This course deals with the history of East Asia after 1800. The major stress is placed upon the history of China, Korea, and Japan.

**HIST 3613: History of Japan**

The History of Japan with an emphasis on the social, cultural, and political roots of Modern Japan.

**HIST 3623: History of India**

The History of India and the South Asian subcontinent with an emphasis on the social, cultural, and political development leading to modern India.

**HIST 3633: History of China**

The History of China with an emphasis on the social, cultural, and political roots of Modern China.

**HIST 3703: History of Modern Africa**

A treatment of African history since 1600, dealing with the development of African states in sub Saharan Africa up to present African nations.

Note: May not be repeated for credit as HIST 5703 or equivalent.

**HIST 3803: History of the Middle East**

Political, social, and cultural survey of the history of the Middle East from the rise of Islam to modern times.

**HIST 4013: American Military History**

A study of the American military from its colonial origins to the present, including the development of the military establishment and its relationship with American society.

Note: May not be repeated for credit as HIST 5013 or equivalent.

**HIST 4023: Vietnam War**

A study of the American involvement in Vietnam, from 1945 until 1975. Emphasis will rest on the actual period of war in Vietnam.

Note: May not be taken for credit after completion of the equivalent course under HIST/POLS 4983 Political Science Seminar nor be repeated for credit as HIST 5023.

**HIST 4033: The Frontier in American History**

Study of the American frontier as a place, as a process, and as a state of mind influential in shaping institutions and attitudes during the expansion of this nation westward from Atlantic to Pacific.

Note: May not be repeated for credit as HIST 5033 or equivalent.

**HIST 4053: U.S. Business History**

A study of the major economic forces which have helped influence, and been influenced by, United States history. Particular emphasis will be given to the development of agriculture, business, industry, and labor in their American setting.

Note: May not be repeated for credit as HIST 5053 or equivalent.

**HIST 4073: American Diplomatic History, 1776-1912**

This course is a study of America's diplomatic relationships with other nations and peoples from 1776 to 1912. Of particular emphasis will be the changes in international affairs brought about by the evolving economic and political conditions. This course follows the United States' early struggles in diplomacy through its expansion and eventual emergence as a world power.

**HIST 4083: American Diplomatic History, 1912 to the Present**

This course is a study of America's diplomatic relationships with other nations and peoples from 1912 to the present. Of particular emphasis will be the changes in international affairs brought about by the evolving economic and political conditions. This course follows the United States from its emergence as a world power through two world wars, a cold war, and a war on terrorism.

**HIST 4093: American Culture Since 1800**

The history and development of American regional and national culture from the early republic to the present. Topics include antebellum nationalism and regional cultures, slave and slaveholding culture, the rise of consumerism, popular and intellectual aesthetic and artistic development, and the evolution of American mass, commercial, and popular culture through the nineteenth and twentieth centuries.

**HIST 4123: African American History**

This course examines the unique role and contribution of African Americans in the overall development of American history from the colonial era to the present. Topics include African societies; black colonial life; the institution of slavery, and African American responses to slavery; the free black community; African American cultural, political, and economic development; issues of assimilation, separatism, and African American responses to institutional racism; the Civil Rights Movement, and recent developments.

Note: May not be repeated for credit as HIST 5123.

**HIST 4133: Latinos in the United States**

This course is an analysis of the historical and cultural heritage of Latinos who have lived or are currently living in the United States. This course includes the colonial origins of Latino groups and their general migration patterns to the United States. This course also explores the development of Latino communities as well as the relationship between Latinos and social institutions.

Note: May not be repeated for credit as HIST 5133 or equivalent.

**HIST 4143: Native American History**

A survey of Native American history from the Archaic period to the present. This course will present an interpretation of the historical experience of the diverse nations native to North America utilizing an ethno- historical approach. Some emphasis will be placed on the formation and operation of United States government policy regarding Native Americans in both the 19th and 20th centuries.

Note: May not be repeated for credit as HIST 5143.

**HIST 4153: History of Arkansas**

A study of the history of Arkansas from prehistoric times to the present, noting political, social, economic, and cultural trends.

Note: May not be repeated for credit as HIST 5153 or equivalent.

**HIST 4163: American History through Film**

This course examines 20th century American history through the study of American film, and film as cultural and historical text. Subjects for analysis include the Great Depression, World War II, the Cold War and Cold War culture, the 1960s, Vietnam, and the Reagan era. Emphasis will be on the uses of film as both primary and secondary source material for the study of history.

**HIST 4173: History of American Disasters**

A comparative examination of the greatest disasters in American history, the response to them, and how they affected the future of the nation.

**HIST 4183: American Legal History**

This course concerns the history and development of law, legal institutions, and legal culture in the United States from its colonial origins to the present day, with emphasis on constitutional case law and the interaction of law with the overall development of American society.

**HIST 4193: American Labor History**

This course examines the history of working people—men and women, paid and unpaid, of various racial and ethnic groups, in diverse geographic regions—primarily from the Early Republic to the present. This study will include a review of changes in work environments due to industrialization, unionization, and legal decisions.

**HIST 4203: Women in American History**

A treatment of women in Western and American social history in their lifestyles and economic and family roles.

Note: May not be taken for credit after completion of HIST 3203 nor repeated for credit as HIST 5203 or equivalent.

**HIST 4213: Southern Women's History**

A social history of the lives of women in the American South from approximately 1700 to the present which examines their lifestyles, economic, and family roles. This study includes, but is not limited to, experiences of Arkansas women.

**HIST 4223: American Philosophy**

Cross-listed: PHIL 4093 American Philosophy

An examination of the main currents of American philosophical and religious thought from the earliest times to the present.

**HIST 4233: American Political Thought**

Cross-listed: POLS/PHIL 4233 American Political Thought

The background and development of American political ideas from the colonial period to the present. Emphasis is placed on colonial political theory, the Founding, conflict and consensus prior to the Civil War, the response to industrialization, the rise of the positive state, nationalism, the New Left and New Right, and current trends.

**HIST 4293: Historic Preservation**

Upper-level survey of historic preservation in the United States. Course examines the theory, philosophy, and methods of maintaining the culture of the past. An introduction to the wide range of ideas underpinning the practice of preservation is covered through readings, discussions, presentations, class projects and field trips.

**HIST 4403: Interpretation/Education through Museum Methods**

Cross-listed: ANTH 4403 Interpretation/Education through Museum Methods, MUSM 4403 Interpretation/Education through Museum Methods

Prerequisite: Senior or Graduate standing, or permission of instructor.

Museum perspectives and approaches to care and interpretation of cultural resources, including interpretive techniques of exhibit and education outreach materials, and integrating museum interpretation/education into public school and general public programming. Class projects focus on special problems for managing interpretive materials in a museum setting.

**HIST 4483: History of Capitalism**

World Economic History traces the development of the modern global economy from the late middle ages to the present. Special attention is given to the emergence of capitalism in Europe and its migration to other parts of the world.

Note: May not be repeated for credit as HIST 5483 or equivalent.

**HIST 4503: History of Christianity**

A study of Christianity, from its beginnings to the present day, focusing especially on ancient Mediterranean, medieval European, and modern American Christian traditions. Emphasis will be on the interaction between individual beliefs, group identity, and institutional forces, how each have been shaped by broader social, political and cultural contexts, and finally how these interactions have resulted in profound changes for the Christian religion.

### **HIST 4513: History of Science**

A study of the origins, nature, and development of Western science and its social, economic, and cultural context.

Note: May not be repeated for credit as HIST 5513.

### **HIST 4714: Social Studies Methods for Secondary Teachers**

Prerequisites: SEED 2002 Education as a Profession and the completion of 36 hours in the Social Sciences.

A course in subject-matter applications for secondary teacher education candidates (grades 7-12) in social studies. The course will incorporate a variety of instructional models, activities, and examples, as well as the integration of traditional and non-traditional resource materials.

Note: Must be completed prior to student teaching.

### **HIST 4813: World War II**

A study of World War II, 1939 through 1945, in its origins and spread through world theaters.

Note: May not be taken for credit after completion of the equivalent course under HIST/POLS 4983 Political Science Seminar nor repeated for credit as HIST 5813.

### **HIST 4823: Nationalism**

The course looks at the development of the idea of nation in European and World history in the last two centuries. By using historical examples the course will introduce the students to the current theoretical debate on ethnicity and nationalism. The special attention will be placed on the relationship between state power and the nation. The course will look at ethnicity in history before and after the emergence of effective means of communication, such as the printing press, radio, and television. It will also look at the role culture plays in the formation of national consciousness and how the past was used and abused to drum-up political support.

### **HIST 4951: Undergraduate Research in History**

Offered: On demand

Prerequisite: Departmental approval

Advanced students carry out independent research activity relating to a significant problem in a major field of study. Supervised by faculty member. Formal report and presentation required. One to four credits depending on problem selected and effort made.

### **HIST 4952: Undergraduate Research in History**

Offered: On demand

Prerequisite: Departmental approval

Advanced students carry out independent research activity relating to a significant problem in a major field of study. Supervised by faculty member. Formal report and presentation required. One to four credits depending on problem selected and effort made.

### **HIST 4953: Undergraduate Research in History**

Offered: On demand

Prerequisite: Departmental approval

Advanced students carry out independent research activity relating to a significant problem in a major field of study. Supervised by faculty member. Formal report and presentation required. One to four credits depending on problem selected and effort made.

### **HIST 4954: Undergraduate Research in History**

Offered: On demand

Prerequisite: Departmental approval

Advanced students carry out independent research activity relating to a significant problem in a major field of study. Supervised by faculty member. Formal report and presentation required. One to four credits depending on problem selected and effort made.

### **HIST 4963: Senior Seminar**

Prerequisite: HIST 2513 Sources and Methods in History

Required course for History and Social Studies Education majors. Course content will cover a directed seminar in specified American or European History. Research techniques will be emphasized.

### **HIST 4971: Internship**

Cross-listed: POLS 4971 Internship

Prerequisites: Junior or senior standing, 2.75 grade point average, and consent of department head.

A supervised placement in selected agency settings in student/ trainee status under professional guidance of both an agency supervisor and a faculty member. Emphasis will be on providing hands-on experience in research, editing, cultural management, public service, or some other area related to the discipline. Written report required and minimum of 100 clock hours of supervision required per credit hour.

Note: May be repeated for a maximum of 6 hours credit.

### **HIST 4972: Internship**

Cross-listed: POLS 4972 Internship

Prerequisites: Junior or senior standing, 2.75 grade point average, and consent of department head.



A supervised placement in selected agency settings in student/ trainee status under professional guidance of both an agency supervisor and a faculty member. Emphasis will be on providing hands-on experience in research, editing, cultural management, public service, or some other area related to the discipline. Written report required and minimum of 100 clock hours of supervision required per credit hour.

Note: May be repeated for a maximum of 6 hours credit.

### **HIST 4973: Internship**

Cross-listed: POLS 4973 Internship

Prerequisites: Junior or senior standing, 2.75 grade point average, and consent of department head.

A supervised placement in selected agency settings in student/ trainee status under professional guidance of both an agency supervisor and a faculty member. Emphasis will be on providing hands-on experience in research, editing, cultural management, public service, or some other area related to the discipline. Written report required and minimum of 100 clock hours of supervision required per credit hour.

Note: May be repeated for a maximum of 6 hours credit.

### **HIST 4974: Internship**

Cross-listed: POLS 4974 Internship

Prerequisites: Junior or senior standing, 2.75 grade point average, and consent of department head.

A supervised placement in selected agency settings in student/ trainee status under professional guidance of both an agency supervisor and a faculty member. Emphasis will be on providing hands-on experience in research, editing, cultural management, public service, or some other area related to the discipline. Written report required and minimum of 100 clock hours of supervision required per credit hour.

Note: May be repeated for a maximum of 6 hours credit.

### **HIST 4975: Internship**

Cross-listed: POLS 4975 Internship

Prerequisites: Junior or senior standing, 2.75 grade point average, and consent of department head.

A supervised placement in selected agency settings in student/ trainee status under professional guidance of both an agency supervisor and a faculty member. Emphasis will be on providing hands-on experience in research, editing, cultural management, public service, or some other area related to the discipline. Written report required and minimum of 100 clock hours of supervision required per credit hour.

Note: May be repeated for a maximum of 6 hours credit.

### **HIST 4976: Internship**

Cross-listed: POLS 4976 Internship

Prerequisites: Junior or senior standing, 2.75 grade point average, and consent of department head.

A supervised placement in selected agency settings in student/ trainee status under professional guidance of both an agency supervisor and a faculty member. Emphasis will be on providing hands-on experience in research, editing, cultural management, public service, or some other area related to the discipline. Written report required and minimum of 100 clock hours of supervision required per credit hour.

Note: May be repeated for a maximum of 6 hours credit.

### **HIST 4983: History Seminar**

A directed seminar in an area of historical study. The specific focus will depend upon research under way, community or student need, and the unique educational opportunity available.

Note: May be repeated for credit if course content changes.

### **HIST 4991: Special Problems in History**

Prerequisite: Consent by department head.

A course for majors and minors only.

### **HIST 4992: Special Problems in History**

Prerequisite: Consent by department head.

A course for majors and minors only.

### **HIST 4993: Special Problems in History**

Prerequisite: Consent by department head.

A course for majors and minors only.

### **HIST 4994: Special Problems in History**

Prerequisite: Consent by department head.

A course for majors and minors only.

## **HONORS PROGRAM (HONR)**

### **HONR 1003: Freshman Honors Seminar**

Prerequisite: Acceptance into the honors program, approval of Honors Program Director.

An introductory course to the honors program, teamwork and multidisciplinary problem solving.

### **HONR 4093: Senior Honors Project**

Prerequisites: Approval of the Director of Honors Program (if used for departmental requirement, all applicable prerequisites also apply).

A team or individual independent research project will be completed. Projects will include some aspect of academic investigation appropriate to the subject area chosen. Presentation of project findings at annual Senior Honors Symposium will be required.

## **HOSPITALITY ADMINISTRATION (HA)**

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### **HA 4XXX: HOSPITALITY TRANSFER ELECTIVE**

Credit transferred from another institution and articulated for hospitality upper division elective.

### **HA 3XXX: HOSPITALITY TRANSFER ELECTIVE**

Credit transferred from another institution and articulated for hospitality upper division elective.

### **HA 2XXX: HOSPITALITY TRANSFER ELECTIVE**

Credit transferred from another institution and articulated for hospitality lower division elective.

### **HA 1XXX: HOSPITALITY TRANSFER ELECTIVE**

Credit transferred from another institution and articulated for hospitality lower division elective.

### **HA 1001: Orientation to Hospitality Administration**

Orientation to the university and hospitality administration as a profession. Exploration of successful student and career paths.

### **HA 1011: Sanitation Safety**

Prerequisite: Hospitality majors only or permission of Department Head.

This course provides knowledge of food safety in the areas of food service and storage. The student will gain knowledge on safe food handling; receiving and storage through preparing and serving. This course will also analyze ethical considerations with regards to food and serving. ServSafe certification from the National Restaurant Association will result from successful completion of standardized exam. This course is graded Pass/Fail.

### **HA 1043: Introduction to Hospitality Management**

The history and development of the hospitality industry which comprises food, lodging, and tourism management; an introduction to management principles; characteristics of hospitality industry, concepts used in the service industry, and career opportunities in the field.

### **HA 2023: Hospitality Leadership and Ethics**

This course will develop student skills necessary to lead and manage hospitality organizations in an ethically, environmentally, economically, and socially acceptable manner. It will include analysis of organizational work environments and critical situations. Students will explore their existing leadership styles, build foundational principles, and commit to their own moral compass in relation to the codes of conduct, core values, and best practices relative to the professional world.

### **HA 2043: Lodging Operations Management I**

A survey of the lodging industry to include its history, growth and development, and future direction. Emphasis on front office procedures and interpersonal dynamics from reservations through the night audit.

### **HA 2053: Work Experience**

Prerequisites: HA major or HA minor; sophomore standing or permission of instructor.

Placement in selected hospitality settings as a student worker under professional guidance of both agency and faculty. Students are given the opportunity to take part in meaningful work experiences in actual work situations and managerial observation.

Minimum of 200 clock hours of work experience.

### **HA 2063: Guest Service Management**

The analysis and development of guest services management skills including leadership behavior, motivation, communication, training, staffing, etiquette, and professional service.

Lecture two (2) hours, lab minimum of four (4) hours.

Note: \$200 lab fee

### **HA 2073: Introduction to Event Management**

Offered: Spring

This course will offer an introduction to the principles of event management. The student will learn how to formulate event strategies across diverse contexts. The planning, development, management and implementation of events will be the focus of study. Opportunities for participation in on and off campus events will be an element of the course.

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\$100 course fee.

**HA 2133: Introduction to Travel and Tourism**

Cross-listed: RP 2133 Introduction to Travel and Tourism

The introduction to travel and tourism, its components and relationship to the recreation and hospitality industry. The course will explore the current and future trends in travel and tourism and the effects on the economy, as well as the social and political impacts of travel and tourism.

**HA 2203: Casino Tourism**

Expanding casinos will create many jobs and provide millions of dollars in capital investment across Arkansas. This course is designed to introduce students to the fascinating and challenging fields of casinos and the impacts of tourism within the state, with an emphasis on Arkansas casinos. Students will explore career opportunities, trends, issues, and challenges facing the tourism, hospitality, and casino industries, as well as the impact of casinos.

**HA 2813: Basic Human Nutrition in Hospitality Administration**

Study of the relationship between nutrition and health as a basis for food choices of all ages; the application of nutrient functions in human life processes and cycles; how balanced eating promotes healthy lifestyles. Current concepts and controversies are highlighted.

**HA 2881: Special Topics**

Offered: On demand

Investigative studies and special problems and topics related to hospitality administration.

Note: May be repeated if content differs.

**HA 2882: Special Topics**

Offered: On demand

Investigative studies and special problems and topics related to hospitality administration.

Note: May be repeated if content differs.

**HA 2883: Special Topics**

Offered: On demand

Investigative studies and special problems and topics related to hospitality administration.

Note: May be repeated if content differs.

**HA 2903: Casino Operations**

Casino Operations focuses primarily on the operation and ownership of US commercial casinos, and the hotels attached to them as well as Native American gambling. A review of the historical development of gaming in America will be explored as well as how the industry has evolved to its present form. Topics covered include organizational structure of a casino hotel, how it operates and how it makes a profit, an understanding of the different companies involved in owning casino hotels and the current issues facing these companies. In addition, a review of casino marketing strategies and player rating systems. Students will build on their food and beverage and hotel knowledge to better understand the specific challenges facing casino hotel operations.

**HA 2914: Principles of Food Preparations**

Prerequisite: HA 1011 Sanitation Safety, HA 1043 Introduction to Hospitality Management, HA 2813 Basic Human Nutrition in Hospitality Administration, CHEM 1113 A Survey of Chemistry and CHEM 1111 Survey of Chemistry Laboratory

Upon completion of this course the student should be able to demonstrate skills in basic cooking techniques and methods, recipe conversion, and professional food preparation and handling. Additionally, the student should be able to recognize and safely operate common foodservice equipment used in commercial kitchens and demonstrate proficient culinary knife skills.

Lecture two (2) hours, lab minimum of four (4) hours.

Note: \$200 lab fee

**HA 2991: Special Problems**

Offered: On demand

Investigative studies and special problems and topics related to hospitality administration.

Note: May be repeated if content differs.

**HA 2992: Special Problems**

Offered: On demand

Investigative studies and special problems and topics related to hospitality administration.

Note: May be repeated if content differs.

**HA 2993: Special Problems**

Offered: On demand

Investigative studies and special problems and topics related to hospitality administration.

Note: May be repeated if content differs.

### **HA 3013: Hospitality Marketing and Sales**

The organization of the marketing function and its role and responsibility in developing an integrated marketing program. Focuses on the role of travel and tourism related services to the marketing function.

### **HA 3113: Human Resource Management in Parks, Recreation, and Hospitality Administration**

Cross-listed: RP 3113 Human Resource Management in Parks, Recreation, and Hospitality Administration

Prerequisites: Junior standing and nine hours of RP or HA courses.

An overview of personnel considerations in various Recreation and Park agencies and the Hospitality industry. Laws, legal issues, structure, staffing, motivation, training, conduct, policies, and other aspects of agency/industry human resource management will be examined.

### **HA 3143: Lodging Operations Management II**

Prerequisite: HA 2043 Lodging Operations Management I

This course evaluates the role of housekeeping, the planning and organization of various organizing tasks, and the importance of maintaining and training quality housekeeping staff. This course will evaluate managing inventories, controlling expenses and monitoring safety and security functions. Lecture three (3) hours, additionally students will be required to have a minimum of 15 lab hours during the semester.

### **HA 3163: Hospitality Technology**

Prerequisites: HA 1043 Introduction to Hospitality Management and COMS 1003 Introduction to Computer Based Systems

This course provides a foundation in information technology (IT) and how it relates to everyday business computing in the hospitality industry. Topics include: fundamental IT concepts; understanding the issues related to systems selection, standardization and efficiency; integration or applications; and recognizing the importance of management information systems such as PMS and POS.

### **HA 3173: Hospitality Managerial Accounting**

Offered: Fall

Prerequisite: ACCT 2033 Fundamental Accounting Concepts or 2004

This course focuses on the use of accounting information for management decision making and control. Topics include product costing, budgeting, management decision making, and statement analysis.

### **HA 3183: Catering and Event Management**

Prerequisites: HA 1011 Sanitation Safety, 2063, 2073, and 2914

This course will focus on-site and off-site catering for social and business functions and event management for large-scale events, such as sporting events, festivals, and conferences. Topics to be discussed include organizational structure, product and service development, event planning and execution, staff and volunteer recruitment/training, and post-event analysis.

\$200 laboratory fee.

### **HA 4001: Internship Preparation**

Prerequisites: HA major, senior standing, and completion of HA 2053 Work Experience or permission of department head.

Preparation for the internship experience. This course is graded Pass/Fail.

### **HA 4023: Hospitality Facilities Management and Design**

Prerequisites: Junior standing plus nine hours of HA courses or by permission.

The fundamental principles of facilities planning, facilities management, and maintenance for all segments of the hospitality industry. Application principles in the preparation of a typical layout and design.

### **HA 4033: Legal Aspects of Hospitality Administration**

Prerequisites: Senior standing or permission of instructor.

Examination of the laws regulating the hospitality industry. Development of an appreciation of the interrelationship between the law and the hospitality industry. Exploration of how legal principles apply in the global environment of the hospitality industry.

### **HA 4053: Meetings and Conventions Management**

Prerequisites: Junior standing plus nine hours of HA courses or by permission of the instructor.

Planning, managing, and execution of multiple events required. CVENT Certification will result upon successful completion of standardized exam.

### **HA 4063: Beverage Management**

Prerequisites: 21 years of age, HA major or permission of the instructor.

Selection, storage, and service of beverages with emphasis on controls, merchandising, pricing, history, social and legal concerns. Successful completion of standardized exam results in Serv Safe Alcohol certification from the National Restaurant Association Educational Foundation.

Lecture two hours, lab two hours. \$100 Lab fee required.

### **HA 4073: Hospitality Financial Analysis**

Prerequisites: ACCT 2033 Fundamental Accounting Concepts or 2004 and HA 3173 Hospitality Managerial Accounting

Accounting principles and procedures for the Hospitality Industry as an aid in management planning, decision making and control, financial statements, statement analysis, flow of funds, cash analysis, accounting concepts, cost accounting budgets, capital expenditures, and pricing decisions.

### **HA 4093: Resort and Club Management**

Cross-listed: RP 4093 Resort and Club Management

Prerequisites: Junior standing and nine hours of RP or HA courses or by permission.

An in-depth study of resorts and clubs with respect to their planning, development, organization, management, marketing, visitor characteristics, and environmental consequences.

### **HA 4114: Internship**

Prerequisites: Hospitality Administration major; senior standing; current certifications in CPR; Standard and Advanced First Aid; consent of department head and completion of all other courses applicable to degree.

Placement in selected agency settings as a student intern under professional guidance of both agency supervisor and faculty. Emphasis will be placed on application of classroom theory to agency requirements which fulfill student's individual career interest. No prior experience credit will be granted. Minimum of 400 clock hours during a minimum of 10 weeks of supervised internship is required. Student cannot document more than 40 hours of work experience per week. A written report is required within one week of internship completion.

\$100 supervisor travel fee required.

### **HA 4203: Hospitality Strategic Management**

Prerequisites: HA major, senior standing, and completion of 15 hours of HA courses.

This course focuses on analyzing, evaluating, and developing strategies internally and externally using a case-based approach. Strategic management draws upon all previously completed hospitality administration courses including: marketing, accounting, operations management, human resources, and technology.

\$75 Certification for Hotel Industry Analytics fee.

### **HA 4243: Advanced Lodging Operations Management**

Prerequisites: HA 3143 Lodging Operations Management II

An in-depth study of hotel and lodging operations management. The analysis of competitive strategies, leadership styles, teamwork, technology and creativity in the hotel and lodging industry.

\$100 course fee.

### **HA 4881: Advanced Special Topics**

Offered: On demand

Investigative studies and special problems and topics related to hospitality administration.

Note: May be repeated if content differs.

### **HA 4882: Advanced Special Topics**

Offered: On demand

Investigative studies and special problems and topics related to hospitality administration.

Note: May be repeated if content differs.

### **HA 4883: Advanced Special Topics**

Offered: On demand

Investigative studies and special problems and topics related to hospitality administration.

Note: May be repeated if content differs.

### **HA 4951: Undergraduate Research in Hospitality Administration**

Offered: On demand

Prerequisite: Departmental approval

Advanced students carry out independent research activity relating to a significant problem in a major field of study. Supervised by faculty member. Formal report and presentation required. One to four credits depending on problem selected and effort made.

### **HA 4952: Undergraduate Research in Hospitality Administration**

Offered: On demand

Prerequisite: Departmental approval

Advanced students carry out independent research activity relating to a significant problem in a major field of study. Supervised by faculty member. Formal report and presentation required. One to four credits depending on problem selected and effort made.

### **HA 4953: Undergraduate Research in Hospitality Administration**

Offered: On demand

Prerequisite: Departmental approval

Advanced students carry out independent research activity relating to a significant problem in a major field of study. Supervised by faculty member. Formal report and presentation required. One to four credits depending on problem selected and effort made.

### **HA 4954: Undergraduate Research in Hospitality Administration**

Offered: On demand

Prerequisite: Departmental approval

Advanced students carry out independent research activity relating to a significant problem in a major field of study. Supervised by faculty member. Formal report and presentation required. One to four credits depending on problem selected and effort made.

### **HA 4986: Purchasing and Advanced Food Preparation**

Prerequisites: HA 1011 Sanitation Safety, 2813, 2914, and 2063.

This course provides for development and implementation of an effective food and non-food purchasing program and focuses on product identification, supplier selection, ordering, receiving, storing and issuing processes. Also, this course is designed to build knowledge and experience in quantity food production in a foodservice operation. Student should be able to demonstrate advanced level cooking techniques, recipe conversion, menu planning, professional food preparation and handling as well as managerial competencies.

This course is one hour and 20 minutes of purchasing lecture, 50 minutes of advanced food production lecture and a minimum of six hour lab. \$200 laboratory fee.

### **HA 4991: Special Problems**

Offered: On demand

Investigative studies and special problems and topics related to hospitality administration.

Note: May be repeated if content differs.

### **HA 4992: Special Problems**

Offered: On demand

Investigative studies and special problems and topics related to hospitality administration.

Note: May be repeated if content differs.

### **HA 4993: Special Problems**

Offered: On demand

Investigative studies and special problems and topics related to hospitality administration.

Note: May be repeated if content differs.

## **HUMANITIES (HUM)**

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### **HUM 2001: Topics in Arts and Humanities**

This course offers instruction in an area of the arts and humanities not otherwise covered in the curriculum.

Note: The focus of the course will vary from semester to semester, thus the course may be repeated.

### **HUM 2002: Topics in Arts and Humanities**

This course offers instruction in an area of the arts and humanities not otherwise covered in the curriculum.

Note: The focus of the course will vary from semester to semester, thus the course may be repeated.

### **HUM 2003: Topics in Arts and Humanities**

This course offers instruction in an area of the arts and humanities not otherwise covered in the curriculum.

Note: The focus of the course will vary from semester to semester, thus the course may be repeated.

## **INFORMATION TECHNOLOGY (INFT)**

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### **INFT 2XXX: INFO TECH TRANSFER ELECTIVE**

Credit transferred from another institution and articulated for information technology lower division elective.

### **INFT 4XXX: INFO TECH TRANSFER ELECTIVE**

Credit transferred from another institution and articulated for information technology upper division elective.

### **INFT 3XXX: INFO TECH TRANSFER ELECTIVE**

Credit transferred from another institution and articulated for information technology upper division elective.

## **INTERDISCIPLINARY STUDIES (IPBL)**

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### **IPBL 1993: Introduction to Diversity Studies**

Offered: Fall

This course introduces the topic of diversity from a local to a global perspective using an interdisciplinary approach. This course encourages self-exploration and prepares the learner to explore and experience diverse environments. Topics include race, class, gender, identity, and ethnicity.

**IPBL 4893: Collaborative Solutions**

Offered: Spring

Prerequisites: upper division standing

This is a problem-solving course in which students from a variety of disciplines will be engaged in a high impact exercise of exploring a contemporary problem and proposing a solution. Each year the contemporary problem to be explored will change.

Note: This course is repeatable for duplicate credit if topic varies.

\$45 course fee.

**JAPANESE (JPN)****JPN 1013: Beginning Japanese I**

Training in the elements of Japanese communication (speaking and writing) and comprehension (listening and reading) within a variety of cultural contexts.

Three hours of applied class work and one hour of foreign language lab per week is required.

Note: Advanced placement and credit by examination are available to students who have previously studied Japanese.

**JPN 1023: Beginning Japanese II**

Prerequisite: JPN 1013 Beginning Japanese I or equivalent

Continued training in basic Japanese communication (speaking and writing) and comprehension (listening and reading) skills to increase proficiency in the language within a variety of cultural contexts.

Three hours of applied class work and one hour of foreign language lab per week is required.

Note: Advanced placement and credit by examination are available to students who have previously studied Japanese.

**JPN 2013: Intermediate Japanese I**

Prerequisite: JPN 1023 Beginning Japanese II or equivalent

Development of language skills necessary for communication (speaking and writing) and comprehension (listening and reading) skills to increase proficiency in the language at the intermediate level within a variety of cultural contexts.

Three hours of applied class work and one hour of foreign language lab per week is required.

Note: Advanced placement and credit by examination are available to students who have previously studied Japanese.

**JPN 2023: Intermediate Japanese II**

Prerequisite: JPN 2013 Intermediate Japanese I or equivalent

Further development of the language skills necessary for communication (speaking and writing) and comprehension (listening and reading) skills to provide mastery of fundamental tools in a variety of cultural contexts.

Three hours of applied class work and one hour of foreign language lab per week is required.

Note: Advanced placement and credit by examination are available to students who have previously studied Japanese.

**JPN 3003: Conversation and Composition I**

Prerequisite: JPN 2023 Intermediate Japanese II or permission of instructor.

Development of advanced control of Japanese communication and comprehension through conversation and composition based on analysis of authentic short texts and media.

Three hours of applied course work.

Note: Advanced placement and credit by examination are available to students who have previously studied or are proficient in Japanese.

**JPN 3013: Conversation and Composition II**

Prerequisite: JPN 3003 Conversation and Composition I or permission of instructor

Continuation of JPN 3003 Conversation and Composition I. Further development of advanced proficiency of Japanese communication and comprehension through conversation and composition based on analysis of authentic short texts and media.

Three hours of applied course work.

Note: Advanced placement and credit by examination are available to students who have previously studied or are proficient in Japanese.

**JPN 3113: Culture and Civilization**

Prerequisite: JPN 2023 Intermediate Japanese II or equivalent.

Study of the economic, political, and social structure of Japan and an introduction to Japanese history and culture.

**JPN 3143: Study Abroad**

Prerequisites: Enrollment in a Tech-sanctioned study program in a Japan, completion of JPN 2024 or equivalent, and permission of the Study Abroad supervisor and Department Head.

Study of the contemporary language and culture in a Japan. May substitute for JPN 3003 Conversation and Composition I or JPN 3013 Conversation and Composition II, depending on the student's proficiency level.

### **JPN 4903: Foreign Language Internship**

Prerequisites: Advanced foreign language proficiency; permission of the instructor and the department head.

The Foreign Language Internship is intended primarily for majors in foreign languages or international studies. It is designed to provide outstanding students the opportunity to perfect their language proficiency and to acquire specific training and skills overseas. The overseas sponsor and the foreign language instructor of record will supervise the intern. Performance evaluations and a research paper will be required.

### **JPN 4991: Special Problems in Japanese**

Prerequisite: completion of JPN 2023 Intermediate Japanese II or equivalent, permission of the instructor and Department Head.

This course is designed to provide advanced Japanese students with a course of study in an area not covered by the departmental course offerings.

### **JPN 4992: Special Problems in Japanese**

Prerequisite: completion of JPN 2023 Intermediate Japanese II or equivalent, permission of the instructor and Department Head.

This course is designed to provide advanced Japanese students with a course of study in an area not covered by the departmental course offerings.

### **JPN 4993: Special Problems in Japanese**

Prerequisite: completion of JPN 2023 Intermediate Japanese II or equivalent, permission of the instructor and Department Head.

This course is designed to provide advanced Japanese students with a course of study in an area not covered by the departmental course offerings.

### **JPN 4994: Special Problems in Japanese**

Prerequisite: completion of JPN 2023 Intermediate Japanese II or equivalent, permission of the instructor and Department Head.

This course is designed to provide advanced Japanese students with a course of study in an area not covered by the departmental course offerings.

## **JOURNALISM (JOUR)**

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### **JOUR 4XXX: JOURNALISM TRANSFER ELECTIVE**

Credit transferred from another institution and articulated for journalism upper division elective.

### **JOUR 3XXX: JOURNALISM TRANSFER ELECTIVE**

Credit transferred from another institution and articulated for journalism upper division elective.

### **JOUR 2XXX: JOURNALISM TRANSFER ELECTIVE**

Credit transferred from another institution and articulated for journalism lower division elective.

### **JOUR 1XXX: JOURNALISM TRANSFER ELECTIVE**

Credit transferred from another institution and articulated for journalism lower division elective.

### **JOUR 1023: Exploration of Media and Communication**

This course offers an overview of the modern communication and media landscape. Students will explore and be exposed to the different avenues that a professional life in communication and media may take, such as journalism, social media, public relations, film making and broadcasting. In addition, students will examine the deeper knowledge of communication ranging from theory, crisis communication, rhetoric and interpersonal communication.

### **JOUR 1163: Basic Digital Photography**

Cross-listed: ART 1163 Basic Digital Photography

Basic Digital Photography, an introduction to the medium, its history, techniques and theory. This course will teach students the basics of photographic composition, lighting, camera and lens operation, editing and printing using the digital format.

### **JOUR 1411: Print Practicum**

Students will learn practical skills in the areas of writing, layout and design and photography while working an assigned number of hours each week for the student newspaper.

### **JOUR 1421: Print Practicum**

Students will learn practical skills in the areas of writing, layout and design and photography while working an assigned number of hours each week for the student newspaper.

### **JOUR 1811: Broadcast Practicum**

Practical work experience in the studios of KXRJ FM and Tech television productions.

Note: Only four hours count for the journalism major.

### **JOUR 1821: Broadcast Practicum**

Practical work experience in the studios of KXRJ FM and Tech television productions.

Note: Only four hours count for the journalism major.



**JOUR 1911: Multimedia Practicum**

Practical work experience in the multimedia lab including work as Web news manager, producer, Web content director.

**JOUR 1921: Multimedia Practicum**

Practical work experience in the multimedia lab including work as Web news manager, producer, Web content director.

**JOUR 2133: Introduction to Mass Communication**

An introduction to the mass communication process and industry.

**JOUR 2143: Media Writing**

A study of and practice in writing news stories.

**JOUR 2153: Introduction to Telecommunication**

A study of the technical, legal, programming, advertising and journalistic aspects of the telecommunication industry with practical exercises in radio, television and the Internet.

**JOUR 2163: Introduction to Multimedia**

Prerequisite: JOUR 2133 Introduction to Mass Communication

Introduction to Digital Multimedia is designed to teach fundamental principles of multimedia to give students a working understanding of digital media formats and their applications.

**JOUR 2173: Introduction to Film**

Cross-listed: ENGL 2173 Introduction to Film

Prerequisite: ENGL 1013 Composition I or equivalent.

A study of film as an art form with particular attention to genres, stylistic technique and film's relation to popular culture.

Note: JOUR 2173 Introduction to Film may be used to fulfill the fine arts General Education requirement.

Note: JOUR 2173 Introduction to Film may not be repeated for credit after the completion of ENGL 2173 Introduction to Film.

**JOUR 2253: Basic Video Production**

Students learn media production using the tools of cameras, audio production, and editing. This hands-on application will develop the physical and mental skills necessary to evolve in the TV production field.

**JOUR 2263: Media and Society**

There are many significant changes to contemporary media. About these changes, we need to think critically about recent media developments as well as the many enduring relationships between media and society. In Media and Society, we take an interdisciplinary approach with a sociological focus to answer questions like how do people use the media in their everyday lives? and how has the evolution of technology affected the media and how we use them? Our approach to media allows us to cover a wide range of questions. In addition, this class incorporates the latest scholarship and data that address enduring media topics, as well as new concerns raised by the role of digital platforms, the impact of misinformation online, and the role of media during the COVID-19 pandemic.

**JOUR 2411: Print Practicum**

Students will learn practical skills in the areas of writing, layout and design and photography while working an assigned number of hours each week for the student newspaper.

**JOUR 2421: Print Practicum**

Students will learn practical skills in the areas of writing, layout and design and photography while working an assigned number of hours each week for the student newspaper.

**JOUR 2811: Broadcast Practicum**

Practical work experience in the studios of KXRJ FM and Tech television productions.

Note: Only four hours count for the journalism major.

**JOUR 2821: Broadcast Practicum**

Practical work experience in the studios of KXRJ FM and Tech television productions.

Note: Only four hours count for the journalism major.

**JOUR 2911: Multimedia Practicum**

Practical work experience in the multimedia lab including work as Web news manager, producer, Web content director.

**JOUR 2921: Multimedia Practicum**

Practical work experience in the multimedia lab including work as Web news manager, producer, Web content director.

**JOUR 3111: Editorial Conference**

Prerequisite: Permission of instructor.

Student news executives meet regularly with faculty to critique publication and broadcast products.

**JOUR 3121: Editorial Conference**

Prerequisite: Permission of instructor.

Student news executives meet regularly with faculty to critique publication and broadcast products.

**JOUR 3133: Media Management and Diversity**

An analysis of the problems in managing newspapers, magazines and other mass media.

**JOUR 3143: News Reporting**

Prerequisite: ENGL 1013 Composition I or 1043 and JOUR 2143 Media Writing

A study of news gathering and writing techniques.

**JOUR 3153: Feature Writing**

Prerequisite: Permission of the instructor.

A study of and practice in writing of newspaper features and magazine articles.

**JOUR 3163: News Photography**

Prerequisite: ENGL 1013 Composition I or 1043

A study of the use of the camera, communication through pictures, news value in pictures, and the history of photojournalism.

**JOUR 3173: Public Relations Principles**

A study of public opinion and the role of the mass media in shaping it, including practice in public opinion research, communications techniques and solving public relations problems.

**JOUR 3183: Digital News Writing**

Prerequisite: JOUR 2143 Media Writing or 3143

Principles and techniques of writing and production of radio and television news.

Two hour class, two hour laboratory.

**JOUR 3193: New Media News Gathering**

Prerequisite: JOUR 2143 Media Writing, JOUR 3183 Digital News Writing or consent of instructor.

Study and practice in producing news packages, including training and experience in new and traditional news gathering, preparing scripts and digital video, and operating cameras, editing decks, and other studio and field equipment.

**JOUR 3273: Public Relations Writing**

Prerequisites: JOUR 3173 Public Relations Principles.

Provides the knowledge and skill training for students to become effective public relations writers. The course will focus on style and content of writing news releases, speeches, newsletters, brochures, annual reports and other public relations communications.

**JOUR 3411: Print Practicum**

Students will learn practical skills in the areas of writing, layout and design and photography while working an assigned number of hours each week for the student newspaper.

**JOUR 3421: Print Practicum**

Students will learn practical skills in the areas of writing, layout and design and photography while working an assigned number of hours each week for the student newspaper.

**JOUR 3714: Copy Editing**

Prerequisites: JOUR 2143 Media Writing and 3143.

A study of copy reading, headline writing, design, and problems and policies of editing the news.

Three hours lecture, two hours laboratory arranged.

**JOUR 3811: Broadcast Practicum**

Practical work experience in the studios of KXRJ FM and Tech television productions, including work as manager, producer, or director.

Note: Only four hours count for the journalism major.

**JOUR 3821: Broadcast Practicum**

Practical work experience in the studios of KXRJ FM and Tech television productions, including work as manager, producer, or director.

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Note: Only four hours count for the journalism major.

**JOUR 3911: Multimedia Practicum**

Practical work experience in the multimedia lab including work as Web news manager, producer, Web content director.

**JOUR 3921: Multimedia Practicum**

Practical work experience in the multimedia lab including work as Web news manager, producer, Web content director.

**JOUR 4011: Practical Editing**

Actual experience editing news. Arranged with an instructor.

Note: May be taken for a maximum of three hours.

**JOUR 4012: Practical Editing**

Actual experience editing news. Arranged with an instructor.

Note: May be taken for a maximum of three hours.

**JOUR 4013: Practical Editing**

Actual experience editing news. Arranged with an instructor.

Note: May be taken for a maximum of three hours.

**JOUR 4023: Social Media**

This course offers students a solid understanding of social media, its roots and how to effectively utilize this culture from personal and corporate perspectives.

**JOUR 4033: Community Journalism**

A study of journalism as practiced in weeklies, small dailies, and broadcast stations in small towns and cities, including the relationship of the media to the community.

Note: For majors and non-majors.

**JOUR 4043: Journalism Ethics**

A study of ethical theory and basic principles needed in solving ethical challenges facing media professionals.

**JOUR 4053: Mass Communication Seminar**

Prerequisite: Permission of instructor.

Studies of the relationship of mass communication to social, political, technical, and economic issues. Course content will vary.

Note: May be repeated for credit as JOUR 4053 Mass Communication Seminar or 5053 when course content changes.

**JOUR 4073: Graphic Communication**

Prerequisites: JOUR 3173 Public Relations Principles and JOUR 3273 Public Relations Writing

Presents the elements of effective print design as well as the other decision making processes involved with creating an effective visual communication (type, art and illustration, basic design principles, paper and ink, printing processes, etc.). Students will create visually appealing projects using the industry standard design and photo manipulation software programs.

**JOUR 4083: Internet Communication**

A study of communication processes in the Digital Age. Discussions and content will include contemporary emerging communication technologies and exploration into the impact those technologies have and will likely have on an individual and diverse social communities.

**JOUR 4091: Internship**

Credit for work in professional journalistic settings. Credit hours will be based on hours on the job.

Note: May be taken for a total of four hours.

**JOUR 4092: Internship**

Credit for work in professional journalistic settings. Credit hours will be based on hours on the job.

Note: May be taken for a total of four hours.

**JOUR 4093: Internship**

Credit for work in professional journalistic settings. Credit hours will be based on hours on the job.

Note: May be taken for a total of four hours.

**JOUR 4094: Internship**

Credit for work in professional journalistic settings. Credit hours will be based on hours on the job.

Note: May be taken for a total of four hours.

**JOUR 4111: Editorial Conference**

Prerequisite: Permission of instructor.

Student news executives meet regularly with faculty to critique publication and broadcast product.

**JOUR 4113: History of American Journalism**

Prerequisite: Permission of instructor.

A survey of the history of American journalism and mass media and their relationships to technical, economic, political, and other aspects of American society.

Note: May not be repeated for credit as JOUR 5113.

**JOUR 4121: Editorial Conference**

Prerequisite: Permission of instructor.

Student news executives meet regularly with faculty to critique publication and broadcast product.

**JOUR 4123: Laws of Communication**

A study of the development of freedom of press and speech, laws of libel, contempt, privacy and copyright in their relation to press, radio, television, and films.

**JOUR 4133: Digital News Production**

Prerequisite: JOUR 3193 New Media News Gathering or consent of instructor.

Study and practice in shooting, writing, editing, and producing news, sports and feature packages. Stories will be aired during live news programming on Tech TV and placed in student video portfolios. Practical experience will focus on operating field and studio gear, including digital cameras and editing decks, and use of new media news gathering equipment.

**JOUR 4143: Advanced Reporting**

Prerequisites: JOUR 2143 Media Writing and 3143 or permission of instructor.

Study of advanced news gathering techniques and practice in researching and writing difficult types of stories.

**JOUR 4153: Editorial, Column, and Review Writing**

Study of and practice in writing editorials, columns, and reviews. Includes research and discussion of the function of opinion writing in the mass media.

**JOUR 4163: Advanced Digital Photography**

Cross-listed: ART 4163 Advanced Digital Photography

Prerequisite: JOUR (ART) 1163 or consent of instructor.

Advanced techniques in digital photography are explored to expand the student's understanding of the digital processes as they relate to computer editing, manipulation and printing of digital images. Students will also study current theories of visual communication that relate to the field of digital photography.

**JOUR 4173: Public Relations Project**

Prerequisites: JOUR 3173 Public Relations Principles, JOUR 3273 Public Relations Writing, JOUR 4073 Graphic Communication, or consent of instructor.

Planning, preparation and execution of a public relations program for a specific project.

**JOUR 4193: Communication Research Methods**

Introduction to the methodologies of behavioral science applied to communication research including design, measurement, data collection, and analysis. Explores the use of surveys, content analysis, focus groups, and experiments in studies of communication processes and effects.

**JOUR 4243: Journalism Writing Seminar**

A concentrated fundamentals writing course that deals with traditional techniques and various formats for journalistic writing such as editorials, feature stories, columns, reporting, press releases, and interviews.

**JOUR 4411: Print Practicum**

Students will learn practical skills in the areas of writing, layout and design and photography while working an assigned number of hours each week for the student newspaper.

**JOUR 4421: Print Practicum**

Students will learn practical skills in the areas of writing, layout and design and photography while working an assigned number of hours each week for the student newspaper.

**JOUR 4563: Sound Design for Moving Image**

Theory and practical application of sound design techniques for film, theatre, games, commercials, and vocal production with special focus on the narrative, aesthetic, and emotional impact of sounds and music for visual media.

**JOUR 4811: Broadcast Practicum**

Practical work experience in the studios of KXRJ FM and Tech television productions, including work as manager, producer, or director. Note: Only four hours count for the journalism major.

**JOUR 4821: Broadcast Practicum**

Practical work experience in the studios of KXRJ FM and Tech television productions, including work as manager, producer, or director. Note: Only four hours count for the journalism major.

**JOUR 4823: Journalism Capstone**

Students will produce a portfolio of original work that demonstrates their mastery of skills taught throughout the journalism curriculum.

**JOUR 4883: Mass Communication Theory**

Prerequisite: 15 semester hours of Journalism.

This course provides an examination of the major theories and domains of mass communication research, emphasizing mass media effects. Students are acquainted with the assumptions, propositions, and empirical research foundations of these theories. The course covers the historical evolution and recent trends in mass communication theory as well as the application of theories to specific contexts such as marketing or organizational communication.

**JOUR 4911: Multimedia Practicum**

Practical work experience in the multimedia lab including work as Web news manager, producer, Web content director.

**JOUR 4921: Multimedia Practicum**

Practical work experience in the multimedia lab including work as Web news manager, producer, Web content director.

**JOUR 4951: Undergraduate Research in Journalism**

Offered: On demand

Prerequisite: Departmental approval

Advanced students carry out independent research activity relating to a significant problem in a major field of study. Supervised by faculty member. Formal report and presentation required. One to four credits depending on problem selected and effort made.

**JOUR 4952: Undergraduate Research in Journalism**

Offered: On demand

Prerequisite: Departmental approval

Advanced students carry out independent research activity relating to a significant problem in a major field of study. Supervised by faculty member. Formal report and presentation required. One to four credits depending on problem selected and effort made.

**JOUR 4953: Undergraduate Research in Journalism**

Offered: On demand

Prerequisite: Departmental approval

Advanced students carry out independent research activity relating to a significant problem in a major field of study. Supervised by faculty member. Formal report and presentation required. One to four credits depending on problem selected and effort made.

**JOUR 4954: Undergraduate Research in Journalism**

Offered: On demand

Prerequisite: Departmental approval

Advanced students carry out independent research activity relating to a significant problem in a major field of study. Supervised by faculty member. Formal report and presentation required. One to four credits depending on problem selected and effort made.

**JOUR 4991: Special Problems in Journalism**

This course, for majors only, requires advanced approval by the instructor and is restricted to second semester juniors and seniors. It is designed to provide certain advanced students with further concentration in a particular area. One, two, three, or four hours may be taken as appropriate.

**JOUR 4992: Special Problems in Journalism**

This course, for majors only, requires advanced approval by the instructor and is restricted to second semester juniors and seniors. It is designed to provide certain advanced students with further concentration in a particular area. One, two, three, or four hours may be taken as appropriate.

**JOUR 4993: Special Problems in Journalism**

This course, for majors only, requires advanced approval by the instructor and is restricted to second semester juniors and seniors. It is designed to provide certain advanced students with further concentration in a particular area. One, two, three, or four hours may be taken as appropriate.

### **JOUR 4994: Special Problems in Journalism**

This course, for majors only, requires advanced approval by the instructor and is restricted to second semester juniors and seniors. It is designed to provide certain advanced students with further concentration in a particular area. One, two, three, or four hours may be taken as appropriate.

## **LATIN (LAT)**

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### **LAT 1013: Beginning Latin I**

Instruction in the fundamentals necessary to read and write the language.

Note: Advanced placement and credit by examination are available to students who have previously studied Latin.

### **LAT 1023: Beginning Latin II**

Prerequisite: LAT 1013 Beginning Latin I or equivalent.

A continuation of LAT 1013 Beginning Latin I.

## **LEADERSHIP (LEAD)**

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### **LEAD 1003: Introduction to Leadership**

This is an introduction course on leadership, where students will gain an understanding in the concepts, theories, and best practices regarding effective leadership. In addition, students will focus on understanding self and personal leadership.

### **LEAD 2003: Ethics in Leadership**

This course is an examination of ethics in leadership. Students will demonstrate critical thinking skills to identify and remedy ethical issues found in a variety of leadership situations. This includes understanding right and wrong, good versus evil, and how these decisions impact their personal leadership as well as those around them.

### **LEAD 3003: Leading Teams**

This is a course on leadership development and team building, where students will gain an understanding in the concepts, theories, and best practices regarding effective leadership.

### **LEAD 4003: Leadership Internship/Capstone Seminar**

A seminar designed to assist students with integrating the formal leadership theories, concepts, and skills into practical application. The course will serve as the capstone seminar for those students pursuing a leadership studies minor.

### **LEAD 4103: Special Problems in Leadership**

Selected contemporary issues, topics, or challenges in leadership will be presented in depth. The course will examine trends, developments, and challenges facing leaders.

## **LIBRARY MEDIA (LBMD)**

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### **LBMD 2001: Introduction to Library Resources**

An introduction to the organization and function of resource collections, with practical experience in location, retrieval, and use of reference and research materials; emphasis placed on subject materials.

Note: Course will not count toward licensure.

## **MANAGEMENT (MGMT)**

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### **MGMT 3003: Principles of Management**

Co-requisites or Prerequisites: ACCT 2013 Accounting Principles II or ACCT 2033 Fundamental Accounting Concepts.

Basic principles of management and organizational behavior including planning, organizing, leading, controlling, staffing, decision making, ethics, interpersonal influence, and group behavior; conflict management; job design; and organizational change and development.

### **MGMT 3023: Principles of Human Resource Management**

Co-requisite or Prerequisite: MGMT 3003 Principles of Management

An introduction to the field of human resources and an overview of human resources' role in the organization. In addition to this prologue, workforce planning, talent management; outcomes measurement/metrics, and management of a diverse workforce will be examined.

### **MGMT 3103: Operations Management**

Prerequisites: (BUAD 2053 Business Statistics or PSY 2053 Statistics for the Behavioral Sciences or STAT 2163 Introduction to Statistical Methods), and MGMT 3003 Principles of Management.

A study of the overall operations management task. Critical issues include its integration of market issues, the development of operations strategies, and the management of people. Specific attention is given to the design and development of services and products and the systems by which they are produced and delivered. Factors central to the operations management task include capacity, technology, scheduling and execution, quality, inventory, the significant role of managing the supply chain, and process and delivery system reliability and maintenance.

### **MGMT 3113: Business Process Improvement**

Prerequisites: MGMT 3003 Principles of Management and (BUAD 2053 Business Statistics or PSY 2053 Statistics for the Behavioral Sciences or STAT 2163 Introduction to Statistical Methods).

This course is a study of the analysis, mapping, and improvement of business processes using standard symbols, popular software tools, metrics, and general systems theory. Examples of sample business processes and topics include customer service, sales management, scheduling, manufacturing, supply chain management, logistics, hiring/job search, process mapping diagrams, organizational charts, workflow and environment layout, cause and effect analysis, systems analysis and design, collection and analysis of process data, and optimization. Software tools are used for process diagramming, concept mapping, physical facilities layout, project planning and management, and data filtering and analysis.

### **MGMT 3123: Business Ethics**

Prerequisite: BLAW 2033 Legal Environment of Business and MGMT 3003 Principles of Management

This course is an interdisciplinary study of business ethics and the social responsibility of business organizations in society. The course will consider professional and applied ethics, law and organizational behavior. The focus of the course is on the individual managerial decision making process in response to ethical issues arising in the business context. Students will explore the role of business in society; discuss general theories of ethics; explain and apply key ethical theories in business; and develop and defend their own ethical positions.

### **MGMT 3173: Advanced Microsoft Techniques**

Prerequisite: BDA 2003 Business Problem Solving

This course uses a hands on approach to demonstrate the students' ability to use Microsoft Word, Excel, and Access. Training and testing software will be used to prepare the students to take the Microsoft Certification exams.

### **MGMT 3323: Employment Law**

Offered: Fall

Prerequisites: BLAW 2033 Legal Environment of Business

This course focuses on major federal employment laws affecting individual employees excluding labor laws. Topics covered includes legal regulation of the hiring and firing processes, testing and privacy issues, wage and hour laws, laws affecting benefits, occupational safety and health, workers compensation, unemployment insurance and related topics.

The course will briefly touch on employment discrimination issues as they affect the employment relationship but not in the depth nor the detail of the Employment Discrimination Law course.

As practitioners and researchers in the field of human resources, a strong familiarity with employment law and the ability to understand the application of various laws that affect human resource development within organizations is critical.

### **MGMT 4013: Management Information Systems**

Prerequisite: MGMT 3103 Operations Management

A study of information processing, the systems concept, the analysis and design of information systems, and database hardware and software technology as they apply to producing information to be used in business decision making. Emphasis will be given to practical application for business.

### **MGMT 4033: Internship I in Management**

Prerequisites: Permission of the instructor, Associate Dean, and Dean and a minimum 2.5 GPA.

A supervised, practical experience providing undergraduate MGMK majors with a hands-on professional management/ marketing experience in a position relating to an area of career interest. The student will work in a local cooperating business establishment under the supervision of a member of management of that firm. A School of Business faculty member will observe and consult with the students and the management of the cooperating firm periodically during the period of the internship. Students will be required to make oral reports in the classroom, maintain an internship log, and prepare a final term paper.

Note: Only three hours of internship may be used to satisfy the curriculum requirements for management or marketing electives. Additional hours may be used to satisfy the curriculum requirements for general electives.

### **MGMT 4043: Internship II in Management**

Prerequisites: Permission of the instructor, Associate Dean, and Dean and a minimum 2.5 GPA.

To be taken after completion of Internship I. A supervised, practical experience providing undergraduate MGMK majors with a hands-on professional management/marketing experience in a position relating to an area of career interest. The student will work in a local cooperating business establishment under the supervision of a member of management of that firm. A School of Business faculty member will observe and consult with the students and the management of the cooperating firm periodically during the period of the internship. Students will be required to make oral reports in the classroom, maintain an internship log, and prepare a final term paper.

Note: Only six hours of internship may be used to satisfy the curriculum requirements for management or marketing electives. Additional hours may be used to satisfy the curriculum requirements for general electives.

### **MGMT 4053: Small Business Management**

Prerequisites: MGMT 3003 Principles of Management and MKT 3043 Principles of Marketing

Application of business management principles to the creation and operation of small scale enterprises. Emphasis on the preparation and implementation of business plans for such enterprises.

### **MGMT 4063: Entrepreneurial Development**

Prerequisites: MGMT 4053 Small Business Management and approval from instructor.

The course is designed to increase the students' understanding of critical entrepreneurial and venture creation concepts through practical applications and through textual readings. Specifically, students will take preliminary small business plans and develop and formalize plans that will be submitted for competition consideration at the annual Donald W. Reynolds Governor's Cup business plan competitions.

### **MGMT 4073: Special Topics in Management**

In-depth exploration of selected management topics. The primary topic will vary from offering to offering; thus, the course may be taken more than once.

### **MGMT 4080: School of Business College of Distinction Enhanced Capstone**

Prerequisite: Acceptance into the School of Business College of Distinction program.

Co-requisite: MGMT 4083 Business Policy

This course is required for all students accepted into the School of Business College Distinction program as a marker for student participation in approved School of Business College of Distinction activities.

### **MGMT 4083: Business Policy**

Prerequisites: MGMT 3103 Operations Management and at least 90 earned hours.

Co-requisite or Prerequisite: FIN 3063 Business Finance

As the capstone course in the College of Business core, this course examines the application of strategic management processes, including top management's role in situational analysis, strategy selection, strategy implementation, and strategic control, under conditions of uncertainty.

### **MGMT 4093: Organizational Behavior**

Prerequisite: BLAW 2033 Legal Environment of Business

Prerequisites or Co-requisites: MGMT 3003 Principles of Management or PSY 3093 Industrial and Organizational Psychology

Organizational behavior is devoted to understanding individuals and groups within an organizational context. The field focuses on attributes, processes, behaviors, and outcomes within and between individual, interpersonal, group, and organizational levels of analysis. Individual characteristics include learning, motivation, and decision making which impacts training and development as well as performance management. Interpersonal and organizational processes include recruitment, selection, job design, and goal setting.

### **MGMT 4103: Supply Chain Management**

Prerequisite: MGMT 3103 Operations Management

This course covers basic principles of supply chain management and provides techniques used to analyze various aspects of logistics systems. Key concepts such as inventory management, communication, warehousing, distribution, and facility location are examined as an integral part of modern business. The course addresses insights, concepts, practical tools, and decision support systems that are important for the effective management of the supply chain.

A supply chain is defined as a set of three or more companies directly linked by one or more of the upstream and downstream flows of products, services, finances, and information from a source to a consumer. Supply chain management is the systemic, strategic coordination of the traditional business functions within a particular company and across businesses within a supply chain, for the purpose of improving the long-term performance of the individual companies and the supply chain as a whole. The major supply chain processes include planning, sourcing, making or converting, fulfillment, and relationships management. The major dimensions for evaluating the performance of supply chain processes and activities are time, cost, quality and compliance. This course covers the major activities of companies involved in profitably cording supply and demand in the marketplace to deliver consumer value.

### **MGMT 4113: Managerial Issues in Electronic Commerce**

Prerequisites: MGMT 3003 Principles of Management and MKT 3043 Principles of Marketing

A study of managerial issues and strategies involved in Internet-based buying and selling activities. The course examines appropriate business models and best practices in generating revenue, market share, and profit from wholesaling and retailing activities in business-to-consumer, business-to-business, and consumer-to-consumer venues. Topics include initiation and management of electronic commerce operations, technological infrastructure and tools, marketing, customer relationship management, electronic payment, security, staffing, social impacts, ethics, regulation, and international markets.

### **MGMT 4203: Project Management**

Prerequisite: MGMT 3103 Operations Management

Project Management is studied from a practical perspective. In this course, students explore techniques of organizing the three main elements of project management: cost, schedule and scope, as well as how to manage the most important aspect of Project Management: PEOPLE. Students will learn to utilize software that aids in the visualization of the project management process. The emphasis of this special topic in management will be aimed toward an understanding of Project Management for future business leaders and engineers. The course will culminate with a month- long, graded, practical



exercise with industry where students will be organized into teams or as individual developers and sent to explore all aspects of a problem, conduct a project initiation workshop, and then present a project management plan to the leadership of that participating industry.

### **MGMT 4213: Strategy and Leadership**

Prerequisite: MGMT 3003 Principles of Management

Major leadership theories will be examined. Organizational effectiveness and competitive strategies will be addressed from a human resources leadership viewpoint. Students will consider strategic and leadership challenges within the human resources role.

### **MGMT 4223: Leadership: Ideas and Images in Art, Film, History, and Literature**

Prerequisite: MGMT 3003 Principles of Management

This course probes the definition, meaning, practice, and paradox of leadership by exploring ideas and images found in diverse domains such as film, art, literature, and history. These ideas and images are used as a platform for examining leadership challenges and for developing personal insights into leadership practice, issues and values.

### **MGMT 4323: Compensation and Benefits**

Offered: Spring

Prerequisite: MGMT 3023 Principles of Human Resource Management

This course covers how to reward employees. Compensation and benefits are a major part of a firm's total rewards strategy. Components include salary structure and regulations, short-term incentives, and benefits such as health insurance and pensions plans that aligned with business objectives.

The field of Compensation and Benefits is a critical foundation for success in of human resource management. It is valuable information for any professional that has responsibilities for human resources in an organization.

## **MARKETING (MKT)**

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### **MKT 3043: Principles of Marketing**

Prerequisites: ECON 2013 Principles of Microeconomics.

Marketing fundamentals, understanding the ultimate consumer, the retailing/wholesaling systems, marketing functions, marketing policies and marketing costs, critical appraisal of marketing, and marketing and the government.

### **MKT 3063: Social Media Marketing**

This course examines the force of social media marketing and its place in the marketing process. The advantages and use of particular platforms will be explored, and the use of social media analytics to craft strategy will be examined.

### **MKT 3083: Retailing and the Virtual Marketplace**

Prerequisite: MKT 3043 Principles of Marketing

This course examines the strategies needed to have success in retailing, both traditional and virtual. Retail location, layout, merchandising, and product selection, as well as security, product and placement selection, and the use of websites and social media in the virtual environment will be examined.

### **MKT 3103: Selling and Sales Management**

Prerequisite: MKT 3043 Principles of Marketing

This course examines the theories and practices of effective selling, including customer needs analysis, competitor analysis, product knowledge and sales interaction and presentation skills. The fundamentals of hiring, training, retailing, and managing a professional sales staff will be explored.

### **MKT 3153: Marketing Research and Analysis**

Offered: Spring

Prerequisites: (BUAD 2053 Business Statistics or PSY 2053 Statistics for the Behavioral Sciences or STAT 2163 Introduction to Statistical Methods) and MKT 3043 Principles of Marketing.

A study of the use of data needed to make marketing decisions, including design, collection and analysis of both primary and secondary data.

### **MKT 3163: Consumer Behavior**

Prerequisites: MKT 3043 Principles of Marketing.

A study of the development of consumer decision making processes and the factors which influence them. Psychological, sociological, economic, cultural, and situational factors are examined. Their impact on marketing formulation, both domestic and international, is emphasized.

### **MKT 4013: Digital Metrics**

Prerequisites: MKT 3043 Principles of Marketing and MKT 3153 Marketing Research and Analysis

This course contains advanced methods of collecting and using data, including search engine optimization using analytics, the design and uses of databases in marketing, advanced marketing research techniques, and interpreting all forms of data analytics to form marketing strategy.

### **MKT 4033: Internship in Marketing I**

Prerequisites: MKT 3043 Principles of Marketing, permission of the instructor, Department Chair, and Dean and a minimum 2.5 GPA on 60 or more earned hours and on at least 15 earned hours from ATU.

A supervised, practical experience providing undergraduate MGMK majors with a hands-on professional management/ marketing experience in a position relating to an area of career interest. The student will work in a local cooperating business establishment under the supervision of a member of management of that firm. A College of Business faculty member will observe and consult with the students and the management of the cooperating firm periodically during the period of the internship. Students will be required to make oral reports in the classroom, maintain an internship log, and prepare a final term paper.

Note: Only three hours of internship may be used to satisfy the curriculum requirements for management or marketing electives. Additional hours may be used to satisfy the curriculum requirements for general electives.

### **MKT 4053: Sport and Event Marketing**

Prerequisites: MKT 3043 Principles of Marketing.

To apply marketing concepts to sporting, cultural, historical, and charitable activities and events. To examine the performance, production, and promotional segments of the sport and event markets.

### **MKT 4063: Integrated Marketing Communication in a Digital Age**

Prerequisites: MKT 3043 Principles of Marketing.

The study of every element of promotion within the marketing mix, including the importance of a unified message, as well as understanding of the strengths and weaknesses of all available media.

### **MKT 4093: International Marketing**

Prerequisites: MKT 3043 Principles of Marketing.

Analysis of opportunities, distinctive characteristics and emerging trends in foreign markets, including exploration of alternative methods and strategies for entering foreign markets; organizational planning and control; impact of social, cultural, economic and political differences; and problems of adapting American marketing concepts and methods.

### **MKT 4103: Special Topics in Marketing**

Prerequisites: MKT 3043 Principles of Marketing.

In-depth exploration of selected marketing topics. The primary topic will vary from offering to offering, thus, the course may be taken more than once.

### **MKT 4143: Marketing Strategy**

Offered: Spring

Prerequisites: MKT 3043 Principles of Marketing, MGMT 3003 Principles of Management, and at least 90 earned hours.

Advanced study of decisions facing a marketing executive. Topics covered include product planning, consumer behavior, promotion, sales management, and pricing. It provides practical experience in developing a small business marketing plan.

## **MATHEMATICS (MATH)**

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### **MATH XXXX: Mathematics**

Three hours from one of the following:

MATH 1003 College Mathematics College Mathematics

MATH 1113 College Algebra College Algebra

Any higher level mathematics course

### **MATH 0803: Foundations of College Mathematics**

Co-requisite: MATH 1003 College Mathematics

The purpose of this course is to prepare for college level mathematics those students whose mathematics background is inadequate. This course is a review of solving basic equations, operations, exponents, formulas, basic numeracy, statistics, percentages, scientific notation, conversions, and other mathematical skills. This course prepares students through a focus on problem solving, working with data, and emphasis on thinking critically.

Note: The grade in the course will be computed in semester and cumulative grade point averages, but the course may not be used to satisfy general education requirements nor provide credit toward any degree.

Note: A student who makes a D or F in MATH 0803 Foundations of College Mathematics must repeat the course in each subsequent semester until he or she earns a grade of C or better. Students who make a grade of C or better in MATH 0803 Foundations of College Mathematics must enroll in MATH 1003 College Mathematics the following semester.

### **MATH 0900: Beginning/Intermediate Algebra Lab**

Co-requisite: MATH 0903 Beginning and Intermediate Algebra

The purpose of this course is to prepare students for college level mathematics whose mathematics background is inadequate. This is a laboratory course designed to foster success in Intermediate Algebra and to provide additional active learning opportunities and assistance for application of the basic skills and concepts in Intermediate Algebra. The lab will take the major content areas from Intermediate class and reinforce the learning in those areas through extra practice and different perspectives.

### **MATH 0903: Beginning and Intermediate Algebra**

Co-requisite: Students scoring below 17 on math section of the ACT; below 460 on the math section of the RSAT; or below 243 on arithmetic section of ACCUPLACER will be required to enroll in MATH 0900 Beginning/Intermediate Algebra Lab.

The purpose of this course is to prepare for college level mathematics those students whose mathematics background is inadequate. Content of the course is the language of algebra, fundamental operations, signed numbers, various equations, problem solving, special products and factoring, fractions, functions, graphs, exponents, and systems of linear equations.

Note: The grade in the course will be computed in semester and cumulative grade point averages, but will not be calculated in earned hours. The course may not be used to satisfy general education requirements nor provide credit toward any degree.

Note: A student who makes a D or F in MATH 0903 Beginning and Intermediate Algebra must repeat the course in each subsequent semester until he or she earns a C or better. Students who make a grade of C or better in MATH 0903 Beginning and Intermediate Algebra must enroll in MATH 1003 College Mathematics or MATH 1113 College Algebra the following semester.

### **MATH 1001: Orientation to Mathematics**

This course is designed to provide information and enhance skills that will enable students to make a successful transition to college. The course will expose students to college resources, requirements, and promote the development of practical skills for college success. Learning experiences also include exploration of career paths available in the field of mathematics.

### **MATH 1003: College Mathematics**

ACTS Common Course - MATH 1113 College Algebra

Prerequisite: Score of 19 or above on the math section of the ACTE; score of 500 or above on the math section of RSAT; score of 250 or above on the arithmetic section or quantitative reasoning, algebra, and statistics section of ACCUPLACER; or earn a grade of C\* or higher in MATH 0803 Foundations of College Mathematics or MATH 0903 Beginning and Intermediate Algebra or TMAT 1203.

Co-requisite: Students not meeting the above prerequisite, will enroll in MATH 1003 College Mathematics and the co-requisite MATH 0803 Foundations of College Mathematics.

This quantitative literacy course focuses upon the mathematics of contemporary life. Topics include using and understanding number quantities and measurement, statistics, probability, finances (personal, state and national), and mathematical modeling.

Note: A grade of C or better must be earned in this course if being used to satisfy the general education mathematics requirement.

### **MATH 1110: College Algebra Lab**

Co-requisite: MATH 1113 College Algebra with a math ACT score of 19 or 20.

The purpose of this course is to prepare students for college level mathematics whose mathematics background is inadequate. This a laboratory course designed to foster success in College Algebra and to provide additional active learning opportunities and assistance for application of the basic skills and concepts in College Algebra. The lab will take the major content areas from the college algebra class and reinforce the learning in those areas through extra practice and different perspectives.

### **MATH 1113: College Algebra**

ACTS Common Course - MATH 1103

Prerequisite: Score of 21 or above on the math section of the ACTE; score of 530 or above on the math section of RSAT; score of 253 or above on the quantitative reasoning, algebra, and statistics section of ACCUPLACER; or earn a grade of C\* or better in MATH 0903 Beginning and Intermediate Algebra.

Co-requisite: Students not meeting the above prerequisite but who score 19-20 on the math section of ACTE; score 500-520 the math section of RSAT; or score 250-252 on the Quantitative Reasoning, Algebra, and Statistics section of ACCUPLACER, will enroll in MATH 1113 College Algebra and the co-requisite: MATH 1110 College Algebra Lab.

Co-requisite: Students not meeting the above prerequisite but who score 17-18 on the math section of ACTE; score 460-490 the math section of RSAT; or score 243-249 on the Quantitative Reasoning, Algebra, and Statistics section of ACCUPLACER, will enroll in MATH 1113 College Algebra and the co-requisite: MATH 0903 Beginning and Intermediate Algebra.

Exponents and radicals, introduction to quadratic equations, systems of equations involving quadratics, ratio, proportion, variation, progressions, the binomial theorem, inequalities, logarithms, and partial fractions.

Note: A grade of C or better must be earned in this course if being used to satisfy the general education mathematics requirement.

Note: May not be taken for credit after completion of MATH 2703 Discrete Mathematics or any higher level mathematics course.

### **MATH 1203: Plane Trigonometry**

ACTS Common Course - MATH 1203 Plane Trigonometry

Prerequisite: Math ACTE score of 22 or higher, MATH 1113 College Algebra, or consent of Mathematics Department.

A study of the properties of the trigonometric functions and their graphs, solution of right and oblique triangles, formulas and identities, inverse functions, and trigonometric equations.

Note: A grade of C or better must be earned in this course if being used to satisfy the general education mathematics requirement.

### **MATH 1914: Precalculus**

ACTS Common Course - MATH 1305

Prerequisite: A math ACT score of 21 or above; score of 530 or above on the math section of RSAT; score of 253 or above on the quantitative reasoning, algebra, and statistics section of ACCUPLACER; or earn a grade of C or better in MATH 1113 College Algebra.

This course is designed to provide additional mathematical background before enrolling in the calculus sequence.

Note: A grade of C or better must be earned in this course if being used to satisfy the general education mathematics requirement.

### **MATH 2033: Mathematical Concepts I**

Prerequisite: MATH 1003 College Mathematics or 1113, elementary education major

Elementary set theory, numeration systems, elementary number theory and the real number system.

Note: A grade of C or better must be earned in this course if being used to satisfy the general education mathematics requirement.

### **MATH 2043: Mathematical Concepts II**

Prerequisites: A grade of C or better in MATH 2033 Mathematical Concepts I, elementary education major

A continuation of MATH 2033 Mathematical Concepts I, including a study of the elementary concepts of probability and statistics, and an informal study of geometry.

Note: A grade of C or better must be earned in this course if being used to satisfy the general education mathematics requirement.

### **MATH 2223: Quantitative Business Analysis**

Prerequisites: A math ACT score of 22 or higher or grade of "C" or better in MATH 1113 College Algebra.

This course is designed to develop the ability to use quantitative methods in accounting, business, and economics; it includes models of cost, revenue, and profit, linear programming, and probability.

Note: A grade of C or better must be earned in this course if being used to satisfy the general education mathematics requirement.

### **MATH 2243: Calculus for Business and Economics**

ACTS Common Course - MATH 2203

Prerequisites: A math ACT score of 22 or above or a C or above MATH 1113 College Algebra.

An introduction to the concepts of differentiation and integration. Emphasis will be placed on applications of calculus in business, economics, accounting, social sciences, and life sciences.

Note: May not be taken for credit after completion of MATH 2914 Calculus I or equivalent.

Note: A grade of C or better must be earned in this course if being used to satisfy the general education mathematics requirement.

### **MATH 2703: Discrete Mathematics**

Prerequisite: A grade of C or above in MATH 1113 College Algebra or higher level mathematics course.

A study of topics basic to mathematics and computer science. The topics include logic, proofs, mathematical induction, set theory, combinatorics, relations, and graph theory.

Note: A grade of C or better must be earned in this course if being used to satisfy the general education mathematics requirement.

### **MATH 2914: Calculus I**

ACTS Common Course - MATH 2405

Prerequisites: Math ACT score of 26 or higher, or a grade of C or higher in MATH 1914 Precalculus or MATH 1203 Plane Trigonometry or consent of instructor.

This is the first course in the calculus sequence that includes topics on functions, limits, continuity, differentiation and its applications, antiderivatives, inverse functions, and introduction to integration.

Note: A grade of C or better must be earned in this course if being used to satisfy the general education mathematics requirement.

### **MATH 2924: Calculus II**

ACTS Common Course - MATH 2505

Prerequisite: C or above in MATH 2914 Calculus I or equivalent

A continuation of MATH 2914 Calculus I. Includes methods of integration and its applications, sequences, and series.

Note: A grade of C or better must be earned in this course if being used to satisfy the general education mathematics requirement.

### **MATH 2934: Calculus III**

ACTS Common Course - MATH 2603

Prerequisite: C or above in MATH 2924 Calculus II or equivalent

Continuation of MATH 2924 Calculus II. The study of multi-dimensional calculus, including vector functions, partial differentiation, multiple integration and applications.

Note: A grade of C or better must be earned in this course if being used to satisfy the general education mathematics requirement.

### **MATH 3003: Foundations of Advanced Mathematics**

Prerequisite: A grade of C or better in MATH 2043 Mathematical Concepts II and admission to Stage II.

A detailed presentation of the fundamental mathematical concepts required to enter advanced mathematical coursework: sets, logic, methods of mathematical proof, relations, functions, and cardinality.

Note: A grade of C or better must be earned in the course used to satisfy the general education mathematics requirement.

### **MATH 3033: Methods of Teaching Elementary Mathematics**

Prerequisite: A grade of C or better in MATH 2043 Mathematical Concepts II and admission to Stage II.

A course on methods of teaching the mathematics of the elementary school using mathematical concepts and principles taught in these grades.

Note: A grade of C or better must be earned in the course used to satisfy the general education mathematics requirement.

### **MATH 3123: College Geometry**

Prerequisite: MATH 2924 Calculus II

A formal approach to plane geometry with coordinates; sets, points, lines, planes, distance, and coordinate systems, angles, congruence, parallelism, and similarity.

Note: A grade of C or better must be earned in the course used to satisfy the general education mathematics requirement.

### **MATH 3203: Introduction to Analysis**

Prerequisite: MATH 3003 Foundations of Advanced Mathematics

A careful development of the real number system and the theory of calculus on the real line.

Note: A grade of C or better must be earned in the course used to satisfy the general education mathematics requirement.

### **MATH 3243: Differential Equations I**

Prerequisite: C or above in MATH 2924 Calculus II

A study of differential equations of the first order; linear equations of higher order including the methods of undetermined coefficients and variation of parameters; linear equations with constant coefficients; special equations of order two and systems of linear first-order differential equations using matrices.

Note: A grade of C or better must be earned in the course used to satisfy the general education mathematics requirement.

### **MATH 3703: Mathematics in the Secondary Schools**

Prerequisites: SEED 2002 Education as a Profession and junior standing.

This course is an in-depth study of the mathematics curriculum currently taught in secondary schools with an emphasis on content knowledge for teaching. The course consists of classroom instruction and a field component.

Note: A grade of "C" or better must be earned in the course used to satisfy the general education mathematics requirement.

### **MATH 3772: Praxis II Mathematics: Content Knowledge Test Preparation**

Offered: Spring

Prerequisite: Admission to Stage II of the teacher education program.

This course is designed to provide preservice teacher candidates in the Mathematics Teacher Licensure program with an intensive study of the mathematical knowledge and competencies assessed by the Praxis Mathematics: Content Knowledge test.

### **MATH 4003: Linear Algebra I**

Prerequisite: MATH 2924 Calculus II

Matrices and matrix algebra, systems of linear equations, determinants, eigenvalues, eigenvectors, general vector spaces, linear transformations.

Note: A grade of C or better must be earned in the course used to satisfy the general education mathematics requirement.

### **MATH 4033: Abstract Algebra I**

Prerequisite: MATH 3003 Foundations of Advanced Mathematics

A study of Groups and other algebraic structures. Topics include sub-groups, normal sub- groups, abelian groups, groups of permutations, homomorphisms, kernels, and range.

Note: A grade of C or better must be earned in the course used to satisfy the general education mathematics requirement.

### **MATH 4103: Linear Algebra II**

Prerequisites: MATH 4003 Linear Algebra I or the consent of the Department of Mathematics.

A continuation of MATH 4003 Linear Algebra I with emphasis on abstract vector spaces, inner product spaces, linear transformations, kernel and range, and applications of linear algebra.

Note: MATH 5103 may not be taken for credit after completion of MATH 4103 Linear Algebra II or equivalent.

Note: A grade of C or better must be earned in the course used to satisfy the general education mathematics requirement.

### **MATH 4113: History of Mathematics**

Prerequisite: MATH 2934 Calculus III

A study of selected topics from the history and nature of mathematics from ancient to modern times. Emphasis will be placed on the historical development of mathematics through a study of biographies of prominent mathematicians and the evolution of some important mathematical concepts. The fundamental role of mathematics in the rise, maintenance, and extension modern civilization will be considered.

Note: MATH 5113 may not be taken for credit after completion of this course.

Note: A grade of C or better must be earned in the course used to satisfy the general education mathematics requirement.

### **MATH 4123: Mathematical Modeling**

Prerequisites: MATH 2703 Discrete Mathematics and MATH 3243 Differential Equations I

This course provides an introduction to the mathematical modeling process and applies this process to problems that may be modeled with pre senior level mathematics. Emphasis will be placed on connections of mathematics to application areas such as business, industry, economics, physical sciences, biological sciences, medicine and social sciences.

Note: A grade of C or better must be earned in the course used to satisfy the general education mathematics requirement.

### **MATH 4203: Advanced Logic**

Cross-listed: PHIL 4103 Advanced Logic

Prerequisites: COMS 2903 Discrete Structures for Technical Majors or MATH 2703 Discrete Mathematics or PHIL 3103 Logic

A study of selected topics in advanced logic. Emphasis will be placed on proof theory, quantification theory, semantic tableaux, logicism, theories of completeness and consistency, and some consideration of the logical foundations mathematics.

### **MATH 4243: Differential Equations II**

Prerequisites: MATH 3243 Differential Equations I and MATH 4003 Linear Algebra I or consent of the instructor.

A continuation of MATH 3243 Differential Equations I with emphasis on higher order and systems of differential equations.

Note: A grade of C or better must be earned in the course used to satisfy the general education mathematics requirement.

### **MATH 4273: Complex Variables**

Prerequisite: MATH 2934 Calculus III

An introduction to complex variables. This course will emphasize the subject matter and skills needed for applications of complex variables in science, engineering, and mathematics. Topics will include complex numbers, analytic functions, elementary functions of a complex variable, mapping by elementary functions, integrals, series, residues and poles and conformal mapping.

Note: MATH 5273 may not be taken for credit after completion of this course.

Note: A grade of C or better must be earned in the course used to satisfy the general education mathematics requirement.

### **MATH 4343: Introduction to Partial Differential Equations**

Prerequisites: MATH 2934 Calculus III and MATH 3243 Differential Equations I

This course is an introduction to partial differential equations with emphasis on applications to physical science and engineering. Analysis covers the equations of heat, wave, diffusion, Laplace, Dirichlet and Neumann equations. Course is suitable for senior level or first year graduate students in Mathematics, Physics, and Engineering.

Note: A grade of C or better must be earned in the course used to satisfy the general education mathematics requirement.

### **MATH 4703: Special Methods in Mathematics**

Prerequisites: Admission to State II of the teacher education program.

Co-requisites: SEED 4054 Educating Developing, Diverse, and Exceptional Learners and SEED 4556 Classroom Application of Educational Psychology

This course provides preservice teacher candidates with knowledge of current research and practice in mathematics education; a setting in which to apply that knowledge; and the opportunity to assess their teaching performance and formulate a plan for improvement.

Note: A grade of "C" or better must be earned in the course to be used to satisfy the general education mathematics requirement.

### **MATH 4951: Undergraduate Research in Mathematics**

Offered: On demand

Prerequisite: Departmental approval

Advanced students carry out independent research activity relating to a significant problem in a major field of study. Supervised by faculty member. Formal report and presentation required. One to four credits depending on problem selected and effort made.

Note: A grade of C or better must be earned in this course if being used to satisfy the general education mathematics requirement.

### **MATH 4952: Undergraduate Research in Mathematics**

Offered: On demand

Prerequisite: Departmental approval

Advanced students carry out independent research activity relating to a significant problem in a major field of study. Supervised by faculty member. Formal report and presentation required. One to four credits depending on problem selected and effort made.

Note: A grade of C or better must be earned in this course if being used to satisfy the general education mathematics requirement.

### **MATH 4953: Undergraduate Research in Mathematics**

Offered: On demand

Prerequisite: Departmental approval

Advanced students carry out independent research activity relating to a significant problem in a major field of study. Supervised by faculty member. Formal report and presentation required. One to four credits depending on problem selected and effort made.

Note: A grade of C or better must be earned in this course if being used to satisfy the general education mathematics requirement.

### **MATH 4954: Undergraduate Research in Mathematics**

Offered: On demand

Prerequisite: Departmental approval

Advanced students carry out independent research activity relating to a significant problem in a major field of study. Supervised by faculty member. Formal report and presentation required. One to four credits depending on problem selected and effort made.

Note: A grade of C or better must be earned in this course if being used to satisfy the general education mathematics requirement.

### **MATH 4971: Mathematics Senior Seminar**

Prerequisites: MATH 3203 Introduction to Analysis or MATH 4033 Abstract Algebra I, or departmental approval.

Students will engage in a research project under the guidance of faculty research advisors. The research area will depend on the interests of the students and available expertise of faculty advisors. The students will present their findings before their peers, faculty advisors, and members of the Mathematics Department Assessment Committee.

### **MATH 4991: Special Problems in Mathematics**

The content and credit for this course will be designed to meet the needs of the student.

Note: A grade of C or better must be earned in this course if being used to satisfy the general education mathematics requirement.

### **MATH 4992: Special Problems in Mathematics**

The content and credit for this course will be designed to meet the needs of the student.

Note: A grade of C or better must be earned in this course if being used to satisfy the general education mathematics requirement.

### **MATH 4993: Special Problems in Mathematics**

The content and credit for this course will be designed to meet the needs of the student.

Note: A grade of C or better must be earned in this course if being used to satisfy the general education mathematics requirement.

### **MATH 4994: Special Problems in Mathematics**

The content and credit for this course will be designed to meet the needs of the student.

Note: A grade of C or better must be earned in this course if being used to satisfy the general education mathematics requirement.

## **MECHANICAL ENGINEERING (MCEG)**

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### **MCEG 4XXX: MECH ENGR TRANSFER ELECTIVE**

Credit transferred from another institution and articulated for mechanical engineering upper division elective.

### **MCEG 3XXX: MECH ENGR TRANSFER ELECTIVE**

Credit transferred from another institution and articulated for mechanical engineering upper division elective.

### **MCEG 1002: Engineering Graphics**

General course in the most important types of engineering drawings. A foundation course in lettering, geometrical exercises, orthographic projections, including auxiliary views, sections, pictorial representation. The computer is introduced as a drafting tool.

Lecture and laboratory four hours. \$25 per credit hour curriculum content fee.

### **MCEG 1011: Introduction to Mechanical Engineering**

Prerequisites: Math ACTE score of 24 or higher, or grade of C or higher in MATH 1113 College Algebra, MATH 1914 Precalculus, or MATH 1203 Plane Trigonometry, or consent of instructor.

An introductory lecture/lab course to acquaint students with the technical aspects of mechanical engineering and professional responsibility.

\$25 per credit hour curriculum content fee.

### **MCEG 2013: Statics**

Prerequisites: MATH 2924 Calculus II and PHYS 2114 Calculus-Based Physics I

Principles of statics, resultants, equilibrium, and analysis of force systems. Structure analysis, forces in space, friction, centroids, and moments of inertia.

\$25 per credit hour curriculum content fee.

### **MCEG 2023: Engineering Materials**

Prerequisite: CHEM 2124 General Chemistry I

A study of the mechanical and physical properties, micro structure, and the various testings of engineering materials (metals, plastics, woods, and concrete) from the viewpoint of manufacture and construction.

\$25 per credit hour curriculum content fee.

### **MCEG 2033: Dynamics**

Prerequisite: MCEG 2013 Statics

A continuation of MCEG 2013 Statics. Study of problems of unbalanced force systems. Kinematics and kinetics of rigid bodies. Work and energy, impulse and momentum.

\$25 per credit hour curriculum content fee.

### **MCEG 2203: Computational Methods in Engineering**

Prerequisites: MCEG 1011 Introduction to Mechanical Engineering and MATH 2914 Calculus I

An introduction to common computational methods, tools, and procedures used in the solution of common engineering problems. A standard solution methodology is introduced along with instruction in units systems, spreadsheet and calculator computations and the use of engineering software.

\$25 per credit hour curriculum content fee.

### **MCEG 3000: Engineering Internship/Research Experience**

Cross-listed: ELEG 3000 Engineering Internship/Research Experience

Offered: As needed

Prerequisite: A minimum of 60 hours applicable toward the ATU Electrical/Mechanical engineering program requirements with a minimum 3.5 GPA; and acceptance in an Engineering Internship or Research Experience for Undergraduates Program.

A minimum of six weeks of supervised on-the-job training with a university research program, engineering firm, manufacturer, municipality, or company employing engineers. A written report is required within one week of internship completion. Students will also present their internship experience to an engineering class or at a student engineering RSO meeting.

Note: Satisfies College of Distinction requirement.

### **MCEG 3003: System Modeling and Analysis**

Cross-listed: ELEG 3003 System Modeling and Analysis

Prerequisites: COMS 1013 Programming Foundations I or MCEG 2203 Computational Methods in Engineering and MATH 3243 Differential Equations I

Reduction of engineering systems to mathematical models; methods of analysis using computers; interpretation of numerical results; optimization of design variables. Examples are drawn from various engineering disciplines.

\$25 per credit hour curriculum content fee.

### **MCEG 3013: Mechanics of Materials**

Prerequisite: MCEG 2013 Statics

Fundamental stress and strain relationships, torsion, shear and bending moments, stresses and deflections in beams; introduction to statically indeterminate beams, columns, combined stresses, and safety factors.

\$25 per credit hour curriculum content fee.

### **MCEG 3023: Manufacturing Processes**

Prerequisites: MCEG 2023 Engineering Materials and 3013

Morphological aspects of manufacturing processes, testing of engineering metals, metal working processes, metal forming processes, machining, non-destructive inspection methods, statistical process control, control charts, and total quality management concepts.

\$25 per credit hour curriculum content fee.

### **MCEG 3313: Thermodynamics I**

Prerequisites: MATH 2924 Calculus II and PHYS 2114 Calculus-Based Physics I

An introduction to thermodynamics, including thermodynamic properties of pure substances, heat and work, the first and second laws of thermodynamics, and entropy with applications to power and refrigeration cycles.

\$25 per credit hour curriculum content fee.

### **MCEG 3333: Alternative Energy Systems**

A study of the design and implementation of alternative energy sources in power production and other applications. Renewable sources are emphasized.

\$25 per credit hour curriculum content fee.

### **MCEG 3403: Machine Dynamics**

Prerequisite: MCEG 2033 Dynamics and MATH 3243 Differential Equations I

The study of the relative motion of machine components, force systems applied to these components, the motions resulting from these forces, and their effect on machine design criteria.

\$25 per credit hour curriculum content fee.

### **MCEG 3413: Fundamentals of Mechanical Design**

Prerequisites: MCEG 2033 Dynamics, 3013, and MATH 3243 Differential Equations I

Analysis of machines and components through application of basic fundamentals and principles.

\$25 per credit hour curriculum content fee.

### **MCEG 3442: Mechanical Laboratory I**

Prerequisites: MCEG 2023 Engineering Materials and MCEG 3013 Mechanics of Materials

A study of the basic materials testing procedures and instrumentation. Emphasis will be placed on proper laboratory techniques including data collection, data reduction, and report preparation.

Lecture one hour, laboratory three hours. \$40 course fee. \$25 per credit hour curriculum content fee.

### **MCEG 3453: Energy Management**

Prerequisite: MCEG 3313 Thermodynamics I

Energy management in commercial building and industrial plants. Utility rate structures. Sources of primary energy. Energy conversion devices. Prime movers of energy. Heat. Electricity. Lighting. HVAC Equipment. Building envelope. Electric motors. Estimating energy savings. Economic justification. Energy auditing.

\$25 per credit hour curriculum content fee.



**MCEG 3503: Basic Nuclear Engineering**

Prerequisites: MATH 2924 Calculus II, CHEM 2124 General Chemistry I and PHYS 2114 Calculus-Based Physics I

An introduction to atomic and nuclear processes and to nuclear science and engineering fundamentals, including the nature of nuclear radiation, the nuclear chain reaction, criticality, power reactor types, and applications of nuclear technology.

\$25 per credit hour curriculum content fee.

**MCEG 3512: Radiation Detection Laboratory**

Prerequisites: ASNT major and MCEG 3503 Basic Nuclear Engineering or MCEG 3523 Radiation Health Physics

A study of each of the common kinds of nuclear radiation, including the detection and analysis methods and applications to nondestructive assays. Use of computers in analyses.

Lecture one hour, laboratory three hours. \$40 course fee. \$25 per credit hour curriculum content fee.

**MCEG 3523: Radiation Health Physics**

Prerequisites: MATH 2914 Calculus I, CHEM 2124 General Chemistry I, or consent.

A study of the protection of individuals and population groups against the harmful effects of ionizing radiation. Included in the study is: (1) radiation detection and measurement, (2) relationships between exposure and biological damage, (3) radiation and the environment, (4) design criteria for processes, equipment, and facilities so that radiation exposure is minimized, and (5) environmental impact of nuclear power plants.

\$25 per credit hour curriculum content fee.

**MCEG 3612: Manufacturing Laboratory**

Prerequisite: MCEG 2023 Engineering Materials

Co-requisites: MCEG 3023 Manufacturing Processes

Students will conduct various hands-on activities associated with manufacturing processes using industry typical practices.

One hour lecture, one hour lab. \$40 course fee. \$25 per credit hour curriculum content fee.

**MCEG 3663: Engineering Internship**

Prerequisites: Mechanical engineering major with junior standing and a minimum GPA of 2.75/4.000; MCEG 3013 Mechanics of Materials and 3313. Students will gain experiential learning in an industrial environment by participation in an engineering internship with an approved industry partner. Students will be required to participate in engineering project(s) under supervision of an engineer at the selected partner industry, complete written and oral reports.

Note: May not be repeated for credit.

\$25 per credit hour curriculum content fee.

**MCEG 3991: Special Problems in Engineering**

Prerequisite: Minimum of three hours at the junior level in area of study.

Individual or specialized study in advanced area under the direction of a faculty advisor.

\$25 per credit hour curriculum content fee.

**MCEG 3992: Special Problems in Engineering**

Prerequisite: Minimum of three hours at the junior level in area of study.

Individual or specialized study in advanced area under the direction of a faculty advisor.

\$25 per credit hour curriculum content fee.

**MCEG 3993: Special Problems in Engineering**

Prerequisite: Minimum of three hours at the junior level in area of study.

Individual or specialized study in advanced area under the direction of a faculty advisor.

\$25 per credit hour curriculum content fee.

**MCEG 3994: Special Problems in Engineering**

Prerequisite: Minimum of three hours at the junior level in area of study.

Individual or specialized study in advanced area under the direction of a faculty advisor.

\$25 per credit hour curriculum content fee.

**MCEG 4042: Metallurgy Laboratory**

Co-requisite: MCEG 4043 Physical Metallurgy

Laboratory experiments in heat treating, phase transformation, plastic deformation, work hardening and creep. Concepts and topics from MCEG 4043 Physical Metallurgy are emphasized in the lab exercises. Failure analysis modes and examples are included.

Lecture one hour, lab three hours. \$25 per credit hour curriculum content fee.

**MCEG 4043: Physical Metallurgy**

Prerequisites: MCEG 2023 Engineering Materials, 3013, 3313

This course provides the student with an in-depth background to the mechanisms and applications of dislocation motion, crystal plasticity, phase transformations and solidification processes. Common industrial and experimental processes are studied for both ferrous and non-ferrous materials.

\$25 per credit hour curriculum content fee.

### **MCEG 4053: Corrosion Principles**

Prerequisites: MCEG 2023 Engineering Materials, 3013, 3313

A study of the fundamental causes of corrosion and corrosion damage in metals and metallic components. Electrochemistry is used to explore the basic reactions governing environmental corrosion while thermodynamics and kinetics are used to investigate the rate of controlling steps of environmental attack. Includes an overview of techniques commonly used to control corrosion damage in industry and architecture.

\$25 per credit hour curriculum content fee.

### **MCEG 4202: Engineering Design**

Cross-listed: ELEG 4202 Engineering Design

Prerequisites: Junior standing and MCEG 3013 Mechanics of Materials.

This course serves as the first part of a two course sequence in which the student completes a senior design project. Design methodologies and tools including real world design considerations such as environmental impact, engineering ethics, economics, safety, product costing and liability are introduced. Design for manufacture, project management, scheduling and proposal writing will be covered. Successful completion of this course shall require completion of a proposal for a senior design project being accepted by the faculty design project review process.

\$25 per credit hour curriculum content fee.

### **MCEG 4323: Power Plant Systems**

Prerequisite: MCEG 3313 Thermodynamics I or consent.

Co-requisite or Prerequisite: MCEG 4403 Mechanics of Fluids and Hydraulics

A study of the design and operation of steam electric power plant components and systems. Fossil and renewable energy plants are emphasized.

\$25 per credit hour curriculum content fee.

### **MCEG 4332: Thermal Systems Laboratory**

Prerequisites: MCEG 3313 Thermodynamics I, 4403

Co-requisites: MCEG 4433 Thermodynamics II, 4443

Advanced laboratory experiments in heat transfer and thermal systems. Conduction, convection and radiation heat transfer phenomena, power and refrigeration cycle operation, psychrometrics.

Lecture one hour, laboratory three hours. \$25 per credit hour curriculum content fee.

### **MCEG 4343: Internal Combustion Engines**

Prerequisites: MCEG 3313 Thermodynamics I and MCEG 4403 Mechanics of Fluids and Hydraulics

A study of the operating and design principles of internal combustion engines. The course will cover combustion cycles, emissions, and performance analysis and testing.

Lecture three hours with lab exercises. \$25 per credit hour curriculum content fee.

### **MCEG 4403: Mechanics of Fluids and Hydraulics**

Prerequisites: MCEG 2033 Dynamics, 3313, and MATH 3243 Differential Equations I

A study of statics and dynamics of incompressible fluids. Major topics include the basic fluid flow concepts of continuity, energy and momentum, dimensional analysis, viscosity, laminar and turbulent flows, and flow in pipes.

\$25 per credit hour curriculum content fee.

### **MCEG 4413: Finite Element Analysis**

Prerequisites: ELEG 2103 Electric Circuits I, MCEG (ELEG)3003, and MCEG 3013 Mechanics of Materials

Introduction to approximate methods using finite elements. Development of the finite element method using variational formulations. Applications include machine design, mechanical vibrations, heat transfer, fluid flow and electromagnetics.

\$25 per credit hour curriculum content fee.

### **MCEG 4423: Machine Component Design**

Prerequisites: MCEG 3413 Fundamentals of Mechanical Design

Design and analysis of specific machine components including gears, clutches, springs, and bearings.

\$25 per credit hour curriculum content fee.

### **MCEG 4433: Thermodynamics II**

Prerequisites: MATH 2934 Calculus III and MCEG 3313 Thermodynamics I

A continuation of MCEG 3313 Thermodynamics I. The study of thermodynamics is extended to the investigation of relations for simple substances, non-reacting mixtures, reacting mixtures, chemical reactions and a study of availability analysis. Power and refrigeration cycles are studied in more depth.

\$25 per credit hour curriculum content fee.

### **MCEG 4442: Mechanical Laboratory II**

Prerequisite: MCEG 4403 Mechanics of Fluids and Hydraulics

A study of fluid mechanics and thermodynamics experimentation techniques. Laboratory projects will be assigned with student responsibility for procedure development and test program implementation. Formal laboratory reports will be required. Lecture one hour, laboratory three hours. \$25 per credit hour curriculum content fee.

**MCEG 4443: Heat Transfer**

Prerequisite: MCEG 4403 Mechanics of Fluids and Hydraulics

Basic thermal energy transport processes, conduction, convection, and radiation, and the mathematical analysis of systems involving these processes in steady state and time dependent cases.

\$25 per credit hour curriculum content fee.

**MCEG 4463: Heating, Ventilating, and Air-Conditioning Design**

Prerequisites: MCEG 3313 Thermodynamics I or permission of instructor

A study of the principles of human thermal comfort including applied psychometrics and air-conditioning processes. Fundamentals of analysis of heating and cooling loads and design of HVAC systems.

\$25 per credit hour curriculum content fee.

**MCEG 4473: Mechanical Vibrations**

Prerequisites: MCEG 2033 Dynamics, MATH 3243 Differential Equations I

The study of free and forced vibration of single degree-of-freedom systems, response to harmonic, periodic and non-periodic excitations. Multi-degree-of-freedom systems and matrix methods are explored. Computational techniques for predicting system response continuous systems are introduced.

\$25 per credit hour curriculum content fee.

**MCEG 4491: Mechanical Design Project I**

Prerequisites: MCEG 3413 Fundamentals of Mechanical Design and MCEG/ELEG 4202 Engineering Design

First of a two part sequence of courses to complete a group project in mechanical engineering design. Emphasis will be placed on designing a mechanical system or sub-system with due regard for: safety, environmental concerns, reliability, longevity, ease of manufacturing, maintainability, and cost effectiveness. Both a written and oral report are required.

\$25 per credit hour curriculum content fee.

**MCEG 4492: Mechanical Design Project II**

Prerequisites: MCEG 3003 System Modeling and Analysis, MCEG/ELEG 4202 Engineering Design, MCEG 4491 Mechanical Design Project I, senior standing, and consent of instructor.

Second of a two part sequence of courses to complete a group project in mechanical engineering design. Where appropriate, a team approach will be employed. Emphasis will be placed on designing a mechanical system or sub-system with due regard for: safety, environmental concerns, reliability, longevity, ease of manufacturing, maintainability, and cost effectiveness. Both a written and oral report are required.

\$50 course fee. \$25 per credit hour curriculum content fee.

**MCEG 4503: Nuclear Power Plants I**

Prerequisites: MCEG 3503 Basic Nuclear Engineering, MCEG 4403 Mechanics of Fluids and Hydraulics

A study of the various types of nuclear reactor plants including the methods used for energy conversion. Relative advantages/disadvantages of various plant types investigated.

\$25 per credit hour curriculum content fee.

**MCEG 4991: Special Problems in Engineering**

Prerequisite: Minimum of three hours at the junior level in area of study.

Individual study in advanced area of the student's choice under the direction of a faculty advisor.

\$25 per credit hour curriculum content fee.

**MCEG 4992: Special Problems in Engineering**

Prerequisite: Minimum of three hours at the junior level in area of study.

Individual study in advanced area of the student's choice under the direction of a faculty advisor.

\$25 per credit hour curriculum content fee.

**MCEG 4993: Special Problems in Engineering**

Prerequisite: Minimum of three hours at the junior level in area of study.

Individual study in advanced area of the student's choice under the direction of a faculty advisor.

\$25 per credit hour curriculum content fee.

**MCEG 4994: Special Problems in Engineering**

Prerequisite: Minimum of three hours at the junior level in area of study.

Individual study in advanced area of the student's choice under the direction of a faculty advisor.

\$25 per credit hour curriculum content fee.



This generalized course designation is used to represent specific coursework offered by affiliated schools in areas such as clinical chemistry and instrumentation, bodily fluids, microbiology, hematology, immuno-hematology, serology, parasitology, radiobiology, diagnostic nuclear medicine, radiation health physics, nuclear physics/radiochemistry, computed tomography, radiopharmacy/radionuclide therapy, and seminars.

**MEDT 4002: Professional Coursework**

Prerequisite: Acceptance by one of our affiliated schools for the senior year of professional courses.

This generalized course designation is used to represent specific coursework offered by affiliated schools in areas such as clinical chemistry and instrumentation, bodily fluids, microbiology, hematology, immuno-hematology, serology, parasitology, radiobiology, diagnostic nuclear medicine, radiation health physics, nuclear physics/radiochemistry, computed tomography, radiopharmacy/radionuclide therapy, and seminars.

**MEDT 4003: Professional Coursework**

Prerequisite: Acceptance by one of our affiliated schools for the senior year of professional courses.

This generalized course designation is used to represent specific coursework offered by affiliated schools in areas such as clinical chemistry and instrumentation, bodily fluids, microbiology, hematology, immuno-hematology, serology, parasitology, radiobiology, diagnostic nuclear medicine, radiation health physics, nuclear physics/radiochemistry, computed tomography, radiopharmacy/radionuclide therapy, and seminars.

**MEDT 4004: Professional Coursework**

Prerequisite: Acceptance by one of our affiliated schools for the senior year of professional courses.

This generalized course designation is used to represent specific coursework offered by affiliated schools in areas such as clinical chemistry and instrumentation, bodily fluids, microbiology, hematology, immuno-hematology, serology, parasitology, radiobiology, diagnostic nuclear medicine, radiation health physics, nuclear physics/radiochemistry, computed tomography, radiopharmacy/radionuclide therapy, and seminars.

**MEDT 4005: Professional Coursework**

Prerequisite: Acceptance by one of our affiliated schools for the senior year of professional courses.

This generalized course designation is used to represent specific coursework offered by affiliated schools in areas such as clinical chemistry and instrumentation, bodily fluids, microbiology, hematology, immuno-hematology, serology, parasitology, radiobiology, diagnostic nuclear medicine, radiation health physics, nuclear physics/radiochemistry, computed tomography, radiopharmacy/radionuclide therapy, and seminars.

**MEDT 4006: Professional Coursework**

Prerequisite: Acceptance by one of our affiliated schools for the senior year of professional courses.

This generalized course designation is used to represent specific coursework offered by affiliated schools in areas such as clinical chemistry and instrumentation, bodily fluids, microbiology, hematology, immuno-hematology, serology, parasitology, radiobiology, diagnostic nuclear medicine, radiation health physics, nuclear physics/radiochemistry, computed tomography, radiopharmacy/radionuclide therapy, and seminars.

**MEDT 4007: Professional Coursework**

Prerequisite: Acceptance by one of our affiliated schools for the senior year of professional courses.

This generalized course designation is used to represent specific coursework offered by affiliated schools in areas such as clinical chemistry and instrumentation, bodily fluids, microbiology, hematology, immuno-hematology, serology, parasitology, radiobiology, diagnostic nuclear medicine, radiation health physics, nuclear physics/radiochemistry, computed tomography, radiopharmacy/radionuclide therapy, and seminars.

**MEDT 4008: Professional Coursework**

Prerequisite: Acceptance by one of our affiliated schools for the senior year of professional courses.

This generalized course designation is used to represent specific coursework offered by affiliated schools in areas such as clinical chemistry and instrumentation, bodily fluids, microbiology, hematology, immuno-hematology, serology, parasitology, radiobiology, diagnostic nuclear medicine, radiation health physics, nuclear physics/radiochemistry, computed tomography, radiopharmacy/radionuclide therapy, and seminars.

**MEDT 4009: Professional Coursework**

Prerequisite: Acceptance by one of our affiliated schools for the senior year of professional courses.

This generalized course designation is used to represent specific coursework offered by affiliated schools in areas such as clinical chemistry and instrumentation, bodily fluids, microbiology, hematology, immuno-hematology, serology, parasitology, radiobiology, diagnostic nuclear medicine, radiation health physics, nuclear physics/radiochemistry, computed tomography, radiopharmacy/radionuclide therapy, and seminars.

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**MIDDLE LEVEL EDUCATION (MLED)**

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**MLED 2003: Introduction to Education**

Prerequisites: Stage I course and will be taken before admittance to the Middle Level Teacher Education Program.

Introduction to philosophy of education and to the concept of education as a career with an emphasis on middle-level education. The format will include a weekly lecture and on-site field experiences in a public school setting. This course will also provide potential middle-level teachers with an overview of the social and historical aspect of the American Education System.

**MLED 3012: Research Foundations**

Prerequisite: Admission of Stage II to the Middle Level Teacher Education Program.

Presentation of the knowledge base and practice in the skills needed to locate educational research information; analyze, synthesize, and evaluate the compiled materials; and write a professional research report based on the composite findings.

### **MLED 3024: Psychological Foundations for the Nature and Needs of Middle Level Students**

Prerequisite: Admission to Stage II of the Middle Level Teacher Education Program.

General principles of the physical, social, emotional, intellectual, and moral development of early adolescents and the developmental implications on curriculum and instruction, learning, the learner's potentialities with attention to individual differences, the environment of effective learning, application of psychology to educational problems.

### **MLED 3034: Literacy Development in the Middle Grades**

Prerequisite: Admission to Stage II of the Middle Level Teacher Program.

Presentation of the knowledge base and methodology needed to guide students in the middle grades toward competency and maturity as readers and writers and practice in the teaching/learning strategies related to reading in all content area disciplines.

### **MLED 3041: School to Home Communication**

Prerequisites: Admission to Stage II of the Middle Level Teacher Education Program.

Presentation of methods of communication between the home and school for the classroom teacher will be explored. The use of classroom management software for school reports, student information sheets, newsletters, electronic mail, and letters to home as well as telephone skills will be practice. Exploration of the use of community resources and evaluation as related to meeting the needs of middle level students and families.

### **MLED 3062: Tests & Educational Measurements**

Prerequisites: Admission to Stage II of the Middle Level Program.

A survey of test theory with particular emphasis upon the use of assessment techniques in the middle level classroom as an educational decision-making tool.

### **MLED 3072: Diversity in the Classroom**

Prerequisites: Admission to Stage II of the Middle Level Teacher Education Program.

A study of the major areas of exceptionalities including the learning disabled, mentally retarded, physically handicapped, and the gifted, and their special needs in a school program.

### **MLED 3102: Reading through Literature in the Middle Ages**

Prerequisites: Admission to Stage II of the Middle Level Teacher Education Program.

A study of the development and source of literature for the middle childhood/early adolescent student. Emphasis will be on integrating literature across the curriculum and on methods of encouraging reading as a lifelong pleasurable pursuit.

### **MLED 4004: Middle Level Curriculum and Pedagogy**

Prerequisites: Admission to Stage II of the Middle Level Teacher Program.

A study of the developmental curriculum, instruction and pedagogy for teaching the middle level student. Emphasis will be on an interdisciplinary approach to curriculum design.

### **MLED 4023: Guided Field Experiences**

Prerequisites: Admission to Stage II of the Middle Level Teacher Education Program.

Co-requests: MLED 3012 Research Foundations and MLED 3034 Literacy Development in the Middle Grades

MLED 4023 Guided Field Experiences Guided Field Experiences is a series of 45 hours of observation, participation, and teaching experiences ranging from individual to large group settings conducted in selected middle level settings designed to prepare the teacher candidate for a smooth transition to internship in a clinical setting. A survey of school law designed to give teacher candidates an awareness of legal rights and responsibilities of teachers, students, and public schools is presented at the beginning of the course before students begin practicum hours.

### **MLED 4912: Internship**

Prerequisites: Admission to and Internship.

(Twelve hour course) MLED 4912 Internship Internship is a minimum of fifteen weeks of reflective clinical internship at the middle level. In a select setting under supervision of experienced middle level professionals, teacher candidates will prepare, facilitate, and evaluate an appropriate curriculum experience for instruction of the early adolescent.

\$100 course fee.

## **MILITARY SCIENCE ROTC (MS)**

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### **MS 1101: Leadership I**

Offered: Fall

Introduces cadets to the personal challenges and competencies that are critical for effective leadership. Cadets learn how the personal development of life skills such as critical thinking, goal setting, time management, physical/mental fitness (resiliency training) related to leadership, officership,

and the Army profession. Focus is on developing basic knowledge and comprehension of Army leadership dimensions while gaining a big picture of understanding the ROTC program, its purpose in the Army, and its advantages for the student.

Lecture/Laboratory

### **MS 1111: Leadership II**

Offered: Spring

Overviews leadership fundamentals such as setting direction, problem-solving, listening, presenting briefs, providing feedback, and using effective writing skills. Cadets explore dimensions of leadership attributes and core leader competencies in the context of practical, hands-on, and interactive exercises. Continued emphasis is placed on recruitment and retention of Cadets. Cadre role models and the building of stronger relationships among the Cadets through common experience and practical interaction are critical aspects of the MS 1111 Leadership II experience.

Lecture/Lab

### **MS 2312: Military Organization/Tactics I**

Offered: Fall

Explores the dimensions of creative and innovative tactical leadership strategies and styles by examining team dynamics and two historical leadership theories that form the basis of the Army leadership framework (trait and behavior theories). Cadets practice aspects of personal motivation and team building in the context of planning, executing, and assessing team exercises and participating in leadership labs. Focus is on continued development of the knowledge of leadership attributes and core leader competencies through an understanding of Army rank, structure, duties and basic aspects of land navigation and squad tactics. Case studies provide tangible context for learning the Soldier's Creed and Warrior Ethos.

Lecture/Lab

### **MS 2402: Military Organization/Tactics II**

Offered: Spring

Examines the challenges of leading tactical teams in the operational environment. The course highlights dimensions of terrain analysis, patrolling, and operation orders. Further study of the theoretical basis of the Army Leadership Requirements Model explores the dynamics of adaptive leadership in the context of military operations. MS 2402 Military Organization/Tactics II prepares Cadets for MS 3503 Advanced Leadership and Tactics I. Cadets develop greater self awareness as they assess their own leadership styles and practice communication and team building skills. Case studies give insight into the importance and practice of teamwork and tactics in real-world scenarios.

Lecture/Lab

### **MS 3503: Advanced Leadership and Tactics I**

Offered: Fall

Challenges Cadets to study, practice, and evaluate adaptive leadership skills as they are presented with challenging scenarios related to squad tactical operations. Cadets receive systematic and specific feedback on their leadership attributes and actions. Based on such feedback, as well as their own self-evaluations, Cadets continue to develop their leadership and critical thinking abilities. Focus is on developing Cadets' tactical leadership abilities to enable them to succeed at ROTC's summer Leadership Development and Assessment Course (LDAC).

Lecture/Lab.

### **MS 3603: Advanced Leadership and Tactics II**

Offered: Spring

Continuation of MS 3503 Advanced Leadership and Tactics I. Course uses increasingly intense situations applying team leadership challenges to build Cadet awareness and skills in leading tactical operations at the small unit level. Cadets review aspects of full spectrum operations. They also conduct military briefings and develop proficiency in the operation orders process. Focus is on exploring, evaluating, and developing skills in decision-making, persuading, and motivating team members in the contemporary operating environment (COE). MS 3603 Advanced Leadership and Tactics II Cadets are evaluated on what they know and do as leaders as they prepare to attend the ROTC summer Leader Development Assessment Course (LDAC).

Lecture/Lab

### **MS 4013: United States Military History**

A study of the American military from its colonial origins to the present, including the development of the military establishment and its relationship with American society.

### **MS 4703: Applied Leadership and Management I**

Offered: Fall

Transitions the focus of student learning from being trained, mentored and evaluated as an MS III Cadet, to learning how to train, mentor and evaluate underclass Cadets. MS IV Cadets will learn the duties and responsibilities of an Army staff officer and apply the Military Decision Making Process (MDMP), the Army Writing Style and the Army's Training Management and METL Development processes during weekly Training Meetings to plan execute and assess battalion training events. Cadets will learn how to safely conduct this training by understanding and employing the Composite Risk Management Process. MS IV Cadets will learn how to use the Comprehensive Soldier Fitness (CSF) program to reduce and manage stress. Cadets will learn about the special trust proposed by the U.S. Constitution to Army Officers - a trust above and beyond other professions. Cadets will learn Army Values and Ethics and how to apply them to everyday life as well as in Operating Environments. The MS IV Cadet will learn about the officer's role in the Uniform Code of Military Justice, with Counseling Subordinates, Administrative Discipline and Separations, and methods for Officer Career Management.

Lecture/Lab

### **MS 4803: Applied Leadership and Management II**

Offered: Spring

Continuation of MS 4703 Applied Leadership and Management I. Explores the dynamics of leading Soldier's in Full Spectrum Operations in the Contemporary Operating Environment (COE). Cadets examine differences in Customs and Courtesies, Principles of War, and Rules of Engagement in the face of Terrorism. They also explore aspects of interacting with Non-Government Organizations, Civilians on the Battlefield, and Host Nation Support and explore Counterinsurgency Operations. Cadets will learn what Support Services are available to assist Soldiers and their families in times of need such as; Red Cross, CFC, AER, etc. MS IVs will develop and present a Battle Analysis and participate in a Staff Ride at an historic military site. The course places significant emphasis on preparing Cadets for their first unit of assignment. It uses case studies, scenarios, and "What Now, Lieutenant?" exercises to prepare Cadets to face the complex ethical and practical demands of leading as commissioned officers in the United States Army.

Lecture/Lab

### **MS 4903: Advanced Officership I**

Prerequisites: MS 3503 Advanced Leadership and Tactics I or MS 4703 Applied Leadership and Management I and approval of the Professor of Military Science.

Advanced Officership I is a special problems course on professional military related topics. The course will emphasize personal and professional goals for officers and related tactics involved in military history.

### **MS 4913: Advanced Officership II**

Prerequisites: MS 3503 Advanced Leadership and Tactics I or MS 4703 Applied Leadership and Management I and approval of the Professor of Military Science.

Advanced Officership II is a special problems course on professional military topics specifically related to the branches of the US Army. The course will emphasize personal and professional goals for each officer by enhancing their knowledge of their assigned branch and component.

## **MUSEUM (MUSM)**

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### **MUSM 4403: Interpretation/Education through Museum Methods**

Cross-listed: ANTH 4403 Interpretation/Education through Museum Methods, HIST 4403 Interpretation/Education through Museum Methods

Prerequisites: Senior or Graduate standing, or permission of instructor.

Museum perspectives and approaches to care and interpretation of cultural resources, including interpretive techniques of exhibit and education- outreach materials, and integrating museum interpretation/education into public school and general public programming. Class projects focus on special problems for managing interpretive materials in a museum setting.

### **MUSM 4951: Undergraduate Research in Museum**

Offered: On demand

Prerequisite: Departmental approval

Advanced students carry out independent research activity relating to a significant problem in a major field of study. Supervised by faculty member. Formal report and presentation required. One to four credits depending on problem selected and effort made.

### **MUSM 4952: Undergraduate Research in Museum**

Offered: On demand

Prerequisite: Departmental approval

Advanced students carry out independent research activity relating to a significant problem in a major field of study. Supervised by faculty member. Formal report and presentation required. One to four credits depending on problem selected and effort made.

### **MUSM 4953: Undergraduate Research in Museum**

Offered: On demand

Prerequisite: Departmental approval

Advanced students carry out independent research activity relating to a significant problem in a major field of study. Supervised by faculty member. Formal report and presentation required. One to four credits depending on problem selected and effort made.

### **MUSM 4954: Undergraduate Research in Museum**

Offered: On demand

Prerequisite: Departmental approval

Advanced students carry out independent research activity relating to a significant problem in a major field of study. Supervised by faculty member. Formal report and presentation required. One to four credits depending on problem selected and effort made.

## **MUSIC (MUS)**

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### **MUS 1000: Recital Attendance**

Offered on a pass/fail basis. Students are required to attend a specified number of recitals each semester and must pass at least six semesters to receive the B.A. degree in music or bachelor of music education.



**MUS 1001: Applied Music - Trumpet**

Musical performance includes private study, class piano, class voice, and ensembles. In numbering applied music courses, the first digit, numeral 1, is used for freshman and sophomore level courses; the numeral 3 for junior and senior level courses. The second and third digits indicate applied concentration area (e.g. 20 = piano) and the final digit indicates hours of semester credit.

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\$60 applied music fee. \$25 per credit hour curriculum content fee.

**MUS 1002: Applied Music - Trumpet**

Musical performance includes private study, class piano, class voice, and ensembles. In numbering applied music courses, the first digit, numeral 1, is used for freshman and sophomore level courses; the numeral 3 for junior and senior level courses. The second and third digits indicate applied concentration area (e.g. 20 = piano) and the final digit indicates hours of semester credit.

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\$120 applied music fee. \$25 per credit hour curriculum content fee.

**MUS 1011: Applied Music - French Horn**

Musical performance includes private study, class piano, class voice, and ensembles. In numbering applied music courses, the first digit, numeral 1, is used for freshman and sophomore level courses; the numeral 3 for junior and senior level courses. The second and third digits indicate applied concentration area (e.g. 20 = piano) and the final digit indicates hours of semester credit.

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\$60 applied music fee. \$25 per credit hour curriculum content fee.

**MUS 1012: Applied Music - French Horn**

Musical performance includes private study, class piano, class voice, and ensembles. In numbering applied music courses, the first digit, numeral 1, is used for freshman and sophomore level courses; the numeral 3 for junior and senior level courses. The second and third digits indicate applied concentration area (e.g. 20 = piano) and the final digit indicates hours of semester credit.

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\$120 applied music fee. \$25 per credit hour curriculum content fee.

**MUS 1021: Applied Music - Trombone**

Musical performance includes private study, class piano, class voice, and ensembles. In numbering applied music courses, the first digit, numeral 1, is used for freshman and sophomore level courses; the numeral 3 for junior and senior level courses. The second and third digits indicate applied concentration area (e.g. 20 = piano) and the final digit indicates hours of semester credit.

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\$60 applied music fee. \$25 per credit hour curriculum content fee.

**MUS 1022: Applied Music - Trombone**

Musical performance includes private study, class piano, class voice, and ensembles. In numbering applied music courses, the first digit, numeral 1, is used for freshman and sophomore level courses; the numeral 3 for junior and senior level courses. The second and third digits indicate applied concentration area (e.g. 20 = piano) and the final digit indicates hours of semester credit.

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\$120 applied music fee. \$25 per credit hour curriculum content fee.

**MUS 1031: Applied Music - Euphonium**

Musical performance includes private study, class piano, class voice, and ensembles. In numbering applied music courses, the first digit, numeral 1, is used for freshman and sophomore level courses; the numeral 3 for junior and senior level courses. The second and third digits indicate applied concentration area (e.g. 20 = piano) and the final digit indicates hours of semester credit.

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\$60 applied music fee. \$25 per credit hour curriculum content fee.

### **MUS 1032: Applied Music - Euphonium**

Musical performance includes private study, class piano, class voice, and ensembles. In numbering applied music courses, the first digit, numeral 1, is used for freshman and sophomore level courses; the numeral 3 for junior and senior level courses. The second and third digits indicate applied concentration area (e.g. 20 = piano) and the final digit indicates hours of semester credit.

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\$120 applied music fee. \$25 per credit hour curriculum content fee.

### **MUS 1041: Applied Music - Tuba**

Musical performance includes private study, class piano, class voice, and ensembles. In numbering applied music courses, the first digit, numeral 1, is used for freshman and sophomore level courses; the numeral 3 for junior and senior level courses. The second and third digits indicate applied concentration area (e.g. 20 = piano) and the final digit indicates hours of semester credit.

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\$60 applied music fee. \$25 per credit hour curriculum content fee.

### **MUS 1042: Applied Music - Tuba**

Musical performance includes private study, class piano, class voice, and ensembles. In numbering applied music courses, the first digit, numeral 1, is used for freshman and sophomore level courses; the numeral 3 for junior and senior level courses. The second and third digits indicate applied concentration area (e.g. 20 = piano) and the final digit indicates hours of semester credit.

Applied Music (private instruction) requires permission of the department head and is required of all music majors. Applied music students may be assigned participation in designated ensembles in addition to required ensembles. Ensembles are given in the curricula in Music and Music Education. To qualify for three hours per semester, a student must have a minimum 3.50 cumulative GPA in applied music, a 3.00 cumulative GPA in total hours, junior standing and recommendation of the instructor.

\$120 applied music fee. \$25 per credit hour curriculum content fee.

### **MUS 1051: Applied Music - Clarinet**

Musical performance includes private study, class piano, class voice, and ensembles. In numbering applied music courses, the first digit, numeral 1, is used for freshman and sophomore level courses; the numeral 3 for junior and senior level courses. The second and third digits indicate applied concentration area (e.g. 20 = piano) and the final digit indicates hours of semester credit.

Applied Music (private instruction) requires permission of the department head and is required of all music majors. Applied music students may be assigned participation in designated ensembles in addition to required ensembles. Ensembles are given in the curricula in Music and Music Education. To qualify for three hours per semester, a student must have a minimum 3.50 cumulative GPA in applied music, a 3.00 cumulative GPA in total hours, junior standing and recommendation of the instructor.

\$60 applied music fee. \$25 per credit hour curriculum content fee.

### **MUS 1052: Applied Music - Clarinet**

Musical performance includes private study, class piano, class voice, and ensembles. In numbering applied music courses, the first digit, numeral 1, is used for freshman and sophomore level courses; the numeral 3 for junior and senior level courses. The second and third digits indicate applied concentration area (e.g. 20 = piano) and the final digit indicates hours of semester credit.

Applied Music (private instruction) requires permission of the department head and is required of all music majors. Applied music students may be assigned participation in designated ensembles in addition to required ensembles. Ensembles are given in the curricula in Music and Music Education. To qualify for three hours per semester, a student must have a minimum 3.50 cumulative GPA in applied music, a 3.00 cumulative GPA in total hours, junior standing and recommendation of the instructor.

\$120 applied music fee. \$25 per credit hour curriculum content fee.

### **MUS 1061: Applied Music - Oboe**

Musical performance includes private study, class piano, class voice, and ensembles. In numbering applied music courses, the first digit, numeral 1, is used for freshman and sophomore level courses; the numeral 3 for junior and senior level courses. The second and third digits indicate applied concentration area (e.g. 20 = piano) and the final digit indicates hours of semester credit.

Applied Music (private instruction) requires permission of the department head and is required of all music majors. Applied music students may be assigned participation in designated ensembles in addition to required ensembles. Ensembles are given in the curricula in Music and Music Education. To qualify for three hours per semester, a student must have a minimum 3.50 cumulative GPA in applied music, a 3.00 cumulative GPA in total hours, junior standing and recommendation of the instructor.

\$60 applied music fee. \$25 per credit hour curriculum content fee.

### **MUS 1062: Applied Music - Oboe**

Musical performance includes private study, class piano, class voice, and ensembles. In numbering applied music courses, the first digit, numeral 1, is used for freshman and sophomore level courses; the numeral 3 for junior and senior level courses. The second and third digits indicate applied concentration area (e.g. 20 = piano) and the final digit indicates hours of semester credit.

Applied Music (private instruction) requires permission of the department head and is required of all music majors. Applied music students may be assigned participation in designated ensembles in addition to required ensembles. Ensembles are given in the curricula in Music and Music Education. To qualify for three hours per semester, a student must have a minimum 3.50 cumulative GPA in applied music, a 3.00 cumulative GPA in total hours, junior standing and recommendation of the instructor.

\$120 applied music fee. \$25 per credit hour curriculum content fee.

### **MUS 1071: Applied Music - Flute**

Musical performance includes private study, class piano, class voice, and ensembles. In numbering applied music courses, the first digit, numeral 1, is used for freshman and sophomore level courses; the numeral 3 for junior and senior level courses. The second and third digits indicate applied concentration area (e.g. 20 = piano) and the final digit indicates hours of semester credit.

Applied Music (private instruction) requires permission of the department head and is required of all music majors. Applied music students may be assigned participation in designated ensembles in addition to required ensembles. Ensembles are given in the curricula in Music and Music Education. To qualify for three hours per semester, a student must have a minimum 3.50 cumulative GPA in applied music, a 3.00 cumulative GPA in total hours, junior standing and recommendation of the instructor.

\$60 applied music fee. \$25 per credit hour curriculum content fee.

### **MUS 1072: Applied Music - Flute**

Musical performance includes private study, class piano, class voice, and ensembles. In numbering applied music courses, the first digit, numeral 1, is used for freshman and sophomore level courses; the numeral 3 for junior and senior level courses. The second and third digits indicate applied concentration area (e.g. 20 = piano) and the final digit indicates hours of semester credit.

Applied Music (private instruction) requires permission of the department head and is required of all music majors. Applied music students may be assigned participation in designated ensembles in addition to required ensembles. Ensembles are given in the curricula in Music and Music Education. To qualify for three hours per semester, a student must have a minimum 3.50 cumulative GPA in applied music, a 3.00 cumulative GPA in total hours, junior standing and recommendation of the instructor.

\$120 applied music fee. \$25 per credit hour curriculum content fee.

### **MUS 1081: Applied Music - Saxophone**

Musical performance includes private study, class piano, class voice, and ensembles. In numbering applied music courses, the first digit, numeral 1, is used for freshman and sophomore level courses; the numeral 3 for junior and senior level courses. The second and third digits indicate applied concentration area (e.g. 20 = piano) and the final digit indicates hours of semester credit.

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\$60 applied music fee. \$25 per credit hour curriculum content fee.

### **MUS 1082: Applied Music - Saxophone**

Musical performance includes private study, class piano, class voice, and ensembles. In numbering applied music courses, the first digit, numeral 1, is used for freshman and sophomore level courses; the numeral 3 for junior and senior level courses. The second and third digits indicate applied concentration area (e.g. 20 = piano) and the final digit indicates hours of semester credit.

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\$120 applied music fee. \$25 per credit hour curriculum content fee.

### **MUS 1091: Applied Music - Bassoon**

Musical performance includes private study, class piano, class voice, and ensembles. In numbering applied music courses, the first digit, numeral 1, is used for freshman and sophomore level courses; the numeral 3 for junior and senior level courses. The second and third digits indicate applied concentration area (e.g. 20 = piano) and the final digit indicates hours of semester credit.

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\$60 applied music fee. \$25 per credit hour curriculum content fee.

### **MUS 1092: Applied Music - Bassoon**

Musical performance includes private study, class piano, class voice, and ensembles. In numbering applied music courses, the first digit, numeral 1, is used for freshman and sophomore level courses; the numeral 3 for junior and senior level courses. The second and third digits indicate applied concentration area (e.g. 20 = piano) and the final digit indicates hours of semester credit.

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\$120 applied music fee. \$25 per credit hour curriculum content fee.

### **MUS 1101: Applied Music - Violin**

Musical performance includes private study, class piano, class voice, and ensembles. In numbering applied music courses, the first digit, numeral 1, is used for freshman and sophomore level courses; the numeral 3 for junior and senior level courses. The second and third digits indicate applied concentration area (e.g. 20 = piano) and the final digit indicates hours of semester credit.

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\$60 applied music fee. \$25 per credit hour curriculum content fee.

### **MUS 1111: Applied Music - Viola**

Musical performance includes private study, class piano, class voice, and ensembles. In numbering applied music courses, the first digit, numeral 1, is used for freshman and sophomore level courses; the numeral 3 for junior and senior level courses. The second and third digits indicate applied concentration area (e.g. 20 = piano) and the final digit indicates hours of semester credit.

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\$60 applied music fee. \$25 per credit hour curriculum content fee.

### **MUS 1121: Applied Music - Cello**

Musical performance includes private study, class piano, class voice, and ensembles. In numbering applied music courses, the first digit, numeral 1, is used for freshman and sophomore level courses; the numeral 3 for junior and senior level courses. The second and third digits indicate applied concentration area (e.g. 20 = piano) and the final digit indicates hours of semester credit.

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\$60 applied music fee. \$25 per credit hour curriculum content fee.

### **MUS 1131: Applied Music - Bass**

Musical performance includes private study, class piano, class voice, and ensembles. In numbering applied music courses, the first digit, numeral 1, is used for freshman and sophomore level courses; the numeral 3 for junior and senior level courses. The second and third digits indicate applied concentration area (e.g. 20 = piano) and the final digit indicates hours of semester credit.

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\$60 applied music fee. \$25 per credit hour curriculum content fee.

### **MUS 1141: Applied Music - Percussion**

Musical performance includes private study, class piano, class voice, and ensembles. In numbering applied music courses, the first digit, numeral 1, is used for freshman and sophomore level courses; the numeral 3 for junior and senior level courses. The second and third digits indicate applied concentration area (e.g. 20 = piano) and the final digit indicates hours of semester credit.

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\$60 applied music fee. \$25 per credit hour curriculum content fee.

### **MUS 1142: Applied Music - Percussion**

Musical performance includes private study, class piano, class voice, and ensembles. In numbering applied music courses, the first digit, numeral 1, is used for freshman and sophomore level courses; the numeral 3 for junior and senior level courses. The second and third digits indicate applied concentration area (e.g. 20 = piano) and the final digit indicates hours of semester credit.

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\$120 applied music fee. \$25 per credit hour curriculum content fee.

### **MUS 1151: Class Guitar I**

Prerequisite: Music major

Introductory class instruction in folk and popular styles of guitar playing with emphasis on guitar as a teaching tool for classroom music instruction.  
\$25 per credit hour curriculum content fee.

### **MUS 1191: Vocal Diction I**

Offered: Spring

Prerequisite: Vocal major

Co-requisite: MUS 1232 Applied Music - Voice

A study of the rules of pronunciation for Italian, Latin, and Spanish for singers through the use of the International Phonetic Alphabet.  
\$25 per credit hour curriculum content fee.

### **MUS 1201: Applied Music - Piano**

Musical performance includes private study, class piano, class voice, and ensembles. In numbering applied music courses, the first digit, numeral 1, is used for freshman and sophomore level courses; the numeral 3 for junior and senior level courses. The second and third digits indicate applied concentration area (e.g. 20 = piano) and the final digit indicates hours of semester credit.

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\$60 applied music fee. \$25 per credit hour curriculum content fee.

### **MUS 1202: Applied Music - Piano**

Musical performance includes private study, class piano, class voice, and ensembles. In numbering applied music courses, the first digit, numeral 1, is used for freshman and sophomore level courses; the numeral 3 for junior and senior level courses. The second and third digits indicate applied concentration area (e.g. 20 = piano) and the final digit indicates hours of semester credit.

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\$120 applied music fee. \$25 per credit hour curriculum content fee.

### **MUS 1211: Applied Music - Harpsichord**

Musical performance includes private study, class piano, class voice, and ensembles. In numbering applied music courses, the first digit, numeral 1, is used for freshman and sophomore level courses; the numeral 3 for junior and senior level courses. The second and third digits indicate applied concentration area (e.g. 20 = piano) and the final digit indicates hours of semester credit.

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\$60 applied music fee. \$25 per credit hour curriculum content fee.

### **MUS 1212: Applied Music - Harpsichord**

Musical performance includes private study, class piano, class voice, and ensembles. In numbering applied music courses, the first digit, numeral 1, is used for freshman and sophomore level courses; the numeral 3 for junior and senior level courses. The second and third digits indicate applied concentration area (e.g. 20 = piano) and the final digit indicates hours of semester credit.

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\$120 applied music fee. \$25 per credit hour curriculum content fee.

### **MUS 1221: Applied Music - Organ**

Musical performance includes private study, class piano, class voice, and ensembles. In numbering applied music courses, the first digit, numeral 1, is used for freshman and sophomore level courses; the numeral 3 for junior and senior level courses. The second and third digits indicate applied concentration area (e.g. 20 = piano) and the final digit indicates hours of semester credit.

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To qualify for three hours per semester, a student must have a minimum 3.50 cumulative GPA in applied music, a 3.00 cumulative GPA in total hours, junior standing and recommendation of the instructor.

\$60 applied music fee. \$25 per credit hour curriculum content fee.

### **MUS 1222: Applied Music - Organ**

Musical performance includes private study, class piano, class voice, and ensembles. In numbering applied music courses, the first digit, numeral 1, is used for freshman and sophomore level courses; the numeral 3 for junior and senior level courses. The second and third digits indicate applied concentration area (e.g. 20 = piano) and the final digit indicates hours of semester credit.

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To qualify for three hours per semester, a student must have a minimum 3.50 cumulative GPA in applied music, a 3.00 cumulative GPA in total hours, junior standing and recommendation of the instructor.

\$120 applied music fee. \$25 per credit hour curriculum content fee.

### **MUS 1231: Applied Music - Voice**

Musical performance includes private study, class piano, class voice, and ensembles. In numbering applied music courses, the first digit, numeral 1, is used for freshman and sophomore level courses; the numeral 3 for junior and senior level courses. The second and third digits indicate applied concentration area (e.g. 20 = piano) and the final digit indicates hours of semester credit.

Applied Music (private instruction) requires permission of the department head and is required of all music majors. Applied music students may be assigned participation in designated ensembles in addition to required ensembles. Ensembles are given in the curricula in Music and Music Education.

To qualify for three hours per semester, a student must have a minimum 3.50 cumulative GPA in applied music, a 3.00 cumulative GPA in total hours, junior standing and recommendation of the instructor.

\$60 applied music fee. \$25 per credit hour curriculum content fee.

### **MUS 1232: Applied Music - Voice**

Musical performance includes private study, class piano, class voice, and ensembles. In numbering applied music courses, the first digit, numeral 1, is used for freshman and sophomore level courses; the numeral 3 for junior and senior level courses. The second and third digits indicate applied concentration area (e.g. 20 = piano) and the final digit indicates hours of semester credit.

Applied Music (private instruction) requires permission of the department head and is required of all music majors. Applied music students may be assigned participation in designated ensembles in addition to required ensembles. Ensembles are given in the curricula in Music and Music Education.

To qualify for three hours per semester, a student must have a minimum 3.50 cumulative GPA in applied music, a 3.00 cumulative GPA in total hours, junior standing and recommendation of the instructor.

\$120 applied music fee. \$25 per credit hour curriculum content fee.

### **MUS 1301: Opera Workshop**

Prerequisite: Permission of instructor

The course of study will involve selected scenes from standard opera literature prepared for dramatic presentation. Research will be required pertaining to the historical setting, appropriate costumes, and mannerisms of the period being studied. Staging techniques and set building will be included as deemed necessary to each presentation.

\$25 per credit hour curriculum content fee.

### **MUS 1311: Jazz Ensemble**

Membership selected by audition. Study and performance of big band jazz styles from the 1930's to present.

\$25 applied music fee. \$25 per credit hour curriculum content fee.

### **MUS 1321: Jazz Piano**

Offered: As needed

Prerequisites: MUS 1713 Theory I, MUS 1201 Applied Music - Piano or 1441, or instructor approval.

Materials and practices for typical jazz keyboard playing.

One hour per week. \$25 per credit hour curriculum content fee.

### **MUS 1431: Class Piano**

Non music majors. For students who have little or no music reading skills, this course concentrates on basic piano skills while learning to read music. At the end of the course students will play pieces using a chord based approach in several keys and styles.

\$10 applied music fee. \$25 per credit hour curriculum content fee.

### **MUS 1440: Piano Proficiency**

Co-requisite: MUS 1441 Class Piano I, II, III, and IV or MUS 1201 Applied Music - Piano or MUS 1202 Applied Music - Piano or permission of instructor.

A pass/fail course for students to demonstrate piano proficiency emphasizing those aspects most useful to non-piano majors. A demonstration of chords, sight reading, improvising, playing in all keys, harmonizing melodies, multiple-part score reading, modulation, harmonizing with secondary chords, improvising in various styles, playing a wide variety of literature, and accompanying is expected.

**MUS 1441: Class Piano I, II, III, and IV**

Offered: I & III fall; II & IV spring

Prerequisite: Music major and pass preceding level with a "C" or better.

A development of the fundamental skills of the piano, emphasizing those aspects most useful to non piano majors. A knowledge of chords is stressed, as is sight reading, improvising, playing in all keys and harmonizing melodies. The second year of class piano extends these skills adding the reading of multiple score parts, modulation, harmonizing with secondary chords, improvising in various composers' styles, playing a wide variety of literature, and accompanying.

\$10 applied music fee. \$25 per credit hour curriculum content fee.

**MUS 1501: Band**

Open to students who can satisfy audition requirements. Marching Band, fall semester, or permission of instructor is a prerequisite for Concert Band, spring semester. Fall semester stresses marching band. Spring semester stresses symphonic and concert bands in the study and performance of quality literature.

\$25 applied music fee. \$25 per credit hour curriculum content fee.

**MUS 1511: Brass Choir**

Membership selected by audition. Study and performance of representative brass literature.

Rehearsal 3 hours weekly. \$25 per credit hour curriculum content fee.

**MUS 1521: Woodwind Ensembles**

Open to all students. Membership selected by audition.

Two hours weekly. \$25 per credit hour curriculum content fee.

**MUS 1531: Brass Ensembles**

Open to all students. Membership selected by audition.

Two hours weekly. \$25 per credit hour curriculum content fee.

**MUS 1541: Percussion Ensembles**

Open to all students. Membership selected by audition.

Two hours weekly. \$25 per credit hour curriculum content fee.

**MUS 1551: String Ensembles**

Open to all students. Membership selected by audition.

Two hours weekly. \$25 per credit hour curriculum content fee.

**MUS 1571: University Choir**

Open to all students. A select vocal group of approximately sixty members selected by audition. Study and performance of choral literature of all periods.

\$25 applied music fee. \$25 per credit hour curriculum content fee.

**MUS 1581: Choral Artists**

Open to all students by audition. A select choral ensemble of approximately sixteen voices specializing in the performance of chamber choral music from all historical periods.

Note: Two or three concerts are presented on campus each semester. Off-campus performances include tours and public relations functions for the university.

\$25 applied music fee. \$25 per credit hour curriculum content fee.

**MUS 1601: Orchestral Repertoire**

Prerequisite: Permission of instructor

A study of the landmarks of orchestral repertoire for winds and percussion sections through the preparation and rehearsal of the literature.

\$25 per credit hour curriculum content fee.

Note: Each course may be repeated three times.

**MUS 1611: Music Theatre Workshop**

Prerequisite: Permission of instructor

Selected songs from standard musical theatre literature will be prepared for public performance with an emphasis on popular professional performance techniques.

Note: Credit will be given for one leading part or for a series of supporting parts.

Two hours weekly. \$25 per credit hour curriculum content fee.

**MUS 1621: Music Theatre Practicum**

Offered: As needed

Prerequisite: Permission of instructor

Credit will be given for participation that results in a public performance of a major production. Vocal, instrumental, and/or audiovisual technological participation will be accepted.

A minimum of 28 hours participation is required. \$25 per credit hour curriculum content fee.

**MUS 1631: Symphonic Wind Ensemble**

Prerequisite: Audition

The Symphonic Wind Ensemble is the premiere wind-performing ensemble at Arkansas Tech University performing a balanced mix of traditional and new repertoire. Emphasis is placed on the highest artistic standards, professionalism in performance excellence while offering pedagogy for the advanced musician.

Note: Membership is determined by an annual audition and is open to all majors.

\$25 applied music fee. \$25 per credit hour curriculum content fee.

**MUS 1681: Concert Chorale**

Open to all students by audition. A select choral ensemble of choral music from all historical periods.

Two or three major concerts are presented each semester.

\$25 applied music fee. \$25 per credit hour curriculum content fee.

**MUS 1713: Theory I**

Offered: Fall

Co-requisites: MUS 1731 Ear Training I

Study of scales, triads, seventh chords, diatonic harmonies, simple modulation. Introduction to small forms.

\$25 per credit hour curriculum content fee.

**MUS 1723: Theory II**

Offered: Spring

Prerequisite: MUS 1713 Theory I with a "C" or better or permission of instructor.

Co-requisites: MUS 1741 Ear Training II

Study of scales, triads, seventh chords, diatonic harmonies, simple modulation. Introduction to small forms.

\$25 per credit hour curriculum content fee.

**MUS 1731: Ear Training I**

Offered: Fall

The elements of music fundamentals, both written and aural.

\$25 per credit hour curriculum content fee.

**MUS 1741: Ear Training II**

Offered: Spring

The elements of music fundamentals, both written and aural.

\$25 per credit hour curriculum content fee.

**MUS 1751: Orientation to Music**

Offered: Fall

A course designed to provide information and enhance skills that will enable music majors to make a successful transition into the ATU department of music. The course will expose students to college/departamental resources and requirements, and promote the development of practical skills for college success.

\$25 per credit hour curriculum content fee.

**MUS 2000: Sophomore Barrier**

Prerequisite: 3 semesters of applied study on major performance instrument

Co-requisite: 2 hours of applied study on major performance instrument

A pass/fail course for students to demonstrate proficiency on their major performing instrument. Students demonstrate technical and musical performance proficiency by performing a solo/etude, major and minor scales as well as sight reading.

**MUS 2003: Introduction to Music**

ACTS Common Course - MUSC 1003

An overall view of music history from Medieval to Contemporary times with a focus on relating musical happenings and concepts to the other arts.

\$25 per credit hour curriculum content fee.

**MUS 2013: Digital Audio Production**

Cross-listed: GAME 2013 Digital Audio Production

An introduction to digital audio production through lectures, practical assignments, and in-class exercises. Open to students in all majors.

\$45 course fee. \$25 per credit hour curriculum content fee.



**MUS 2191: Vocal Diction II**

Offered: Fall

Prerequisite: Vocal major

Co-requisite: MUS 1232 Applied Music - Voice

A study of the rules of pronunciation for German, French, and English for singers through the use of the International Phonetic Alphabet.

\$25 per credit hour curriculum content fee.

**MUS 2201: Accompanying Seminar**

Prerequisites: Piano major or permission of instructor.

Development of basic accompanying techniques. Class coaching and presentation one hour weekly, plus assigned accompanying responsibilities in a variety of media.

\$25 per credit hour curriculum content fee.

Note: May be repeated three times.

**MUS 2441: Class Voice**

Offered: Fall

Prerequisite: Music major

Development of basic vocal techniques through group participation and solo singing. Emphasis is placed on understanding of vocal pedagogy.

Supervised practice two hours per week. \$25 per credit hour curriculum content fee.

**MUS 2451: Class Voice**

(Non music majors) Development of basic vocal techniques through group participation and solo singing.

Supervised practice two hours per week. \$25 per credit hour curriculum content fee.

**MUS 2713: Theory III**

Offered: Fall

Prerequisite: MUS 1723 Theory II with a "C" or better or permission of instructor.

Co-requisites: MUS 2731 Ear Training III

More advanced harmonic concepts, modulation, chromatic harmonies. Further study of larger forms.

\$25 per credit hour curriculum content fee.

**MUS 2723: Theory IV**

Offered: Spring

Prerequisite: MUS 2713 Theory III with a "C" or better or permission of instructor.

Co-requisites: MUS 2741 Ear Training IV

More advanced harmonic concepts, modulation, chromatic harmonies. Further study of larger forms.

\$25 per credit hour curriculum content fee.

**MUS 2731: Ear Training III**

Offered: Fall

Further work in more advanced ear training and sight singing.

\$25 per credit hour curriculum content fee.

**MUS 2741: Ear Training IV**

Offered: Spring

Further work in more advanced ear training and sight singing.

\$25 per credit hour curriculum content fee.

**MUS 3000: Recital Attendance**

Offered on a pass/fail basis. Students are required to attend a specified number of recitals each semester and must pass at least six semesters to receive the B.A. degree in music or bachelor of music education.

**MUS 3001: Applied Music - Trumpet**

Prerequisite: Passage of sophomore barrier.

Musical performance includes private study, class piano, class voice, and ensembles. In numbering applied music courses, the first digit, numeral 1, is used for freshman and sophomore level courses; the numeral 3 for junior and senior level courses. The second and third digits indicate applied concentration area (e.g. 20 = piano) and the final digit indicates hours of semester credit.

Applied Music (private instruction) requires permission of the department head and is required of all music majors. Applied music students may be assigned participation in designated ensembles in addition to required ensembles. Ensembles are given in the curricula in Music and Music Education. To qualify for three hours per semester, a student must have a minimum 3.50 cumulative GPA in applied music, a 3.00 cumulative GPA in total hours, junior standing and recommendation of the instructor.

\$60 applied music fee. \$25 per credit hour curriculum content fee.

### **MUS 3002: Applied Music - Trumpet**

Prerequisite: Passage of sophomore barrier.

Musical performance includes private study, class piano, class voice, and ensembles. In numbering applied music courses, the first digit, numeral 1, is used for freshman and sophomore level courses; the numeral 3 for junior and senior level courses. The second and third digits indicate applied concentration area (e.g. 20 = piano) and the final digit indicates hours of semester credit.

Applied Music (private instruction) requires permission of the department head and is required of all music majors. Applied music students may be assigned participation in designated ensembles in addition to required ensembles. Ensembles are given in the curricula in Music and Music Education. To qualify for three hours per semester, a student must have a minimum 3.50 cumulative GPA in applied music, a 3.00 cumulative GPA in total hours, junior standing and recommendation of the instructor.

\$120 applied music fee. \$25 per credit hour curriculum content fee.

### **MUS 3003: Applied Music - Trumpet**

Prerequisite: Passage of sophomore barrier.

Musical performance includes private study, class piano, class voice, and ensembles. In numbering applied music courses, the first digit, numeral 1, is used for freshman and sophomore level courses; the numeral 3 for junior and senior level courses. The second and third digits indicate applied concentration area (e.g. 20 = piano) and the final digit indicates hours of semester credit.

Applied Music (private instruction) requires permission of the department head and is required of all music majors. Applied music students may be assigned participation in designated ensembles in addition to required ensembles. Ensembles are given in the curricula in Music and Music Education. To qualify for three hours per semester, a student must have a minimum 3.50 cumulative GPA in applied music, a 3.00 cumulative GPA in total hours, junior standing and recommendation of the instructor.

\$180 applied music fee. \$25 per credit hour curriculum content fee.

### **MUS 3011: Applied Music - French Horn**

Prerequisite: Passage of sophomore barrier.

Musical performance includes private study, class piano, class voice, and ensembles. In numbering applied music courses, the first digit, numeral 1, is used for freshman and sophomore level courses; the numeral 3 for junior and senior level courses. The second and third digits indicate applied concentration area (e.g. 20 = piano) and the final digit indicates hours of semester credit.

Applied Music (private instruction) requires permission of the department head and is required of all music majors. Applied music students may be assigned participation in designated ensembles in addition to required ensembles. Ensembles are given in the curricula in Music and Music Education. To qualify for three hours per semester, a student must have a minimum 3.50 cumulative GPA in applied music, a 3.00 cumulative GPA in total hours, junior standing and recommendation of the instructor.

\$60 applied music fee. \$25 per credit hour curriculum content fee.

### **MUS 3012: Applied Music - French Horn**

Prerequisite: Passage of sophomore barrier.

Musical performance includes private study, class piano, class voice, and ensembles. In numbering applied music courses, the first digit, numeral 1, is used for freshman and sophomore level courses; the numeral 3 for junior and senior level courses. The second and third digits indicate applied concentration area (e.g. 20 = piano) and the final digit indicates hours of semester credit.

Applied Music (private instruction) requires permission of the department head and is required of all music majors. Applied music students may be assigned participation in designated ensembles in addition to required ensembles. Ensembles are given in the curricula in Music and Music Education. To qualify for three hours per semester, a student must have a minimum 3.50 cumulative GPA in applied music, a 3.00 cumulative GPA in total hours, junior standing and recommendation of the instructor.

\$120 applied music fee. \$25 per credit hour curriculum content fee.

### **MUS 3013: Applied Music - French Horn**

Prerequisite: Passage of sophomore barrier.

Musical performance includes private study, class piano, class voice, and ensembles. In numbering applied music courses, the first digit, numeral 1, is used for freshman and sophomore level courses; the numeral 3 for junior and senior level courses. The second and third digits indicate applied concentration area (e.g. 20 = piano) and the final digit indicates hours of semester credit.

Applied Music (private instruction) requires permission of the department head and is required of all music majors. Applied music students may be assigned participation in designated ensembles in addition to required ensembles. Ensembles are given in the curricula in Music and Music Education. To qualify for three hours per semester, a student must have a minimum 3.50 cumulative GPA in applied music, a 3.00 cumulative GPA in total hours, junior standing and recommendation of the instructor.

\$180 applied music fee. \$25 per credit hour curriculum content fee.

### **MUS 3021: Applied Music - Trombone**

Prerequisite: Passage of sophomore barrier.

Musical performance includes private study, class piano, class voice, and ensembles. In numbering applied music courses, the first digit, numeral 1, is used for freshman and sophomore level courses; the numeral 3 for junior and senior level courses. The second and third digits indicate applied concentration area (e.g. 20 = piano) and the final digit indicates hours of semester credit.

Applied Music (private instruction) requires permission of the department head and is required of all music majors. Applied music students may be assigned participation in designated ensembles in addition to required ensembles. Ensembles are given in the curricula in Music and Music Education. To qualify for three hours per semester, a student must have a minimum 3.50 cumulative GPA in applied music, a 3.00 cumulative GPA in total hours, junior standing and recommendation of the instructor.

\$60 applied music fee. \$25 per credit hour curriculum content fee.

### **MUS 3022: Applied Music - Trombone**

Prerequisite: Passage of sophomore barrier.

Musical performance includes private study, class piano, class voice, and ensembles. In numbering applied music courses, the first digit, numeral 1, is used for freshman and sophomore level courses; the numeral 3 for junior and senior level courses. The second and third digits indicate applied concentration area (e.g. 20 = piano) and the final digit indicates hours of semester credit.

Applied Music (private instruction) requires permission of the department head and is required of all music majors. Applied music students may be assigned participation in designated ensembles in addition to required ensembles. Ensembles are given in the curricula in Music and Music Education. To qualify for three hours per semester, a student must have a minimum 3.50 cumulative GPA in applied music, a 3.00 cumulative GPA in total hours, junior standing and recommendation of the instructor.

\$120 applied music fee. \$25 per credit hour curriculum content fee.

### **MUS 3023: Applied Music - Trombone**

Prerequisite: Passage of sophomore barrier.

Musical performance includes private study, class piano, class voice, and ensembles. In numbering applied music courses, the first digit, numeral 1, is used for freshman and sophomore level courses; the numeral 3 for junior and senior level courses. The second and third digits indicate applied concentration area (e.g. 20 = piano) and the final digit indicates hours of semester credit.

Applied Music (private instruction) requires permission of the department head and is required of all music majors. Applied music students may be assigned participation in designated ensembles in addition to required ensembles. Ensembles are given in the curricula in Music and Music Education. To qualify for three hours per semester, a student must have a minimum 3.50 cumulative GPA in applied music, a 3.00 cumulative GPA in total hours, junior standing and recommendation of the instructor.

\$180 applied music fee. \$25 per credit hour curriculum content fee.

### **MUS 3031: Applied Music - Euphonium**

Prerequisite: Passage of sophomore barrier.

Musical performance includes private study, class piano, class voice, and ensembles. In numbering applied music courses, the first digit, numeral 1, is used for freshman and sophomore level courses; the numeral 3 for junior and senior level courses. The second and third digits indicate applied concentration area (e.g. 20 = piano) and the final digit indicates hours of semester credit.

Applied Music (private instruction) requires permission of the department head and is required of all music majors. Applied music students may be assigned participation in designated ensembles in addition to required ensembles. Ensembles are given in the curricula in Music and Music Education. To qualify for three hours per semester, a student must have a minimum 3.50 cumulative GPA in applied music, a 3.00 cumulative GPA in total hours, junior standing and recommendation of the instructor.

\$60 applied music fee. \$25 per credit hour curriculum content fee.

### **MUS 3032: Applied Music - Euphonium**

Prerequisite: Passage of sophomore barrier.

Musical performance includes private study, class piano, class voice, and ensembles. In numbering applied music courses, the first digit, numeral 1, is used for freshman and sophomore level courses; the numeral 3 for junior and senior level courses. The second and third digits indicate applied concentration area (e.g. 20 = piano) and the final digit indicates hours of semester credit.

Applied Music (private instruction) requires permission of the department head and is required of all music majors. Applied music students may be assigned participation in designated ensembles in addition to required ensembles. Ensembles are given in the curricula in Music and Music Education. To qualify for three hours per semester, a student must have a minimum 3.50 cumulative GPA in applied music, a 3.00 cumulative GPA in total hours, junior standing and recommendation of the instructor.

\$120 applied music fee. \$25 per credit hour curriculum content fee.

### **MUS 3033: Applied Music - Euphonium**

Prerequisite: Passage of sophomore barrier.

Musical performance includes private study, class piano, class voice, and ensembles. In numbering applied music courses, the first digit, numeral 1, is used for freshman and sophomore level courses; the numeral 3 for junior and senior level courses. The second and third digits indicate applied concentration area (e.g. 20 = piano) and the final digit indicates hours of semester credit.

Applied Music (private instruction) requires permission of the department head and is required of all music majors. Applied music students may be assigned participation in designated ensembles in addition to required ensembles. Ensembles are given in the curricula in Music and Music Education. To qualify for three hours per semester, a student must have a minimum 3.50 cumulative GPA in applied music, a 3.00 cumulative GPA in total hours, junior standing and recommendation of the instructor.

\$180 applied music fee. \$25 per credit hour curriculum content fee.

### **MUS 3041: Applied Music - Tuba**

Prerequisite: Passage of sophomore barrier.

Musical performance includes private study, class piano, class voice, and ensembles. In numbering applied music courses, the first digit, numeral 1, is used for freshman and sophomore level courses; the numeral 3 for junior and senior level courses. The second and third digits indicate applied concentration area (e.g. 20 = piano) and the final digit indicates hours of semester credit.

Applied Music (private instruction) requires permission of the department head and is required of all music majors. Applied music students may be assigned participation in designated ensembles in addition to required ensembles. Ensembles are given in the curricula in Music and Music Education.

To qualify for three hours per semester, a student must have a minimum 3.50 cumulative GPA in applied music, a 3.00 cumulative GPA in total hours, junior standing and recommendation of the instructor.

\$60 applied music fee. \$25 per credit hour curriculum content fee.

### **MUS 3042: Applied Music - Tuba**

Prerequisite: Passage of sophomore barrier.

Musical performance includes private study, class piano, class voice, and ensembles. In numbering applied music courses, the first digit, numeral 1, is used for freshman and sophomore level courses; the numeral 3 for junior and senior level courses. The second and third digits indicate applied concentration area (e.g. 20 = piano) and the final digit indicates hours of semester credit.

Applied Music (private instruction) requires permission of the department head and is required of all music majors. Applied music students may be assigned participation in designated ensembles in addition to required ensembles. Ensembles are given in the curricula in Music and Music Education. To qualify for three hours per semester, a student must have a minimum 3.50 cumulative GPA in applied music, a 3.00 cumulative GPA in total hours, junior standing and recommendation of the instructor.

\$120 applied music fee. \$25 per credit hour curriculum content fee.

### **MUS 3043: Applied Music - Tuba**

Prerequisite: Passage of sophomore barrier.

Musical performance includes private study, class piano, class voice, and ensembles. In numbering applied music courses, the first digit, numeral 1, is used for freshman and sophomore level courses; the numeral 3 for junior and senior level courses. The second and third digits indicate applied concentration area (e.g. 20 = piano) and the final digit indicates hours of semester credit.

Applied Music (private instruction) requires permission of the department head and is required of all music majors. Applied music students may be assigned participation in designated ensembles in addition to required ensembles. Ensembles are given in the curricula in Music and Music Education. To qualify for three hours per semester, a student must have a minimum 3.50 cumulative GPA in applied music, a 3.00 cumulative GPA in total hours, junior standing and recommendation of the instructor.

\$180 applied music fee. \$25 per credit hour curriculum content fee.

### **MUS 3051: Applied Music - Clarinet**

Prerequisite: Passage of sophomore barrier.

Musical performance includes private study, class piano, class voice, and ensembles. In numbering applied music courses, the first digit, numeral 1, is used for freshman and sophomore level courses; the numeral 3 for junior and senior level courses. The second and third digits indicate applied concentration area (e.g. 20 = piano) and the final digit indicates hours of semester credit.

Applied Music (private instruction) requires permission of the department head and is required of all music majors. Applied music students may be assigned participation in designated ensembles in addition to required ensembles. Ensembles are given in the curricula in Music and Music Education. To qualify for three hours per semester, a student must have a minimum 3.50 cumulative GPA in applied music, a 3.00 cumulative GPA in total hours, junior standing and recommendation of the instructor.

\$60 applied music fee. \$25 per credit hour curriculum content fee.

### **MUS 3052: Applied Music - Clarinet**

Prerequisite: Passage of sophomore barrier.

Musical performance includes private study, class piano, class voice, and ensembles. In numbering applied music courses, the first digit, numeral 1, is used for freshman and sophomore level courses; the numeral 3 for junior and senior level courses. The second and third digits indicate applied concentration area (e.g. 20 = piano) and the final digit indicates hours of semester credit.

Applied Music (private instruction) requires permission of the department head and is required of all music majors. Applied music students may be assigned participation in designated ensembles in addition to required ensembles. Ensembles are given in the curricula in Music and Music Education. To qualify for three hours per semester, a student must have a minimum 3.50 cumulative GPA in applied music, a 3.00 cumulative GPA in total hours, junior standing and recommendation of the instructor.

\$120 applied music fee. \$25 per credit hour curriculum content fee.

### **MUS 3053: Applied Music - Clarinet**

Prerequisite: Passage of sophomore barrier.

Musical performance includes private study, class piano, class voice, and ensembles. In numbering applied music courses, the first digit, numeral 1, is used for freshman and sophomore level courses; the numeral 3 for junior and senior level courses. The second and third digits indicate applied concentration area (e.g. 20 = piano) and the final digit indicates hours of semester credit.

Applied Music (private instruction) requires permission of the department head and is required of all music majors. Applied music students may be assigned participation in designated ensembles in addition to required ensembles. Ensembles are given in the curricula in Music and Music Education. To qualify for three hours per semester, a student must have a minimum 3.50 cumulative GPA in applied music, a 3.00 cumulative GPA in total hours, junior standing and recommendation of the instructor.

\$180 applied music fee. \$25 per credit hour curriculum content fee.

### **MUS 3061: Applied Music - Oboe**

Prerequisite: Passage of sophomore barrier.

Musical performance includes private study, class piano, class voice, and ensembles. In numbering applied music courses, the first digit, numeral 1, is used for freshman and sophomore level courses; the numeral 3 for junior and senior level courses. The second and third digits indicate applied concentration area (e.g. 20 = piano) and the final digit indicates hours of semester credit.

Applied Music (private instruction) requires permission of the department head and is required of all music majors. Applied music students may be assigned participation in designated ensembles in addition to required ensembles. Ensembles are given in the curricula in Music and Music Education. To qualify for three hours per semester, a student must have a minimum 3.50 cumulative GPA in applied music, a 3.00 cumulative GPA in total hours, junior standing and recommendation of the instructor.  
\$60 applied music fee. \$25 per credit hour curriculum content fee.

### **MUS 3062: Applied Music - Oboe**

Prerequisite: Passage of sophomore barrier.

Musical performance includes private study, class piano, class voice, and ensembles. In numbering applied music courses, the first digit, numeral 1, is used for freshman and sophomore level courses; the numeral 3 for junior and senior level courses. The second and third digits indicate applied concentration area (e.g. 20 = piano) and the final digit indicates hours of semester credit.

Applied Music (private instruction) requires permission of the department head and is required of all music majors. Applied music students may be assigned participation in designated ensembles in addition to required ensembles. Ensembles are given in the curricula in Music and Music Education. To qualify for three hours per semester, a student must have a minimum 3.50 cumulative GPA in applied music, a 3.00 cumulative GPA in total hours, junior standing and recommendation of the instructor.

\$120 applied music fee. \$25 per credit hour curriculum content fee.

### **MUS 3063: Applied Music - Oboe**

Prerequisite: Passage of sophomore barrier.

Musical performance includes private study, class piano, class voice, and ensembles. In numbering applied music courses, the first digit, numeral 1, is used for freshman and sophomore level courses; the numeral 3 for junior and senior level courses. The second and third digits indicate applied concentration area (e.g. 20 = piano) and the final digit indicates hours of semester credit.

Applied Music (private instruction) requires permission of the department head and is required of all music majors. Applied music students may be assigned participation in designated ensembles in addition to required ensembles. Ensembles are given in the curricula in Music and Music Education. To qualify for three hours per semester, a student must have a minimum 3.50 cumulative GPA in applied music, a 3.00 cumulative GPA in total hours, junior standing and recommendation of the instructor.

\$180 applied music fee. \$25 per credit hour curriculum content fee.

### **MUS 3071: Applied Music - Flute**

Prerequisite: Passage of sophomore barrier.

Musical performance includes private study, class piano, class voice, and ensembles. In numbering applied music courses, the first digit, numeral 1, is used for freshman and sophomore level courses; the numeral 3 for junior and senior level courses. The second and third digits indicate applied concentration area (e.g. 20 = piano) and the final digit indicates hours of semester credit.

Applied Music (private instruction) requires permission of the department head and is required of all music majors. Applied music students may be assigned participation in designated ensembles in addition to required ensembles. Ensembles are given in the curricula in Music and Music Education. To qualify for three hours per semester, a student must have a minimum 3.50 cumulative GPA in applied music, a 3.00 cumulative GPA in total hours, junior standing and recommendation of the instructor.

\$60 applied music fee. \$25 per credit hour curriculum content fee.

### **MUS 3072: Applied Music - Flute**

Prerequisite: Passage of sophomore barrier.

Musical performance includes private study, class piano, class voice, and ensembles. In numbering applied music courses, the first digit, numeral 1, is used for freshman and sophomore level courses; the numeral 3 for junior and senior level courses. The second and third digits indicate applied concentration area (e.g. 20 = piano) and the final digit indicates hours of semester credit.

Applied Music (private instruction) requires permission of the department head and is required of all music majors. Applied music students may be assigned participation in designated ensembles in addition to required ensembles. Ensembles are given in the curricula in Music and Music Education. To qualify for three hours per semester, a student must have a minimum 3.50 cumulative GPA in applied music, a 3.00 cumulative GPA in total hours, junior standing and recommendation of the instructor.

\$120 applied music fee. \$25 per credit hour curriculum content fee.

### **MUS 3073: Applied Music - Flute**

Prerequisite: Passage of sophomore barrier.

Musical performance includes private study, class piano, class voice, and ensembles. In numbering applied music courses, the first digit, numeral 1, is used for freshman and sophomore level courses; the numeral 3 for junior and senior level courses. The second and third digits indicate applied concentration area (e.g. 20 = piano) and the final digit indicates hours of semester credit.

Applied Music (private instruction) requires permission of the department head and is required of all music majors. Applied music students may be assigned participation in designated ensembles in addition to required ensembles. Ensembles are given in the curricula in Music and Music Education. To qualify for three hours per semester, a student must have a minimum 3.50 cumulative GPA in applied music, a 3.00 cumulative GPA in total hours, junior standing and recommendation of the instructor.

\$180 applied music fee. \$25 per credit hour curriculum content fee.

### **MUS 3081: Applied Music - Saxophone**

Prerequisite: Passage of sophomore barrier.

Musical performance includes private study, class piano, class voice, and ensembles. In numbering applied music courses, the first digit, numeral 1, is used for freshman and sophomore level courses; the numeral 3 for junior and senior level courses. The second and third digits indicate applied concentration area (e.g. 20 = piano) and the final digit indicates hours of semester credit.

Applied Music (private instruction) requires permission of the department head and is required of all music majors. Applied music students may be assigned participation in designated ensembles in addition to required ensembles. Ensembles are given in the curricula in Music and Music Education. To qualify for three hours per semester, a student must have a minimum 3.50 cumulative GPA in applied music, a 3.00 cumulative GPA in total hours, junior standing and recommendation of the instructor.

\$60 applied music fee. \$25 per credit hour curriculum content fee.

### **MUS 3082: Applied Music - Saxophone**

Prerequisite: Passage of sophomore barrier.

Musical performance includes private study, class piano, class voice, and ensembles. In numbering applied music courses, the first digit, numeral 1, is used for freshman and sophomore level courses; the numeral 3 for junior and senior level courses. The second and third digits indicate applied concentration area (e.g. 20 = piano) and the final digit indicates hours of semester credit.

Applied Music (private instruction) requires permission of the department head and is required of all music majors. Applied music students may be assigned participation in designated ensembles in addition to required ensembles. Ensembles are given in the curricula in Music and Music Education. To qualify for three hours per semester, a student must have a minimum 3.50 cumulative GPA in applied music, a 3.00 cumulative GPA in total hours, junior standing and recommendation of the instructor.

\$120 applied music fee. \$25 per credit hour curriculum content fee.

### **MUS 3083: Applied Music - Saxophone**

Prerequisite: Passage of sophomore barrier.

Musical performance includes private study, class piano, class voice, and ensembles. In numbering applied music courses, the first digit, numeral 1, is used for freshman and sophomore level courses; the numeral 3 for junior and senior level courses. The second and third digits indicate applied concentration area (e.g. 20 = piano) and the final digit indicates hours of semester credit.

Applied Music (private instruction) requires permission of the department head and is required of all music majors. Applied music students may be assigned participation in designated ensembles in addition to required ensembles. Ensembles are given in the curricula in Music and Music Education. To qualify for three hours per semester, a student must have a minimum 3.50 cumulative GPA in applied music, a 3.00 cumulative GPA in total hours, junior standing and recommendation of the instructor.

\$180 applied music fee. \$25 per credit hour curriculum content fee.

### **MUS 3091: Applied Music - Bassoon**

Prerequisite: Passage of sophomore barrier.

Musical performance includes private study, class piano, class voice, and ensembles. In numbering applied music courses, the first digit, numeral 1, is used for freshman and sophomore level courses; the numeral 3 for junior and senior level courses. The second and third digits indicate applied concentration area (e.g. 20 = piano) and the final digit indicates hours of semester credit.

Applied Music (private instruction) requires permission of the department head and is required of all music majors. Applied music students may be assigned participation in designated ensembles in addition to required ensembles. Ensembles are given in the curricula in Music and Music Education. To qualify for three hours per semester, a student must have a minimum 3.50 cumulative GPA in applied music, a 3.00 cumulative GPA in total hours, junior standing and recommendation of the instructor.

\$60 applied music fee. \$25 per credit hour curriculum content fee.

### **MUS 3092: Applied Music - Bassoon**

Prerequisite: Passage of sophomore barrier.

Musical performance includes private study, class piano, class voice, and ensembles. In numbering applied music courses, the first digit, numeral 1, is used for freshman and sophomore level courses; the numeral 3 for junior and senior level courses. The second and third digits indicate applied concentration area (e.g. 20 = piano) and the final digit indicates hours of semester credit.

Applied Music (private instruction) requires permission of the department head and is required of all music majors. Applied music students may be assigned participation in designated ensembles in addition to required ensembles. Ensembles are given in the curricula in Music and Music Education. To qualify for three hours per semester, a student must have a minimum 3.50 cumulative GPA in applied music, a 3.00 cumulative GPA in total hours, junior standing and recommendation of the instructor.

\$120 applied music fee. \$25 per credit hour curriculum content fee.

### **MUS 3093: Applied Music - Bassoon**

Prerequisite: Passage of sophomore barrier.

Musical performance includes private study, class piano, class voice, and ensembles. In numbering applied music courses, the first digit, numeral 1, is used for freshman and sophomore level courses; the numeral 3 for junior and senior level courses. The second and third digits indicate applied concentration area (e.g. 20 = piano) and the final digit indicates hours of semester credit.

Applied Music (private instruction) requires permission of the department head and is required of all music majors. Applied music students may be assigned participation in designated ensembles in addition to required ensembles. Ensembles are given in the curricula in Music and Music Education. To qualify for three hours per semester, a student must have a minimum 3.50 cumulative GPA in applied music, a 3.00 cumulative GPA in total hours, junior standing and recommendation of the instructor.

\$180 applied music fee. \$25 per credit hour curriculum content fee.

**MUS 3141: Applied Music - Percussion**

Prerequisite: Passage of sophomore barrier.

Musical performance includes private study, class piano, class voice, and ensembles. In numbering applied music courses, the first digit, numeral 1, is used for freshman and sophomore level courses; the numeral 3 for junior and senior level courses. The second and third digits indicate applied concentration area (e.g. 20 = piano) and the final digit indicates hours of semester credit.

Applied Music (private instruction) requires permission of the department head and is required of all music majors. Applied music students may be assigned participation in designated ensembles in addition to required ensembles. Ensembles are given in the curricula in Music and Music Education. To qualify for three hours per semester, a student must have a minimum 3.50 cumulative GPA in applied music, a 3.00 cumulative GPA in total hours, junior standing and recommendation of the instructor.

\$60 applied music fee. \$25 per credit hour curriculum content fee.

**MUS 3142: Applied Music - Percussion**

Prerequisite: Passage of sophomore barrier.

Musical performance includes private study, class piano, class voice, and ensembles. In numbering applied music courses, the first digit, numeral 1, is used for freshman and sophomore level courses; the numeral 3 for junior and senior level courses. The second and third digits indicate applied concentration area (e.g. 20 = piano) and the final digit indicates hours of semester credit.

Applied Music (private instruction) requires permission of the department head and is required of all music majors. Applied music students may be assigned participation in designated ensembles in addition to required ensembles. Ensembles are given in the curricula in Music and Music Education. To qualify for three hours per semester, a student must have a minimum 3.50 cumulative GPA in applied music, a 3.00 cumulative GPA in total hours, junior standing and recommendation of the instructor.

\$120 applied music fee. \$25 per credit hour curriculum content fee.

**MUS 3143: Applied Music - Percussion**

Prerequisite: Passage of sophomore barrier.

Musical performance includes private study, class piano, class voice, and ensembles. In numbering applied music courses, the first digit, numeral 1, is used for freshman and sophomore level courses; the numeral 3 for junior and senior level courses. The second and third digits indicate applied concentration area (e.g. 20 = piano) and the final digit indicates hours of semester credit.

Applied Music (private instruction) requires permission of the department head and is required of all music majors. Applied music students may be assigned participation in designated ensembles in addition to required ensembles. Ensembles are given in the curricula in Music and Music Education. To qualify for three hours per semester, a student must have a minimum 3.50 cumulative GPA in applied music, a 3.00 cumulative GPA in total hours, junior standing and recommendation of the instructor.

\$180 applied music fee. \$25 per credit hour curriculum content fee.

**MUS 3191: Vocal Solo Literature**

Offered: Spring

Prerequisite: Pass Vocal Sophomore Barrier.

A survey of vocal solo literature with emphasis on historical development and appropriate use for various vocal types.

\$25 per credit hour curriculum content fee.

**MUS 3201: Applied Music - Piano**

Prerequisite: Passage of sophomore barrier.

Musical performance includes private study, class piano, class voice, and ensembles. In numbering applied music courses, the first digit, numeral 1, is used for freshman and sophomore level courses; the numeral 3 for junior and senior level courses. The second and third digits indicate applied concentration area (e.g. 20 = piano) and the final digit indicates hours of semester credit.

Applied Music (private instruction) requires permission of the department head and is required of all music majors. Applied music students may be assigned participation in designated ensembles in addition to required ensembles. Ensembles are given in the curricula in Music and Music Education. To qualify for three hours per semester, a student must have a minimum 3.50 cumulative GPA in applied music, a 3.00 cumulative GPA in total hours, junior standing and recommendation of the instructor.

\$60 applied music fee. \$25 per credit hour curriculum content fee.

**MUS 3202: Applied Music - Piano**

Prerequisite: Passage of sophomore barrier.

Musical performance includes private study, class piano, class voice, and ensembles. In numbering applied music courses, the first digit, numeral 1, is used for freshman and sophomore level courses; the numeral 3 for junior and senior level courses. The second and third digits indicate applied concentration area (e.g. 20 = piano) and the final digit indicates hours of semester credit.

Applied Music (private instruction) requires permission of the department head and is required of all music majors. Applied music students may be assigned participation in designated ensembles in addition to required ensembles. Ensembles are given in the curricula in Music and Music Education. To qualify for three hours per semester, a student must have a minimum 3.50 cumulative GPA in applied music, a 3.00 cumulative GPA in total hours, junior standing and recommendation of the instructor.

\$120 applied music fee. \$25 per credit hour curriculum content fee.

**MUS 3203: Applied Music - Piano**

Prerequisite: Passage of sophomore barrier.

Musical performance includes private study, class piano, class voice, and ensembles. In numbering applied music courses, the first digit, numeral 1, is used for freshman and sophomore level courses; the numeral 3 for junior and senior level courses. The second and third digits indicate applied concentration area (e.g. 20 = piano) and the final digit indicates hours of semester credit.

Applied Music (private instruction) requires permission of the department head and is required of all music majors. Applied music students may be assigned participation in designated ensembles in addition to required ensembles. Ensembles are given in the curricula in Music and Music Education. To qualify for three hours per semester, a student must have a minimum 3.50 cumulative GPA in applied music, a 3.00 cumulative GPA in total hours, junior standing and recommendation of the instructor.

\$180 applied music fee. \$25 per credit hour curriculum content fee.

### **MUS 3211: Applied Music - Harpsichord**

Prerequisite: Passage of sophomore barrier.

Musical performance includes private study, class piano, class voice, and ensembles. In numbering applied music courses, the first digit, numeral 1, is used for freshman and sophomore level courses; the numeral 3 for junior and senior level courses. The second and third digits indicate applied concentration area (e.g. 20 = piano) and the final digit indicates hours of semester credit.

Applied Music (private instruction) requires permission of the department head and is required of all music majors. Applied music students may be assigned participation in designated ensembles in addition to required ensembles. Ensembles are given in the curricula in Music and Music Education. To qualify for three hours per semester, a student must have a minimum 3.50 cumulative GPA in applied music, a 3.00 cumulative GPA in total hours, junior standing and recommendation of the instructor.

\$60 applied music fee. \$25 per credit hour curriculum content fee.

### **MUS 3212: Applied Music - Harpsichord**

Prerequisite: Passage of sophomore barrier.

Musical performance includes private study, class piano, class voice, and ensembles. In numbering applied music courses, the first digit, numeral 1, is used for freshman and sophomore level courses; the numeral 3 for junior and senior level courses. The second and third digits indicate applied concentration area (e.g. 20 = piano) and the final digit indicates hours of semester credit.

Applied Music (private instruction) requires permission of the department head and is required of all music majors. Applied music students may be assigned participation in designated ensembles in addition to required ensembles. Ensembles are given in the curricula in Music and Music Education. To qualify for three hours per semester, a student must have a minimum 3.50 cumulative GPA in applied music, a 3.00 cumulative GPA in total hours, junior standing and recommendation of the instructor.

\$120 applied music fee. \$25 per credit hour curriculum content fee.

### **MUS 3221: Applied Music - Organ**

Prerequisite: Passage of sophomore barrier.

Musical performance includes private study, class piano, class voice, and ensembles. In numbering applied music courses, the first digit, numeral 1, is used for freshman and sophomore level courses; the numeral 3 for junior and senior level courses. The second and third digits indicate applied concentration area (e.g. 20 = piano) and the final digit indicates hours of semester credit.

Applied Music (private instruction) requires permission of the department head and is required of all music majors. Applied music students may be assigned participation in designated ensembles in addition to required ensembles. Ensembles are given in the curricula in Music and Music Education. To qualify for three hours per semester, a student must have a minimum 3.50 cumulative GPA in applied music, a 3.00 cumulative GPA in total hours, junior standing and recommendation of the instructor.

\$60 applied music fee. \$25 per credit hour curriculum content fee.

### **MUS 3222: Applied Music - Organ**

Prerequisite: Passage of sophomore barrier.

Musical performance includes private study, class piano, class voice, and ensembles. In numbering applied music courses, the first digit, numeral 1, is used for freshman and sophomore level courses; the numeral 3 for junior and senior level courses. The second and third digits indicate applied concentration area (e.g. 20 = piano) and the final digit indicates hours of semester credit.

Applied Music (private instruction) requires permission of the department head and is required of all music majors. Applied music students may be assigned participation in designated ensembles in addition to required ensembles. Ensembles are given in the curricula in Music and Music Education. To qualify for three hours per semester, a student must have a minimum 3.50 cumulative GPA in applied music, a 3.00 cumulative GPA in total hours, junior standing and recommendation of the instructor.

\$120 applied music fee. \$25 per credit hour curriculum content fee.

### **MUS 3231: Applied Music - Voice**

Prerequisite: Passage of sophomore barrier.

Musical performance includes private study, class piano, class voice, and ensembles. In numbering applied music courses, the first digit, numeral 1, is used for freshman and sophomore level courses; the numeral 3 for junior and senior level courses. The second and third digits indicate applied concentration area (e.g. 20 = piano) and the final digit indicates hours of semester credit.

Applied Music (private instruction) requires permission of the department head and is required of all music majors. Applied music students may be assigned participation in designated ensembles in addition to required ensembles. Ensembles are given in the curricula in Music and Music Education. To qualify for three hours per semester, a student must have a minimum 3.50 cumulative GPA in applied music, a 3.00 cumulative GPA in total hours, junior standing and recommendation of the instructor.

\$60 applied music fee. \$25 per credit hour curriculum content fee.



**MUS 3232: Applied Music - Voice**

Prerequisite: Passage of sophomore barrier.

Musical performance includes private study, class piano, class voice, and ensembles. In numbering applied music courses, the first digit, numeral 1, is used for freshman and sophomore level courses; the numeral 3 for junior and senior level courses. The second and third digits indicate applied concentration area (e.g. 20 = piano) and the final digit indicates hours of semester credit.

Applied Music (private instruction) requires permission of the department head and is required of all music majors. Applied music students may be assigned participation in designated ensembles in addition to required ensembles. Ensembles are given in the curricula in Music and Music Education. To qualify for three hours per semester, a student must have a minimum 3.50 cumulative GPA in applied music, a 3.00 cumulative GPA in total hours, junior standing and recommendation of the instructor.

\$120 applied music fee. \$25 per credit hour curriculum content fee.

**MUS 3281: Secondary Instrumental Methods and Materials I**

Offered: Spring

Prerequisites: MUS 3802 Principles of Conducting and acceptance into stage II or permission of instructor.

Laboratory experience in conducting and performance of materials appropriate to teaching band in the public school.

\$25 per credit hour curriculum content fee.

**MUS 3301: Opera Workshop**

Prerequisite: Permission of instructor

The course of study will involve selected scenes from standard opera literature prepared for dramatic presentation. Research will be required pertaining to the historical setting, appropriate costumes, and mannerisms of the period being studied. Staging techniques and set building will be included as deemed necessary to each presentation.

\$25 per credit hour curriculum content fee.

**MUS 3311: Jazz Ensemble**

Membership selected by audition. Study and performance of big band jazz styles from the 1930's to present.

\$25 applied music fee. \$25 per credit hour curriculum content fee.

**MUS 3321: Practice of Improvisation**

Prerequisites: Successful completion of MUS 3332 Theory of Improvisation (Jazz) or instructor approval.

Laboratory experience in improvisation in all jazz styles.

\$25 per credit hour curriculum content fee.

Note: This course may be repeated for credit.

**MUS 3322: Theory of Improvisation (Jazz)**

Prerequisites: MUS 1713 Theory I, 1723, 1441, and/or instructor approval.

Music theory, materials and practices for improvising or extemporaneous playing.

Note: May not be repeated for credit. May not be taken for credit after completion of MUS 3332 Theory of Improvisation (Jazz).

One hour class, two hour laboratory per week. \$25 per credit hour curriculum content fee.

**MUS 3332: Theory of Improvisation (Jazz)**

Prerequisite: Successful completion of MUS 3322 Theory of Improvisation (Jazz)

Advanced music theory, materials and practices for improvising or extemporaneous playing.

Note: May not be repeated for credit.

One hour class, two hour laboratory per week. \$25 per credit hour curriculum content fee.

**MUS 3401: Brass Instruments**

Prerequisite: Music major

A study of the instruments of the brass family to the extent that scales and grade one and two solos can be played on selected instruments.

Class two hours, practice two hours. \$25 per credit hour curriculum content fee.

**MUS 3421: Woodwind Instruments, Double Reeds**

Offered: Fall

Prerequisite: Music major

A study of playing and teaching techniques of the woodwind family (oboe, bassoon). Playing of selected instruments will be developed through major scales and grade one and two solos or methods.

\$25 per credit hour curriculum content fee.

**MUS 3431: Woodwind Instruments, Single Reeds**

Offered: Spring

Prerequisite: Music major

A study of playing and teaching techniques of the woodwind family (flute, clarinet, saxophone). Playing of selected instruments will be developed through major scales and grade one and two solos or methods.

\$25 per credit hour curriculum content fee.

**MUS 3441: Instrumental Concepts**

Offered: Fall

Prerequisites: Vocal or Keyboard major

A study designed to give non-instrumental music education majors functional knowledge of band and orchestral instruments.

\$25 per credit hour curriculum content fee.

**MUS 3442: Piano Pedagogy**

Prerequisite: Pass piano sophomore barrier.

A study of pedagogical principles involved in the teaching of private and class piano, with emphasis on outside reading, class discussion, and observation of actual lessons and classes.

\$25 per credit hour curriculum content fee.

**MUS 3481: Stringed Instruments**

Offered: Fall

Prerequisite: Music major

A study of instruments of the string family (violin, viola, cello, and string bass) with emphasis on the fundamentals of good tone production and bowing techniques to the extent that scales and grade one and two orchestra music can be played on selected instruments.

\$25 per credit hour curriculum content fee.

**MUS 3501: Band**

Open to students who can satisfy audition requirements. Marching Band, fall semester, or permission of instructor is a prerequisite for Concert Band, spring semester. Fall semester stresses marching band. Spring semester stresses symphonic and concert bands in the study and performance of quality literature.

\$25 applied music fee. \$25 per credit hour curriculum content fee.

**MUS 3511: Brass Choir**

Membership selected by audition. Study and performance of representative brass literature.

Rehearsal 3 hours weekly. \$25 per credit hour curriculum content fee.

**MUS 3521: Woodwind Ensembles**

Open to all students. Membership selected by audition.

Two hours weekly. \$25 per credit hour curriculum content fee.

**MUS 3531: Brass Ensembles**

Open to all students. Membership selected by audition.

Two hours weekly. \$25 per credit hour curriculum content fee.

**MUS 3541: Percussion Ensembles**

Open to all students. Membership selected by audition.

Two hours weekly. \$25 per credit hour curriculum content fee.

**MUS 3551: String Ensembles**

Open to all students. Membership selected by audition.

Two hours weekly. \$25 per credit hour curriculum content fee.

**MUS 3571: University Choir**

Open to all students. A select vocal group of approximately sixty members selected by audition. Study and performance of choral literature of all periods.

\$25 applied music fee. \$25 per credit hour curriculum content fee.

**MUS 3581: Choral Artists**

Open to all students by audition. A select choral ensemble of approximately sixteen voices specializing in the performance of chamber choral music from all historical periods.

Note: Two or three concerts are presented on campus each semester. Off-campus performances include tours and public relations functions for the university.

\$25 applied music fee. \$25 per credit hour curriculum content fee.

**MUS 3601: Orchestral Repertoire**

Prerequisite: Permission of instructor

A study of the landmarks of orchestral repertoire for winds and percussion sections through the preparation and rehearsal of the literature.

\$25 per credit hour curriculum content fee.

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Note: Each course may be repeated three times.

**MUS 3611: Music Theatre Workshop**

Prerequisite: Permission of instructor

Selected songs from standard musical theatre literature will be prepared for public performance with an emphasis on popular professional performance techniques.

Note: Credit will be given for one leading part or for a series of supporting parts.

Two hours weekly. \$25 per credit hour curriculum content fee.

**MUS 3621: Music Theatre Practicum**

Offered: As needed

Prerequisite: Permission of instructor

Credit will be given for participation that results in a public performance of a major production. Vocal, instrumental, and/or audiovisual technological participation will be accepted.

A minimum of 28 hours participation is required. \$25 per credit hour curriculum content fee.

**MUS 3631: Symphonic Wind Ensemble**

Prerequisite: Audition

The Symphonic Wind Ensemble is the premiere wind-performing ensemble at Arkansas Tech University performing a balanced mix of traditional and new repertoire. Emphasis is placed on the highest artistic standards, professionalism in performance excellence while offering pedagogy for the advanced musician.

Note: Membership is determined by an annual audition and is open to all majors.

\$25 applied music fee. \$25 per credit hour curriculum content fee.

**MUS 3681: Concert Chorale**

Open to all students by audition. A select choral ensemble of choral music from all historical periods.

Two or three major concerts are presented each semester.

\$25 applied music fee. \$25 per credit hour curriculum content fee.

**MUS 3692: History of Music III**

Offered: Fall

Prerequisite: MUS 2723 Theory IV, music major or permission of instructor.

A study of 20th century music. Includes one unit of non-western music.

\$25 per credit hour curriculum content fee.

**MUS 3702: Music Educational Technology**

Prerequisites: Music major with junior standing.

Applications of Technology in Music Education. An overview of current technologies to enhance music instruction, assessment, and productivity by the music educator.

\$25 per credit hour curriculum content fee.

**MUS 3712: Counterpoint**

Offered: As needed

Prerequisite: MUS 2723 Theory IV

The contrapuntal techniques and forms of the Baroque era. Analysis of Canons, two and three part Inventions, and fugues of J.S. Bach plus written exercises in two voice counterpoint.

\$25 per credit hour curriculum content fee.

**MUS 3723: Electronic Music Creation**

Composition and production of select electronic music genres through in-class exercises and bi-weekly assignments.

\$30 course fee. \$25 per credit hour curriculum content fee.

**MUS 3762: Instrumental and Choral Arranging**

Offered: Spring

Prerequisite: MUS 2723 Theory IV

An introduction to scoring for instrumental and choral groups to meet the needs of adapting music to meet the needs and ability levels of school performing groups and classroom situations.

\$25 per credit hour curriculum content fee.

**MUS 3771: Composition**

Offered: As needed

Prerequisites: 16 hours of music theory and senior standing or consent of instructor.

The study of basic compositional techniques of twentieth-century works and completion of composition project.

\$25 per credit hour curriculum content fee.

**MUS 3772: Composition**

Offered: As needed

Prerequisites: 16 hours of music theory and senior standing or consent of instructor.

The study of basic compositional techniques of twentieth-century works and completion of composition project.

\$25 per credit hour curriculum content fee.

**MUS 3773: History of Music I**

Offered: Fall

Prerequisites: MUS 2723 Theory IV (Theory IV) or permission of instructor.

A study of Western Art music from ancient civilization to A.D. 1750.

\$25 per credit hour curriculum content fee.

**MUS 3783: History of Music II**

Offered: Spring

Prerequisite: MUS 2723 Theory IV or permission of instructor.

A study of classical and 19th century music.

\$25 per credit hour curriculum content fee.

**MUS 3802: Principles of Conducting**

Offered: Fall

Principles and practices of conducting; a study of music terminology and transpositions; development of baton techniques based on the practice of outstanding choral and instrumental conductors.

\$25 per credit hour curriculum content fee.

**MUS 3821: Secondary Choral Methods and Materials I**

Offered: Fall

Prerequisite: Acceptance into state II or permission of instructor.

Choral conducting techniques, tone and diction styles and interpretation, rehearsal techniques, programs and concerts, planning and organization, and service information. Conducting of student ensembles and organizations. Methods and materials I will include review of literature for large and small ensembles appropriate for middle school, junior high, and smaller high school teaching situations.

\$25 per credit hour curriculum content fee.

**MUS 3853: Music in the Elementary Classroom**

Prerequisites: MUS 2723 Theory IV, successful completion of Keyboard Exit Exam, and SEED 2002 Education as a Profession or permission of instructor.

A study of current practices, methods, and materials for teaching general music to elementary school children with emphasis on curriculum development and diversity in the classroom.

\$25 per credit hour curriculum content fee.

**MUS 4000: Capstone Recital**

Prerequisite: Six semesters or major applied study and permission of instructor.

Co-requisite: 3000 level applied instruction on major performance instrument or voice for 1, 2, or 3 hours credit.

A culmination of applied study, the capstone recital is a public exhibition of technical skills and artistic self-expression on repertory in the major performance area.

Note: Required of all music education majors.

\$175 applied music fee.

**MUS 4201: Accompanying Seminar**

Prerequisite: Two semesters of MUS 2201 Accompanying Seminar and/or permission of instructor.

Advanced accompanying techniques for piano majors. Class coaching and presentation one hour weekly, plus assigned responsibilities in a variety of media.

\$25 per credit hour curriculum content fee.

Note: May be repeated three times.

Note: May substitute for required 3000 level hour of major ensemble enrollment with assignment by instructor to successfully accompany major ensemble or recital.

**MUS 4281: Secondary Instrumental Methods and Materials II**

Offered: Spring

Prerequisite: MUS 3281 Secondary Instrumental Methods and Materials I

Laboratory experience in conducting and performance of materials appropriate to teaching band in the public school.

\$25 per credit hour curriculum content fee.

**MUS 4461: Percussion Instruments**

Prerequisite: Music major

A study of the instruments of the percussion family to the extent that scales and/or rudiments and grade one and two solos can be played on selected instruments. Designed as a practical preparation for public school teachers.

Two hours weekly. \$25 per credit hour curriculum content fee.

**MUS 4701: Teaching Music in the Elementary and Secondary School**

Offered: Spring

Prerequisites: Admission to Stage II and student teaching.

Co-requisite: SEED 4809 Teaching in the Elementary and Secondary School

Supervised student teaching in the music classroom exploring the principals of curriculum construction, teaching methods, use of community resources, assessment related to teaching music and the importance of diversity.

\$25 per credit hour curriculum content fee.

**MUS 4712: Form and Analysis**

Prerequisite: MUS 2723 Theory IV

A study of the standard forms of the Classical period with emphasis on instrumental forms and genres developed in the period 1750-1825 and the continuation and expansion of those forms in the nineteenth century.

\$25 per credit hour curriculum content fee.

**MUS 4803: History of American Music**

No previous music study required. An in-depth study of American music and its relationship to American history and culture from the 19th century to the present. Research, aural activity, and analysis are used to explore a variety of musical forms, composers, and performers.

\$25 per credit hour curriculum content fee.

**MUS 4811: Keyboard Literature**

Offered: Fall

Prerequisite: Pass piano sophomore barrier.

A survey of piano or organ literature with emphasis on historical development, analysis of selected compositions, and listings of suitable pedagogical materials.

\$25 per credit hour curriculum content fee.

**MUS 4821: Secondary Choral Methods and Materials II**

Offered: Spring

Prerequisite: MUS 3821 Secondary Choral Methods and Materials I

Choral conducting techniques, tone and diction styles and interpretation, rehearsal techniques, programs and concerts, planning and organization, and service information. Conducting of student ensembles and organizations. Methods and materials II will include a review of historically important choral works and the music of the master composers of each musical epoch. Sight singing methods for group sight reading will be reviewed.

\$25 per credit hour curriculum content fee.

**MUS 4832: Vocal Pedagogy**

Offered: Spring

Prerequisites: Pass Vocal Sophomore Barrier and Keyboard Barrier

A study of pedagogical principles involved in the teaching of singing, with emphasis on outside reading, class discussion, and laboratory teaching of actual voice students.

\$25 per credit hour curriculum content fee.

**MUS 4853: Music of the World's Peoples**

Cross-listed: ANTH 4853 Music of the World's Peoples

Open to students in all majors. A survey of predominantly non-Western world music cultures with attention to sonic structures, musicians, musical instruments, and socio-cultural contexts of music making. Listening emphasized.

\$25 per credit hour curriculum content fee.

**MUS 4951: Undergraduate Research in Music**

Offered: On demand

Prerequisite: Departmental approval

Advanced students carry out independent research activity relating to a significant problem in a major field of study. Supervised by faculty member. Formal report and presentation required. One to four credits depending on problem selected and effort made.

\$25 per credit hour curriculum content fee.

**MUS 4952: Undergraduate Research in Music**

Offered: On demand

Prerequisite: Departmental approval

Advanced students carry out independent research activity relating to a significant problem in a major field of study. Supervised by faculty member. Formal report and presentation required. One to four credits depending on problem selected and effort made. \$25 per credit hour curriculum content fee.

**MUS 4953: Undergraduate Research in Music**

Offered: On demand

Prerequisite: Departmental approval

Advanced students carry out independent research activity relating to a significant problem in a major field of study. Supervised by faculty member. Formal report and presentation required. One to four credits depending on problem selected and effort made. \$25 per credit hour curriculum content fee.

**MUS 4954: Undergraduate Research in Music**

Offered: On demand

Prerequisite: Departmental approval

Advanced students carry out independent research activity relating to a significant problem in a major field of study. Supervised by faculty member. Formal report and presentation required. One to four credits depending on problem selected and effort made. \$25 per credit hour curriculum content fee.

**MUS 4971: Marching Band Techniques**

Offered: Fall

Prerequisite: Music major, pass Sophomore Barrier.

A study of the techniques and skills necessary to create and maintain a successful marching band program at the high school level. \$25 per credit hour curriculum content fee.

**MUS 4983: Sound Design Seminar**

Cross-listed: ART 4983 Sound Design Seminar

Prerequisite: GAME 2013 Digital Audio Production or MUS 2013 Digital Audio Production and MUS 3723 Electronic Music Creation

Advanced study of synthesis and sampling technologies through state-of-the-art audio technology available at the ATU Media and Audio Labs. \$20 per credit hour junior level - curriculum content fee.

**MUS 4991: Special Problems in Music**

Offered: As needed

Prerequisites: Senior standing and permission of the instructor.

Additional work in an area of the student's choice under the direction of the faculty member competent in that area. \$25 per credit hour curriculum content fee.

**MUS 4992: Special Problems in Music**

Offered: As needed

Prerequisites: Senior standing and permission of the instructor.

Additional work in an area of the student's choice under the direction of the faculty member competent in that area. \$25 per credit hour curriculum content fee.

**MUS 4993: Special Problems in Music**

Offered: As needed

Prerequisites: Senior standing and permission of the instructor.

Additional work in an area of the student's choice under the direction of the faculty member competent in that area. \$25 per credit hour curriculum content fee.

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**NUCLEAR MEDICINE TECHNOLOGY (NUMT)**

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**NUMT 4001: Professional Coursework**

Prerequisite: Acceptance by one of our affiliated schools for the senior year of professional courses.

This generalized course designation is used to represent specific coursework offered by affiliated schools in areas such as clinical chemistry and instrumentation, bodily fluids, microbiology, hematology, immuno-hematology, serology, parasitology, radiobiology, diagnostic nuclear medicine, radiation health physics, nuclear physics/radiochemistry, computed tomography, radiopharmacy/radionuclide therapy, and seminars.

**NUMT 4002: Professional Coursework**

Prerequisite: Acceptance by one of our affiliated schools for the senior year of professional courses.

This generalized course designation is used to represent specific coursework offered by affiliated schools in areas such as clinical chemistry and instrumentation, bodily fluids, microbiology, hematology, immuno-hematology, serology, parasitology, radiobiology, diagnostic nuclear medicine, radiation health physics, nuclear physics/radiochemistry, computed tomography, radiopharmacy/radionuclide therapy, and seminars.

**NUMT 4003: Professional Coursework**

Prerequisite: Acceptance by one of our affiliated schools for the senior year of professional courses.

This generalized course designation is used to represent specific coursework offered by affiliated schools in areas such as clinical chemistry and instrumentation, bodily fluids, microbiology, hematology, immuno-hematology, serology, parasitology, radiobiology, diagnostic nuclear medicine, radiation health physics, nuclear physics/radiochemistry, computed tomography, radiopharmacy/radionuclide therapy, and seminars.

**NUMT 4004: Professional Coursework**

Prerequisite: Acceptance by one of our affiliated schools for the senior year of professional courses.

This generalized course designation is used to represent specific coursework offered by affiliated schools in areas such as clinical chemistry and instrumentation, bodily fluids, microbiology, hematology, immuno-hematology, serology, parasitology, radiobiology, diagnostic nuclear medicine, radiation health physics, nuclear physics/radiochemistry, computed tomography, radiopharmacy/radionuclide therapy, and seminars.

**NUMT 4005: Professional Coursework**

Prerequisite: Acceptance by one of our affiliated schools for the senior year of professional courses.

This generalized course designation is used to represent specific coursework offered by affiliated schools in areas such as clinical chemistry and instrumentation, bodily fluids, microbiology, hematology, immuno-hematology, serology, parasitology, radiobiology, diagnostic nuclear medicine, radiation health physics, nuclear physics/radiochemistry, computed tomography, radiopharmacy/radionuclide therapy, and seminars.

**NUMT 4006: Professional Coursework**

Prerequisite: Acceptance by one of our affiliated schools for the senior year of professional courses.

This generalized course designation is used to represent specific coursework offered by affiliated schools in areas such as clinical chemistry and instrumentation, bodily fluids, microbiology, hematology, immuno-hematology, serology, parasitology, radiobiology, diagnostic nuclear medicine, radiation health physics, nuclear physics/radiochemistry, computed tomography, radiopharmacy/radionuclide therapy, and seminars.

**NUMT 4007: Professional Coursework**

Prerequisite: Acceptance by one of our affiliated schools for the senior year of professional courses.

This generalized course designation is used to represent specific coursework offered by affiliated schools in areas such as clinical chemistry and instrumentation, bodily fluids, microbiology, hematology, immuno-hematology, serology, parasitology, radiobiology, diagnostic nuclear medicine, radiation health physics, nuclear physics/radiochemistry, computed tomography, radiopharmacy/radionuclide therapy, and seminars.

**NUMT 4008: Professional Coursework**

Prerequisite: Acceptance by one of our affiliated schools for the senior year of professional courses.

This generalized course designation is used to represent specific coursework offered by affiliated schools in areas such as clinical chemistry and instrumentation, bodily fluids, microbiology, hematology, immuno-hematology, serology, parasitology, radiobiology, diagnostic nuclear medicine, radiation health physics, nuclear physics/radiochemistry, computed tomography, radiopharmacy/radionuclide therapy, and seminars.

**NUMT 4009: Professional Coursework**

Prerequisite: Acceptance by one of our affiliated schools for the senior year of professional courses.

This generalized course designation is used to represent specific coursework offered by affiliated schools in areas such as clinical chemistry and instrumentation, bodily fluids, microbiology, hematology, immuno-hematology, serology, parasitology, radiobiology, diagnostic nuclear medicine, radiation health physics, nuclear physics/radiochemistry, computed tomography, radiopharmacy/radionuclide therapy, and seminars.

**NURSING (NUR)****NUR 1001: Orientation to Nursing**

A one hour elective course for students interested in pursuing nursing as a professional career. The student is introduced to the history of nursing, issues and trends, basic nursing education, advanced education for nurses, and nursing career opportunities. Students interested in nursing or a career in science are encouraged to take this course during the fall semester of their freshman year.

\$5 course fee. \$25 per credit hour curriculum content fee.

**NUR 2023: Introduction to Professional Nursing**

Prerequisite: Admission to upper division nursing

A non-clinical, three hour course which introduces the student to selected basic concepts in professional nursing. Purpose of the course is to introduce nursing concepts to nursing majors. The course focuses on nursing as a caring profession, nurses' roles and functions, ethics, standards, legal aspects, holism, wellness, health care settings, communication, teaching/learning, critical thinking, and the nursing process. The Conceptual Framework and Philosophy of Tech's Department of Nursing will be explored.

\$150 testing fee. \$15 course fee. \$25 per credit hour curriculum content fee.

**NUR 2303: Nutrition**

Principles of normal nutrition at all stages of the life cycle are emphasized. Growth and development needs are incorporated into the maintenance, restoration of nutritional health, and in the prevention of nutritional deficit. Exploration is conducted of the social, religious, and cultural factors which affect the family's nutritional health.

\$15 course fee. \$25 per credit hour curriculum content fee.

### **NUR 3103: Nursing Skills I**

Prerequisite: Admission into upper division nursing courses.

The course provides the student with theory and guided practice of basic psychomotor and math nursing skills in a multimedia simulated laboratory setting.

Lecture 2 hours, laboratory 3 hours equal to one credit hour. \$190 skills kit fee. \$15 course fee. \$25 per credit hour curriculum content fee.

### **NUR 3204: Theories and Concepts in Nursing I**

Prerequisites: NUR 2023 Introduction to Professional Nursing, 3103, 3303, 3803 and admission into upper level junior nursing courses.

Co-requisite: NUR 3404 Practicum in Nursing I - Nursing the Individual Client

This course is an introduction to the cognitive framework of the curriculum which emphasizes holistic man, environment, and nursing as an interacting system. The course focuses on bio psycho social and spiritual behaviors as indicators of health throughout the life cycle. The nursing process and the scientific method of problem solving are presented as systematic approaches to nursing care. Further emphasis is placed on assessment of health needs and health practices of individuals in structured episodic health care settings. Beginning concepts of professionalism and care of clients with self-limiting alterations to health are integral parts of this course.

Lecture four hours. \$150 testing fee. \$20 course fee. \$25 per credit hour curriculum content fee.

### **NUR 3213: Care of the Older Adult**

Prerequisites: NUR 3103 Nursing Skills I, NUR 2023 Introduction to Professional Nursing, and PSY 3813 Lifespan Development

This course will include a study of communication with individuals, families and groups. It will also provide the foundational basis for the professional care of older adults and their families. Care of the older adult introduces trends, theories and multidimensional changes of aging and addresses issues related to wellness, health promotion, and disease prevention in older adults.

\$15 course fee. \$25 per credit hour curriculum content fee.

### **NUR 3303: Health Assessment**

Prerequisite: Departmental permission or admission to upper division.

The student uses the nursing process to assess the client by the utilization of observation, palpation, percussion, and auscultation skills. The language of Health Assessment is taught and methods of proper documentation are emphasized. The course provides guidance in specific assessment techniques and enables the student to recognize normal findings throughout the life cycle. The student collaborates with members of the healthcare team in the sharing of health findings in order to make a specific nursing diagnosis.

Lecture 2 hours, laboratory 3 hour. \$25 course fee. \$25 per credit hour curriculum content fee.

### **NUR 3402: Pharmacology I**

Prerequisites: NUR 2023 Introduction to Professional Nursing and 3103

This course focuses on the relationships between the action of drugs, their effects and the contraindications for their administration. The relationship between specific patient needs and the type of drugs that would be effective to meet those needs will be analyzed. The nursing care related to each type of drug and the rationales for care will be included.

Note: If a student withdraws from this course, he/she must withdraw from NUR 3404 Practicum in Nursing I - Nursing the Individual Client.

\$10 course fee. \$25 per credit hour curriculum content fee.

### **NUR 3404: Practicum in Nursing I - Nursing the Individual Client**

Prerequisites: NUR 2023 Introduction to Professional Nursing, NUR 3103 Nursing Skills I, and NUR 3303 Health Assessment

Co-requisite: NUR 3204 Theories and Concepts in Nursing I

Practicum facilitating the integration, synthesis, and application of theories, concepts, and psychomotor nursing skills taught in NUR 3103 Nursing Skills I, 3204, 3304 and 3513. The student uses maintenance nursing behaviors to assist individuals to reach functional adaptation.

12 Clinical hours equal to 4 credit hours. \$20 course fee. \$100 simulation fee. \$15 PPE fee. \$25 per credit hour curriculum content fee.

### **NUR 3503: End-of-Life Care**

This course is designed to offer basic skills and knowledge needed to recognize and intervene with a client at the end of life. Emphasis is to implement the nursing process with clients at the end of life. Students will apply concepts, theories, principals and techniques gained from their general education and previous nursing courses.

\$15 course fee. \$25 per credit hour curriculum content fee.

### **NUR 3513: Nursing Skills II**

Prerequisite: NUR 3103 Nursing Skills I

A continuation of NUR 3103 Nursing Skills I. A guided practice of intermediate level theory and skills in a multimedia simulation laboratory.

Lecture 2 hour, laboratory 3 hours equal to one credit hour. \$15 course fee. \$25 per credit hour curriculum content fee.

### **NUR 3606: Theories and Concepts in Nursing II**

Prerequisites: NUR 3204 Theories and Concepts in Nursing I, 3402, 3404, 3513

Co-requisite: NUR 3805 Practicum in Nursing II - Nursing the Family



This course, utilizing the nursing process, builds upon NUR 3204 Theories and Concepts in Nursing I and includes the bio psycho social and spiritual needs of the family. The course emphasizes family development, care of the surgical patient, the childbearing experience, and the child's unique response to the internal and external environment.

Lecture six hours. \$150 testing fee. \$30 course fee. \$25 per credit hour curriculum content fee.

### **NUR 3792: Theoretical Competency I**

Prerequisite: Departmental permission

This course is a theory course designed to enable a student to prove theoretical competence. Students who have failed a junior level practicum course but have passed the accompanying theories and concepts course must prove theoretical competence in order to progress to the next level. For the student who has failed, NUR 3792 Theoretical Competency I would be taken the same semester the student is repeating the accompanying practicum course. Students who have been absent from the upper division of the nursing curriculum must prove theoretical competence at the level of the corresponding theory class.

\$10 course fee. \$25 per credit hour curriculum content fee.

### **NUR 3802: Pharmacology II**

Prerequisites: NUR 3204 Theories and Concepts in Nursing I, NUR 3402 Pharmacology I, NUR 3404 Practicum in Nursing I - Nursing the Individual Client

This course is a continuation of Pharmacology I and focuses on the relationships between the action of drugs, their effects and the contraindications for their administration. The relationship between specific patient needs and the type of drugs that would be effective to meet those needs will be analyzed. The nursing care related to each type of drug and the rationales for the care will be included.

\$10 course fee. \$25 per credit hour curriculum content fee.

### **NUR 3803: Applied Pathophysiology**

Cross-listed: BIOL 3803 Applied Pathophysiology

Prerequisites: BIOL 2014 Human Anatomy or BIOL 2404 Human Anatomy and Physiology I and BIOL 2414 Human Anatomy and Physiology II or BIOL 3074 Human Physiology

This course focuses on the mechanisms and concepts of selected pathological disturbances in the human body. Emphasis is placed on how the specific pathological condition effects the functioning of the system involved, as well as its impact on all other body systems.

\$15 course fee. \$25 per credit hour curriculum content fee.

### **NUR 3805: Practicum in Nursing II - Nursing the Family**

Prerequisites: NUR 3204 Theories and Concepts in Nursing I, 3402, 3404, 3513

Co-requisites: NUR 3606 Theories and Concepts in Nursing II

A practicum course which facilitates the integration, synthesis, and application of the theories, concepts, and skills taught in NUR 3103 Nursing Skills I, NUR 3513 Nursing Skills II, NUR 3606 Theories and Concepts in Nursing II and NUR 3703.

15 clinical hours equal to 5 credit hours. \$25 course fee. \$100 simulation fee. \$15 PPE fee. \$25 per credit hour curriculum content fee.

### **NUR 3892: Clinical Competency I**

This course is required to demonstrate competence for practicum/laboratory courses as described in the progression policy of the Department of Nursing. For students requiring demonstration of competence, NUR 3892 Clinical Competency I would be taken the same semester the student is repeating an accompanying theoretical course. Students who have been absent from the upper division of the nursing curriculum must prove clinical/laboratory competence at the level of the last practicum/laboratory course they successfully completed before they can re-enter upper division.

\$10 course fee. \$25 per credit hour curriculum content fee.

### **NUR 4206: Theories and Concepts in Nursing III**

Prerequisites: NUR 3606 Theories and Concepts in Nursing II, 3802, 3805

The course focuses on the prevention of illness, maintenance of health and the restoration of wellness in the care of clients and families experiencing major dysfunctions in adaptation. The nursing process is the methodology used to assist clients and families toward achieving optimal health. Principles of growth and development throughout the life cycle, utilization of research findings, principles of communication in crisis, and the role of the nurse in crises situations are included in the course. Psycho social theories and concepts relevant to the care of the emotionally disturbed client and family are explored in depth.

Lecture six hours. \$150 testing fee. \$30 course fee. \$25 per credit hour curriculum content fee.

### **NUR 4303: Nursing Research**

Prerequisites: Admission to upper division nursing, senior standing or consent of instructor.

This introductory research course focuses on the validity and applicability of research findings for the improvement of nursing practice. Emphasis is on scientific inquiry and the role of the nurse as an intelligent consumer of research.

\$15 course fee. \$25 per credit hour curriculum content fee.

### **NUR 4405: Practicum in Nursing III -- Nursing Clients in Crisis**

Prerequisites: NUR 3606 Theories and Concepts in Nursing II, 3802 and 3805

Co-requisites: NUR 4206 Theories and Concepts in Nursing III

This is a clinical nursing course which provides the opportunity for the integration of theories and concepts in the application of the nursing process in the care of the emotionally and/or physically dysfunctional client, family or group who are undergoing adaptation difficulties due to major deviations from wellness. The health care is delivered according to scientific principles, research findings, and accepted standards of care. Nursing behaviors and nursing roles are emphasized which are appropriate to the level of the students. Learning experiences are gained through caring for clients. 15 clinical hours equal to 5 credit hours. \$25 course fee. \$100 simulation fee. \$15 PPE fee. \$25 per credit hour curriculum content fee.

### **NUR 4502: Principles of ACLS**

Prerequisite: Departmental permission or consent of the instructor.

This course is designed to offer the student the knowledge and skills necessary to provide appropriate early treatment for cardiopulmonary arrest in the adult patient utilizing current ACLS protocols as guidelines for emergency care.

\$10 course fee. \$25 per credit hour curriculum content fee.

### **NUR 4606: Theories and Concepts in Nursing IV**

Prerequisites: NUR 4206 Theories and Concepts in Nursing III, 4303, and 4405

The course focuses on the prevention of illness, maintenance of health, and the restoration of wellness of individuals, families, and communities. Concepts of epidemiology, prevention, decision making, and collaboration are utilized to organize and deliver distributive nursing care in complex situations. Theories and techniques of management are studied which relate to self, team members, and care of groups of clients. The emerging role of the professional nurse is explored.

Lecture six hours. \$150 testing fee. \$30 course fee. \$25 per credit hour curriculum content fee.

### **NUR 4792: Theoretical Competency II**

Prerequisite: Departmental permission

This course is a theory course designed to enable a student to prove theoretical competence. Students who have failed a senior level practicum course but have passed the accompanying theories and concepts course must prove theoretical competence in order to progress to the next level. For the student who has failed, NUR 4792 Theoretical Competency II would be taken the same semester the student is repeating the accompanying practicum course. Students who have been absent from the upper division of the nursing curriculum must prove theoretical competence at the level of the corresponding theory class.

\$10 course fee. \$25 per credit hour curriculum content fee.

### **NUR 4804: Practicum in Nursing IV - Nursing in the Community**

Prerequisites: NUR 4206 Theories and Concepts in Nursing III and 4405

Co-requisites: NUR 4606 Theories and Concepts in Nursing IV and 4903

A clinical course which integrates theories and concepts from all nursing courses and provisions for practice in predominantly distributive healthcare settings. Emphasis is on the utilization of the nursing process, the prevention of illness, maintenance of health, and the restoration of wellness of individuals, families, and communities, experiencing adaptation to complex health problems. Management skills and techniques are utilized in the delivery of holistic nursing care. Activities are provided which facilitate the role transition from student to professional nurse. Clinical experiences occur in a variety of distributive healthcare settings.

12 clinical hours. \$20 course fee. \$100 simulation fee. \$15 PPE fee. \$25 per credit hour curriculum content fee.

### **NUR 4892: Clinical Competency II**

This course is required to demonstrate competence for practicum/laboratory courses as described in the progression policy of the Department of Nursing. For students requiring demonstration of competence, NUR 4892 Clinical Competency II would be taken the same semester the student is repeating an accompanying theoretical course. Students who have been absent from the upper division of the nursing curriculum must prove clinical/laboratory competence at the level of the last practicum/laboratory course they successfully completed before they re-enter upper division.

\$10 course fee. \$25 per credit hour curriculum content fee.

### **NUR 4903: Synthesis of Clinical and Theoretical Nursing**

Synthesis of clinical and theoretical nursing knowledge occurs throughout the course. Students will be required to use all previously learned clinical and theoretical knowledge in the management of a diverse client population for which they are planning and providing a full-range of needed health care. Theory and clinical application of nursing knowledge must be integrated in order to prioritize, delegate, and ensure the delivery of comprehensive health care to clients in a variety of institutional and community-based settings. Students work closely with designate professional nurse preceptors and faculty in carrying out these learning activities.

\$145 testing fee. \$15 course fee. \$25 per credit hour curriculum content fee.

### **NUR 4951: Undergraduate Research in Nursing**

Offered: On demand

Prerequisite: Departmental approval

Advanced students carry out independent research activity relating to a significant problem in a major field of study. Supervised by faculty member. Formal report and presentation required. One to four credits depending on problem selected and effort made.

\$5 course fee per credit hour. \$25 per credit hour curriculum content fee.

### **NUR 4952: Undergraduate Research in Nursing**

Offered: On demand

Prerequisite: Departmental approval

Advanced students carry out independent research activity relating to a significant problem in a major field of study. Supervised by faculty member.

Formal report and presentation required. One to four credits depending on problem selected and effort made.

\$5 course fee per credit hour. \$25 per credit hour curriculum content fee.

### **NUR 4953: Undergraduate Research in Nursing**

Offered: On demand

Prerequisite: Departmental approval

Advanced students carry out independent research activity relating to a significant problem in a major field of study. Supervised by faculty member.

Formal report and presentation required. One to four credits depending on problem selected and effort made.

\$5 course fee per credit hour. \$25 per credit hour curriculum content fee.

### **NUR 4954: Undergraduate Research in Nursing**

Offered: On demand

Prerequisite: Departmental approval

Advanced students carry out independent research activity relating to a significant problem in a major field of study. Supervised by faculty member.

Formal report and presentation required. One to four credits depending on problem selected and effort made.

\$5 course fee per credit hour. \$25 per credit hour curriculum content fee.

### **NUR 4971: Pharmacology Review**

Prerequisite: NUR 3402 Pharmacology I and 3802

One hour credit course that reviews basic pharmacology, drug calculations utilizing dimensional analysis, drug classifications with emphasis on NCLEX style questions, nursing considerations and safe medication administration. There will be an emphasis on Black Box warnings, QSEN, patient assessment and patient education related to medication administration. This course is designed as a review of information for the nursing major who has already completed NUR 3402 Pharmacology I and NUR 3802 Pharmacology II.

\$5 course fee. \$25 per credit hour curriculum content fee.

### **NUR 4981: Introduction to Oncology**

Prerequisite: Admission to upper division nursing

This course is an overview of the different aspects of treatment of patients with cancer. It will include a short synopsis on the cellular changes that occur with cancer, the different preventives and diagnostics that are done, the modalities of treatment and management of side effects, as well as the emotional and psychological impact of cancer on the patient and their significant others. This course builds upon and expands core knowledge of human anatomy, physiology, and psychology.

\$5 course fee. \$25 per credit hour curriculum content fee.

### **NUR 4983: Nursing Perspectives on Aging**

Prerequisite: Admission to upper division nursing

As the "baby boom" generation turns 65 the percentage of older Americans will increase to over 30% of the population by 2030. This course will prepare nurses to meet the needs of this increasing population in Arkansas and the U.S. Content will focus on preserving health and promoting wellness in aging individuals. The course will also build a knowledge base for nurses' participation in managing health care problems and developing strategies for promoting well ness in aging individuals.

\$15 course fee. \$25 per credit hour curriculum content fee.

### **NUR 4990: Independent Study**

Prerequisites: Departmental permission or NUR 4303 Nursing Research

Faculty and student collaborate on the selection, development, and evaluation of an individual project or topic in an area of nursing or health.

### **NUR 4991: Independent Study**

Prerequisites: Departmental permission or NUR 4303 Nursing Research

Faculty and student collaborate on the selection, development, and evaluation of an individual project or topic in an area of nursing or health.

15 clock hours per credit hour. \$5 course fee per credit hour. \$25 per credit hour curriculum content fee.

### **NUR 4992: Independent Study**

Prerequisites: Departmental permission or NUR 4303 Nursing Research

Faculty and student collaborate on the selection, development, and evaluation of an individual project or topic in an area of nursing or health.

15 clock hours per credit hour. \$5 course fee per credit hour. \$25 per credit hour curriculum content fee.

### **NUR 4993: Independent Study**

Prerequisites: Departmental permission or NUR 4303 Nursing Research

Faculty and student collaborate on the selection, development, and evaluation of an individual project or topic in an area of nursing or health.

15 clock hours per credit hour. \$5 course fee per credit hour. \$25 per credit hour curriculum content fee.

### **NUR 4994: Independent Study**

Prerequisites: Departmental permission or NUR 4303 Nursing Research

Faculty and student collaborate on the selection, development, and evaluation of an individual project or topic in an area of nursing or health.

15 clock hours per credit hour. \$5 course fee per credit hour. \$25 per credit hour curriculum content fee.

## **NURSING FOR REGISTERED NURSES (NURN)**

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### **NURN 4002: Nursing Informatics**

Prerequisite: Admission to Upper Division or consent of instructor.

This course will enable the RN-BSN student to examine the field of informatics and its impact on healthcare within a professional nursing context. Emphasis is on usage of technology and recognizing legal implications of technology in healthcare and education. Students will become familiar with communication software, databases, and applications utilized in healthcare and education to enhance the role of the nurse.

\$10 course fee.

### **NURN 4003: Scope of Professional Practice**

Prerequisite: Admission to Upper Division or consent of instructor.

This course will enable the RN-BSN student to recognize how history and modern economic forces have shaped current professional practice. The student will examine the development of Nurse Practice Acts and how states use these Acts to manage professional licenses and scope of professional practice. The student will examine the variety of roles and setting in which the professional nurse can work.

\$15 course fee.

### **NURN 4013: Laws, Ethics, and Issues in Professional Nursing Practice**

Prerequisite: Admission to Upper Division or consent of instructor.

This course will enable the RN-BSN student to examine the legal, ethical, and policy-making traditions that frame the health care industry. This course will emphasize the integration of personal values, institutional cultures, law, and ethical decision-making in professional practice.

\$15 course fee.

### **NURN 4024: Community Health Nursing**

Prerequisite: Admission to Upper Division or consent of instructor.

This course will introduce the RN-BSN student to the concepts and principles relevant to the promotion, support, and restoration of health for clients of all ages in a variety of settings with particular emphasis upon the health of populations or groups. The student will perform a community assessment which involves the collection and analysis of data from a selected community to plan appropriate educational interventions.

\$20 course fee.

### **NURN 4034: Leadership and Management in Professional Practice**

Prerequisite: Admission to Upper Division or consent of instructor.

This practicum course will enable the RN-BSN student to recognize the principles and concepts of change theory and leadership/management strategies in professional practice. The student will examine how current leadership and management strategies are implemented within the health care settings and how effective and efficient these strategies are to health care delivery and consumer health. Management and leadership issues significant to nurse managers will be examined and discussed.

\$20 course fee.

### **NURN 4045: Professional Practicum Synthesis**

Prerequisite: NURN 4024 Community Health Nursing and admission to Upper Division or consent of instructor.

This practicum course enables the RN-BSN student to integrate the skills and insights gained from this program in a population or group-based application. This capstone course demonstrates the cognitive and affective growth achieved while in the RN-BSN Completion Program.

\$25 course fee.

### **NURN 4303: Nursing Research**

This introductory research course focuses on the validity and applicability of research findings for the improvement of nursing practice. Emphasis is on scientific inquiry and the role of the nurse as an intelligent consumer of research.

\$15 course fee.

## **ORGANIZATIONAL LEADERSHIP (OL)**

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### **OL 3003: Leading Teams**

This is a course on leadership development and team building, where students will gain an understanding in the concepts, theories, and best practices regarding effective leadership.

**OL 3013: Foundations of Organizational Leadership**

This course presents a broad survey of leadership theory and competencies in the private and nonprofit sector. Topics include the examination of leadership models, nonprofit and community leadership, workplace learning, supervision, organizational development and change, globalization and diversity, and organizational leadership competencies.

Note: Participation in the course requires access to a computer, the internet, and a web or other video capture technology.

**OL 3023: Professional Communications**

Cross-listed: PS 3023 Professional Communications

Prerequisites: Successful completion of the general education English requirement.

This course introduces theories and practice of communication appropriate for a variety of professional settings. Course topics include, but are not limited to, communication, teamwork, business writing, technology, public speaking, conducting effective meetings, factors affecting communication, and challenges and opportunities for communication in the workplace. Students will work individually and as members of project groups to effectively carry out course learning objectives.

Note: Participation in the course requires access to a computer, the internet, and a webcam or other video capture technology.

**OL 3133: Principles of Personnel Management**

Cross-listed: PS 3133 Principles of Personnel Management

Prerequisite: Successful completion of the general education English requirement.

This course supports the needs of professionals whose career fields require competencies in the area of human resources/personnel management. The focus of the course is on the practical application, essential theories, and process of personnel management from the perspective of a generalist. Course content will include the essential aspects of recruitment, selection, training, legal rights and responsibilities, compensation and appraisal.

Note: Participation in the course requires access to a computer, the internet, and a webcam or other video capture technology.

**OL 3143: Applied Research**

Cross-listed: PS 3143 Applied Research

Prerequisite: Successful completion of the general education English requirement or permission of instructor.

In this course, students will learn the basic skills necessary to identify, define, research, and analyze complex organizational issues. Students will learn applied research fundamentals, including literature searches and analysis, needs assessment, data collection and management, sampling strategies, survey design and questionnaire development, proposal and report writing, and research ethics in organizations.

Note: This course must be taken as a prerequisite for OS/PS 4943 Applied Leadership Project unless waived upon advisor approval.

Note: Participation in the course requires access to a computer, the internet, and a webcam or other video capture technology.

**OL 4043: Ethical Leadership**

The purpose of this course is to explore ethics in leadership through the examination of four broad topics: a) a survey of the branches of ethics, b) individual ethical awareness and development, c) the intersection of ethics, leadership, and power, and d) the role of leader in establishing and maintaining ethical organizational cultures through organizational learning. Students will work individually and in groups to identify, refine, and apply their own moral and ethical perspectives to complex organizational issues.

Note: Participation in the course requires access to a computer, the internet, and a webcam or other video capture technology.

**OL 4053: Philanthropy and Fundraising**

Students develop a comprehensive knowledge of philanthropy, advancement, and fundraising and their application to nonprofit organizations and nongovernmental entities, regardless of size, structure, or mission. Through the development, analysis, and application of a philanthropic framework, students will create and convey an organizational case for support and a fundraising/advancement plan based upon organizational mission and capacity.

Note: Participation in the course requires access to a computer, the internet, and a webcam or other video capture technology.

**OL 4143: Nonprofit Governance**

Cross-listed: PS 4143 Nonprofit Governance

Prerequisite: Successful completion of the general education English requirement.

This course examines the theoretical, philosophical, practical and ethical perspectives related to the effective management and leadership of nonprofit organizations in the twenty-first century. Upon completion of the course, the student will possess an understanding of 1) the historical development of the nonprofit sector, 2) the multiple rationales for the existence of the nonprofit sector, 3) the distinctive characteristics of nonprofit organizations, 4) the structures, processes and complexities of organizational governance shared by volunteer board members and professional staff, 5) the dynamic environment of the contemporary nonprofit organization, and 6) the current issues of importance to nonprofit decision makers.

Note: Participation in the course requires access to a computer, the internet, and a webcam or other video capture technology.

**OL 4243: Adult Learning in Organizations**

Cross-listed: PS 4243 Adult Learning in Organizations

Prerequisite: Successful completion of the general education English requirement or permission of instructor.

This course provides an overview of adult learning in the context of the workplace. Students will explore the historical context of learning in the workplace, basic theories of instructional design and adult learning, frameworks and models of program planning in the workplace, learning interventions, and the overall relationship between lifelong learning and work.

Note: Participation in the course requires access to a computer, the internet, and a webcam or other video capture technology.

### **OL 4343: Community Development**

Cross-listed: PS 4343 Community Development

Prerequisite: Successful completion of the general education English requirement.

This course covers the basic principles and issues in community development in the United States. Topics include: the definition of community; community assessment; methods of planning and problem solving; community needs; community assets; and community activism; and evaluating community based organizations. Students will work individually and in groups to design a non-profit organization based on a community needs assessment. The focus will be on assessment, planning, leadership, financing, and evaluating a community-based organization.

Note: Participation in the course requires access to a computer, the internet, and a webcam or other video capture technology.

### **OL 4443: Professional Leadership**

Cross-listed: PS 4443 Professional Leadership

Prerequisite: Successful completion of the general education English requirement.

This course provides an overview of various leadership styles practiced by professionals in the public and private sector. The focus of the leadership skills identified will focus on the following competency areas: operations management, technology applications, facilities planning and management, human resource management, fiscal management, and organizational behavior.

Note: Participation in the course requires access to a computer, the internet, and a webcam or other video capture technology.

### **OL 4543: Workplace Supervision**

Cross-listed: PS 4543 Workplace Supervision

Prerequisite: Successful completion of the general education English requirement.

This course provides an overview of various leadership and supervisory skills practiced by professionals in the public and private sector. The leadership skills identified will focus on the following competency areas: communication, employee coaching, project management, business analysis, continuous improvement, and resource management and how they pertain to supervisors within the workplace.

Note: Participation in the course requires access to a computer, the internet, and a webcam or other video capture technology.

### **OL 4643: Organizational Globalization and Diversity**

Cross-listed: PS 4643 Organizational Globalization and Diversity

Prerequisite: Successful completion of the general education English requirement.

This course will discuss cultural (racial, gender, ethnic, religious) and global diversity in the workplace and classroom. Topics include cultural self-awareness, the impact of demographic changes and projections, issues in cross/intercultural settings, and theoretical perspectives of multicultural education. Applied strategies from personal, leadership, and management perspective will be explored.

Note: Participation in the course requires access to a computer, the internet, and a webcam or other video capture technology.

### **OL 4743: Organizational Change**

Cross-listed: PS 4743 Organizational Change

Prerequisite: Successful completion of general education English requirement.

This course is designed to provide students with both the conceptual framework and the practical skills needed to design, implement and evaluate effective organizational change. Uncertainty, complexity and rapidly changing organizational environments create the necessity for organizations to adapt in order to survive in the 21st century. Students will work individually or in groups to engage in various activities intended to illustrate or practice the skills involved in planning and implementing organizational change.

Note: Participation in the course requires access to a computer, the internet, and a webcam or other video capture technology.

### **OL 4843: Training and Organizational Development**

Cross-listed: PS 4843 Training and Organizational Development

This course is designed to introduce students to training and development in organizations. Students will learn about practical approaches and models to employee training, coaching, mentoring, and performance improvement in a workplace setting. Topics include strategic training, training design, training methods, evaluation, diversity training, and ethics.

Note: Participation in the course requires access to a computer, the internet, and a webcam or other video capture technology.

### **OL 4943: Applied Leadership Project**

Cross-listed: PS 4943 Applied Leadership Project

Prerequisites: Successful completion of general education English requirement, OL/PS 3143 Applied Research, and permission of the program advisor.

This course will provide an opportunity for the student to facilitate a process for identifying a specific problem in an actual industry or business environment relevant to the student's specialty area. The student will outline a formal plan of action for identifying the problem through the development of a needs assessment which identifies deficiencies or areas of improvement needed within the business. At the conclusion, the student will develop a strategic recommended plan of action based on the findings from the empirical research. The student will demonstrate presentation ability, appropriate leadership styles, critical thinking, and communications skills in a formal presentation of the strategic plan to the group responsible for implementing the strategies.

Note: Student must earn a grade of C or higher to enroll in OL/PS 4963 Organizational Leadership Capstone.

Note: Participation in the course requires access to a computer, the internet, and a webcam or other video capture technology.

### **OL 4963: Organizational Leadership Capstone**

Cross-listed: PS 4963 Organizational Leadership Capstone

Prerequisites: Successful completion of general education English requirement, permission of the department.

In this course, students develop an ePortfolio highlighting various competencies learned throughout the degree program. The course prepares students with the skills, knowledge, and ability to communicate a critical understanding of their work through the articulation of goals, critique, and self-assessment. The course introduces students to the portfolio development process and improves their ability to think critically and communicate more effectively while developing personal goals and mission statements, understanding personal leadership styles, researching career options related to their concentration or focused area of study, working collaboratively with other students, and engaging in critical inquiry of the role education and professional development plays in one's life.

Note: Student must earn a grade of C or higher.

Note: Participation in the course requires access to a computer, the internet, and a webcam or other video capture technology.

### **OL 4991: Special Problems in Organizational Leadership**

Prerequisite: Successful completion of the general education English requirement.

This course is designed to address current issues and topics relevant to professional disciplines in the workforce. Content will be determined by contemporary trends and timely issues.

Note: Participation in the course requires access to a computer, the internet, and a webcam or other video capture technology.

### **OL 4992: Special Problems in Organizational Leadership**

Prerequisite: Successful completion of the general education English requirement.

This course is designed to address current issues and topics relevant to professional disciplines in the workforce. Content will be determined by contemporary trends and timely issues.

Note: Participation in the course requires access to a computer, the internet, and a webcam or other video capture technology.

### **OL 4993: Special Problems in Organizational Leadership**

Prerequisite: Successful completion of the general education English requirement.

This course is designed to address current issues and topics relevant to professional disciplines in the workforce. Content will be determined by contemporary trends and timely issues.

Note: Participation in the course requires access to a computer, the internet, and a webcam or other video capture technology.

### **OL 4994: Special Problems in Organizational Leadership**

Prerequisite: Successful completion of the general education English requirement.

This course is designed to address current issues and topics relevant to professional disciplines in the workforce. Content will be determined by contemporary trends and timely issues.

Note: Participation in the course requires access to a computer, the internet, and a webcam or other video capture technology.

## **ORIENTATION (GEOR)**

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### **GEOR 1XXX: ORIENTATION**

Credit transferred from another institution and articulated for orientation.

## **PHILOSOPHY (PHIL)**

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### **PHIL 4XXX: PHILOSOPHY TRANSFER ELECTIVE**

Credit transferred from another institution and articulated for philosophy upper division elective.

### **PHIL 3XXX: PHILOSOPHY TRANSFER ELECTIVE**

Credit transferred from another institution and articulated for philosophy upper division elective.

### **PHIL 2XXX: PHILOSOPHY TRANSFER ELECTIVE**

Credit transferred from another institution and articulated for philosophy lower division elective.

### **PHIL 1XXX: PHILOSOPHY TRANSFER ELECTIVE**

Credit transferred from another institution and articulated for philosophy lower division elective.

### **PHIL 2003: Introduction to Philosophy**

ACTS Common Course - PHIL 1103

A study of major philosophical theories and methods and their practical applications.

### **PHIL 2013: Religions of the World**

An examination of the major historical religions according to their basic scripture, their historical development, and their contemporary ideas and practices.

### **PHIL 2023: Buddhist Philosophy**

Offered: Spring

More than just an intellectual activity, Buddhist philosophy aims to become a way of life for all who study it. Buddhist philosophers do address theoretical questions, but their fundamental purpose is to help us live better. This course examines the basic principles of Buddhist philosophy, addresses some of Buddhist philosophy's most profound theoretical questions and asks how Buddhist ideas can improve our daily lives. This is the course to take if you want to question the reality of time and space, find out who you really are or learn how to live your life to the fullest, free of pain and suffering.

### **PHIL 2033: The Meaning of Life**

Offered: Spring

Does life have a meaning or purpose beyond those that we find and create for ourselves? What sources of meaning and purpose can we discover that can make our lives richer and more satisfying? These two broad questions guide our inquiry into this profound subject. We are aided in our inquiry by carefully selected readings from diverse philosophical, literary and religious texts. This course is intended for those with interest in philosophy as a guide for living life. Prior knowledge of philosophy is not required.

### **PHIL 2043: Honors Introduction to Philosophy**

Prerequisites: Admission to University Honors or permission of University Honors Director.

A study of major philosophical theories and methods and their practical applications. Special emphasis will be placed on critical thinking and in-class discussion.

### **PHIL 2053: Introduction to Critical Thinking**

ACTS Common Course - PHIL 1003

The course will initiate the student in the art of analyzing and evaluating his or her thinking in order to make it more potent and persuasive. Topics will include the analysis of argument, the theory of definition, the experimental method of inquiry, and the informal fallacies.

### **PHIL 2253: Survey of Western Political Thought**

Cross-listed: POLS 2253 Survey of Western Political Thought

An introduction to the subfield of political theory, examining the works of major political thinkers from ancient Greece to the present.

### **PHIL 3003: Ancient Greek and Roman Philosophy**

An examination of the thought of the leading philosophers of ancient Greece and Rome - the Pre Socratics, Socrates, Plato, Aristotle, and representatives of the Stoic and Epicurean traditions.

### **PHIL 3023: Ethics**

An introduction to the problems of formulating and validating principles definitive of "the good" in respect to ends, means, and norms of human behavior.

### **PHIL 3033: Philosophy of Art**

An investigation of representative historical theories of beauty, the nature and social significance of art, standards of criticism, and epistemological aspects of the creative process.

### **PHIL 3043: Health Care Ethics**

Offered: Spring

This course examines what ethics requires of healthcare professionals, from physicians and nurses to therapists, social workers, administrators and policy makers. While students gain a firm grasp of general principles, including permission, non-maleficence, beneficence and justice, our focus is on specific questions of right and wrong faced by clinical practitioners and the professionals who support them. We assess the medical, legal, social, political and economic dimensions of real-world cases. Topics covered include decisional capacity, surrogate decision makers, informed consent, disclosure and confidentiality, addiction, refusal of life-saving treatment, physician-assisted suicide and euthanasia.

### **PHIL 3053: Philosophy of Religion**

A consideration of historical and contemporary studies in religious thought, including basic conceptions of the divine, the human engagement with the divine, and the nature and destiny of man within diverse eschatological perspectives.

### **PHIL 3063: Modern Political Thought**

Cross-listed: POLS 3063 Modern Political Thought

An examination of the major contributions to political thought during the Modern Era.

Note: Completion of POLS 2253 Survey of Western Political Thought recommended.

### **PHIL 3073: Philosophy of Law**

An introduction to that branch of philosophy which investigates the nature of law (analytic jurisprudence) and the values and norms that inform legal decision-making and practices (normative jurisprudence). The philosophy of law also includes examinations of specific legal domains, such as theories of punishment in criminal law and theories of liability in tort law.



**PHIL 3083: Leadership Ethics**

Offered: Fall

This course is designed to help students to develop as leaders and to prepare them to have a positive influence on others at Arkansas Tech as well as throughout their lives. Using an interdisciplinary approach, students will deepen and broaden their learning about theories, models, and constructs related to the study and practice of ethics and leadership while examining compelling contemporary questions and dilemmas. Students will develop strategies and ways of thinking when faced with ethically complex dilemmas in the leadership process.

The focus is on "ethical fitness" each student can develop over time. The learning activities are designed to assist each student to better understand the ways in which they are already making ethical decisions and to promote reflection and dialogue in order to help each other think about ethical leadership in even deeper, more complex ways. Ethical development is a lifelong process!

Learners will explore the intersections of the concepts of ethics and leadership from a wide range of disciplines, contexts, and professions. Questions explored during the course include:

How are values and ethics established in individuals and organizations?

Is ethical leadership desirable and necessary?

How does ethical leadership apply to me?

What are some helpful approaches to ethical questions?

What are the responsibilities of leaders to establish ethical climates in their organizations and communities?

What are the tensions between ethics and leadership?

Are there universal values and ethical principles in leadership?

How does culture influence ethics and leadership?

**PHIL 3103: Logic**

A study of the principles of deductive reasoning. Topics include immediate inference, the syllogism, truth functions, natural deduction, quantification, and fallacies.

**PHIL 3123: Environmental Ethics**

This upper-division course introduces students to contemporary ethical concerns around relations between human behavior and environmental conditions. Critical reasoning skills are stressed, as are verbal and written communication skills. Upon completion of this course, students will be able to demonstrate familiarity with current debates in environmental ethics, rigorously analyze competing ethical arguments within those debates and reach ethically defensible conclusions. Topics covered may include air pollution, water pollution, acid rain and forest death, waste, chemical fears, biodiversity, and global climate change.

**PHIL 3253: Classical Political Thought**

Cross-listed: POLS 3253 Classical Political Thought

An examination of the major contributions to political thought during the Classical Age, the Medieval Era, and the Renaissance.

Note: Completion of POLS 2253 Survey of Western Political Thought recommended.

**PHIL 4093: American Philosophy**

Cross-listed: HIST 4223 American Philosophy

An examination of the main currents of American philosophical and religious thought from the earliest times to the present.

**PHIL 4103: Advanced Logic**

Cross-listed: MATH 4203 Advanced Logic

Prerequisites: COMS 2903 Discrete Structures for Technical Majors or MATH 2703 Discrete Mathematics or PHIL 3103 Logic

A study of selected topics in advanced logic. Emphasis will be placed on proof theory, quantification theory, semantic tableaux, logicism, theories of completeness and consistency, and some consideration of the logical foundations mathematics.

**PHIL 4233: American Political Thought**

Cross-listed: HIST/POLS 4233 American Political Thought

The background and development of American political ideas from the colonial period to the present. Emphasis is placed on colonial political theory, the Founding, conflict and consensus prior to the Civil War, the response to industrialization, the rise of the positive state, nationalism, the New Left and New Right, and current trends.

**PHIL 4951: Undergraduate Research in Philosophy**

Offered: On demand

Prerequisite: Departmental approval

Advanced students carry out independent research activity relating to a significant problem in a major field of study. Supervised by faculty member.

Formal report and presentation required. One to four credits depending on problem selected and effort made.

**PHIL 4952: Undergraduate Research in Philosophy**

Offered: On demand

Prerequisite: Departmental approval

Advanced students carry out independent research activity relating to a significant problem in a major field of study. Supervised by faculty member.

Formal report and presentation required. One to four credits depending on problem selected and effort made.

**PHIL 4953: Undergraduate Research in Philosophy**

Offered: On demand

Prerequisite: Departmental approval

Advanced students carry out independent research activity relating to a significant problem in a major field of study. Supervised by faculty member. Formal report and presentation required. One to four credits depending on problem selected and effort made.

**PHIL 4954: Undergraduate Research in Philosophy**

Offered: On demand

Prerequisite: Departmental approval

Advanced students carry out independent research activity relating to a significant problem in a major field of study. Supervised by faculty member. Formal report and presentation required. One to four credits depending on problem selected and effort made.

**PHIL 4991: Special Problems In Philosophy**

Admission requires consent of department head.

**PHIL 4992: Special Problems In Philosophy**

Admission requires consent of department head.

**PHIL 4993: Special Problems In Philosophy**

Admission requires consent of department head.

**PHIL 4994: Special Problems In Philosophy**

Admission requires consent of department head.

**PHYSICAL EDUCATION (PE)**

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**PE 1041: Jazz Dance I**

This course offers technique and performance training in jazz dance. Flexibility, strength, body alignment and coordination lay a foundation for the introduction of more advanced aspects of dance artistry including mobility, musicality, and style. Each class is structured around a warm-up leading to locomotion across the floor and center combinations.

This is an activity course. No more than four hours of activity credit may be counted toward graduation. A student registering for an activities course in excess of these limits receives no credit for the additional course and the grade is not included in the computation of grade point.

**PE 1051: Volleyball**

Designed for beginning volleyball players. The student will learn the fundamental skills, knowledge of the rules, and terminology associated with volleyball.

This is an activity course. No more than four hours of activity credit may be counted toward graduation. A student registering for an activities course in excess of these limits receives no credit for the additional course and the grade is not included in the computation of grade point.

**PE 1101: Folk and Square Dance**

Course content will include the origin and factors which influence development of folk and square dance. Basic steps, basic positions, and dance movements will be introduced to the students.

This is an activity course. No more than four hours of activity credit may be counted toward graduation. A student registering for an activities course in excess of these limits receives no credit for the additional course and the grade is not included in the computation of grade point.

**PE 1121: Social Dance**

Techniques of leading and following, basic positions, and a variety of dance steps will be introduced throughout the course.

This is an activity course. No more than four hours of activity credit may be counted toward graduation. A student registering for an activities course in excess of these limits receives no credit for the additional course and the grade is not included in the computation of grade point.

**PE 1201: Orientation to Health, Physical Education, and Wellness Science**

This course provides an introduction to the HPE/WS curriculum, as it affects the student. Emphasis will be given to resources, services and opportunities available to the student through the University, which will help him or her grow as a professional. This is a pass or fail class.

**PE 1301: Beginning Ballet I**

These courses are designed for those students that have little or no ballet training but have an interest in pursuing dance. Ballet forms the basis for all dance arts and offers specific training in all muscle groups of the body. These courses offer students beginning-level technical and performance training in ballet. Flexibility, strength, body alignment and coordination lay a foundation for the introduction of more advanced aspects of dance artistry including more difficult steps, musicality, mobility, and balance.

This is an activity course. No more than four hours of activity credit may be counted toward graduation. A student registering for an activities course in excess of these limits receives no credit for the additional course and the grade is not included in the computation of grade point.

**PE 1311: Beginning Ballet II**

These courses are designed for those students that have little or no ballet training but have an interest in pursuing dance. Ballet forms the basis for all dance arts and offers specific training in all muscle groups of the body. These courses offer students beginning-level technical and performance training in ballet. Flexibility, strength, body alignment and coordination lay a foundation for the introduction of more advanced aspects of dance artistry including more difficult steps, musicality, mobility, and balance.

This is an activity course. No more than four hours of activity credit may be counted toward graduation. A student registering for an activities course in excess of these limits receives no credit for the additional course and the grade is not included in the computation of grade point.

**PE 1321: Intermediate Ballet I**

These courses offer intermediate level training in ballet technique and performance for proficient dancers. It stresses the physical and mental skills necessary to make the transition to more advanced dance work. These include physical stamina, strength, flexibility, articulation, coordination, musicality, and phrasing; an understanding of basic physical concepts underlying clear and efficient movement; the capacity to assimilate new movement material; and an awareness of the center of gravity and its role in the mobilization and control of the body.

This is an activity course. No more than four hours of activity credit may be counted toward graduation. A student registering for an activities course in excess of these limits receives no credit for the additional course and the grade is not included in the computation of grade point.

**PE 1331: Intermediate Ballet II**

These courses offer intermediate level training in ballet technique and performance for proficient dancers. It stresses the physical and mental skills necessary to make the transition to more advanced dance work. These include physical stamina, strength, flexibility, articulation, coordination, musicality, and phrasing; an understanding of basic physical concepts underlying clear and efficient movement; the capacity to assimilate new movement material; and an awareness of the center of gravity and its role in the mobilization and control of the body.

This is an activity course. No more than four hours of activity credit may be counted toward graduation. A student registering for an activities course in excess of these limits receives no credit for the additional course and the grade is not included in the computation of grade point.

**PE 1341: Intermediate Ballet III**

These courses offer intermediate level training in ballet technique and performance for proficient dancers. It stresses the physical and mental skills necessary to make the transition to more advanced dance work. These include physical stamina, strength, flexibility, articulation, coordination, musicality, and phrasing; an understanding of basic physical concepts underlying clear and efficient movement; the capacity to assimilate new movement material; and an awareness of the center of gravity and its role in the mobilization and control of the body.

This is an activity course. No more than four hours of activity credit may be counted toward graduation. A student registering for an activities course in excess of these limits receives no credit for the additional course and the grade is not included in the computation of grade point.

**PE 1361: Advanced Ballet I**

These courses are a continuation and refinement of the skills achieved in Intermediate Ballet I-IV. The courses offer advanced level training in ballet technique and performance for proficient dancers. They stress the physical and mental skills necessary to make the transition to professional dance work. These include physical stamina, strength, flexibility, articulation, coordination, musicality, and phrasing; an understanding of basic physical concepts underlying clear and efficient movement; the capacity to assimilate new movement material; and an awareness of the center of gravity and its role in the mobilization and control of the body.

This is an activity course. No more than four hours of activity credit may be counted toward graduation. A student registering for an activities course in excess of these limits receives no credit for the additional course and the grade is not included in the computation of grade point.

**PE 1401: Archery and Recreational Games**

The student will learn the fundamental skills in archery, including care and selection of archery tackle. Recreational games will include table tennis, giant volleyball, three way volleyball, box hockey, pin ball, scooter soccer, variety ball, indoor soccer, and horse shoes.

This is an activity course. No more than four hours of activity credit may be counted toward graduation. A student registering for an activities course in excess of these limits receives no credit for the additional course and the grade is not included in the computation of grade point.

**PE 1411: Badminton**

Designed for beginning badminton players. The student will learn the fundamental skills and a knowledge of the rules and terminology associated with badminton.

This is an activity course. No more than four hours of activity credit may be counted toward graduation. A student registering for an activities course in excess of these limits receives no credit for the additional course and the grade is not included in the computation of grade point.

**PE 1431: Bowling**

The bowling classes are structured for the beginning bowler. Fundamental skills and general bowling knowledge and etiquette will be introduced to the student.

\$77.50 course fee.

This is an activity course. No more than four hours of activity credit may be counted toward graduation. A student registering for an activities course in excess of these limits receives no credit for the additional course and the grade is not included in the computation of grade point.

**PE 1481: Tennis**

Constructed to aid the beginning tennis player to learn the fundamental skills for tennis. The student will gain a knowledge of the rules and strategy in tennis.

This is an activity course. No more than four hours of activity credit may be counted toward graduation. A student registering for an activities course in excess of these limits receives no credit for the additional course and the grade is not included in the computation of grade point.

### **PE 1851: Tennis and Basketball**

Designed for the average student. Fundamentals in basketball and tennis will be introduced along with knowledge of the rules and strategies of play. This is an activity course. No more than four hours of activity credit may be counted toward graduation. A student registering for an activities course in excess of these limits receives no credit for the additional course and the grade is not included in the computation of grade point.

### **PE 1901: Beginning Swimming**

This course is for non-swimmers who desire to develop swimming skills, from beginner level to the intermediate level, in the basic swim strokes. Survival and basic water safety will be included. Students will participate in fitness activities appropriate to their competence in the water and level of fitness. This course will include a \$100 fee for use of the Russellville Aquatic Center.

\$100 course fee

This is an activity course. No more than four hours of activity credit may be counted toward graduation. A student registering for an activities course in excess of these limits receives no credit for the additional course and the grade is not included in the computation of grade point.

### **PE 1911: Intermediate Swimming**

This course is for swimmers who feel comfortable in the water and are looking to improve technique and learn new strokes. Course participants should be able to swim a minimum of 25 yards (meters) in the prone position and 25 yards (meters) in the supine position. This class covers more advanced swimming strokes, deep-end skills (e.g., diving, treading water), and fitness swimming. Survival and basic water safety will be included. This course will include a \$100 fee for use of the Russellville Aquatic Center.

\$100 course fee

This is an activity course. No more than four hours of activity credit may be counted toward graduation. A student registering for an activities course in excess of these limits receives no credit for the additional course and the grade is not included in the computation of grade point.

### **PE 1991: Racquetball**

Designed to introduce the rules and strategy of racquetball and develop the basic skills needed to play racquetball successfully.

This is an activity course. No more than four hours of activity credit may be counted toward graduation. A student registering for an activities course in excess of these limits receives no credit for the additional course and the grade is not included in the computation of grade point.

### **PE 2101: Methods of Teaching Team Activities**

This course is designed to develop competency in fundamental motor skills and knowledge of teaching fundamental motor skills to Pre-K12 students using selected team sport curricular activities. Emphasis will be placed on developing and evaluating the student's fundamental motor skill performances and application of knowledge in motor development while planning appropriate physical activities in comprehensive Physical Education curriculum.

Laboratory three hours (includes a skill lab scheduled outside of class meeting times).

Note: A grade of C or better is required for Health and Physical Education Majors.

### **PE 2111: Methods of Teaching Individual Activities**

This course is designed to assist in preparing students to be skilled and knowledgeable in selected individual and dual sport curricular activities. Emphasis will be placed on further developing and evaluating the students' fundamental motor skills and knowledge in motor development while planning physical activities for Pre-K-12 students.

Laboratory three hours (includes a skill lab scheduled outside of class meeting times).

Note: A grade of C or better is required for Health and Physical Education Majors.

### **PE 2301: Beginning Golf**

Designed for individuals who wish to learn the basic fundamentals in golf. Course includes the fundamentals of the full swing and the fractional swing in golf. It also includes the knowledge of rules and courtesies of golf.

This is an activity course. No more than four hours of activity credit may be counted toward graduation. A student registering for an activities course in excess of these limits receives no credit for the additional course and the grade is not included in the computation of grade point.

### **PE 2513: First Aid**

Standard and advanced course in first aid. This course includes CPR instruction.

Note: A grade of C or better is required for Health and Physical Education Majors.

### **PE 2523: Foundations in Health and Physical Education**

A study of history, philosophy, and principles of health and physical education in grades K 12 as applied to each area.

Note: A grade of C or better is required for Health and Physical Education Majors.

### **PE 2533: Sports Officiating**

An in-depth study of the rules and mechanics involved in officiating sports. The sports to be included are basketball, football, volleyball, and softball.

**PE 2653: Anatomy and Physiology**

Prerequisite: BIOL 1014 Introduction to Biological Science, must earn a grade of C or better.

The structure and function of the human body with emphasis on the bodily systems important to teachers and practitioners of wellness, fitness, and physical education.

Note: A grade of C or better is required for Health and Physical Education majors.

**PE 2932: Lifeguard Training**

Prerequisite: Ability to swim 300 yards and tread water for 2 minutes.

This course is for individuals interested in developing the skills and knowledge needed to prevent and respond to emergencies in and around an aquatic environment. Students will learn how quick response times and effective preparation are vital to being a lifeguard while also understanding the importance of preventative strategies to reduce or eliminate drownings and injuries. Course participants must pass a minimum skills test consisting of swimming and water safety skills to participate in the course. Students must show proof of current certification in First Aid, CPR, and AED training to receive Lifeguard certification. This course will include a \$100 fee for use of the Russellville Aquatic Center.

\$100 course fee

This is an activity course. No more than four hours of activity credit may be counted toward graduation. A student registering for an activities course in excess of these limits receives no credit for the additional course and the grade is not included in the computation of grade point.

**PE 2941: Scuba Diving I**

This course is designed to serve as an introduction to SCUBA diving. This course will include classroom and labs (pool session). This class will teach the skills (academic and pool training) necessary to SCUBA dive and how to prepare for open water SCUBA diving. The open water sessions are optional for this course - but required for the individual student to complete certification. All scuba equipment is supplied by the instructor.

\$100 course fee.

This is an activity course. No more than four hours of activity credit may be counted toward graduation. A student registering for an activities course in excess of these limits receives no credit for the additional course and the grade is not included in the computation of grade point.

**PE 2951: Scuba Diving II**

Prerequisite: Open Water Diver certified or equivalent (see instructor for equivalency).

This course is designed to serve as a way to introduce and Open Water Certified SCUBA diver to more adventures in diving. Two mandatory skills will be introduced: Deep water diving and advanced compass navigation. In addition, the text will introduce the student to additional levels of SCUBA certification including Underwater Photography, Wreck Diving, Marine Ecosystems, and more. All scuba equipment is supplied by the instructor.

\$150 course fee.

This is an activity course. No more than four hours of activity credit may be counted toward graduation. A student registering for an activities course in excess of these limits receives no credit for the additional course and the grade is not included in the computation of grade point.

**PE 3051: Methods of Teaching Fitness and Wellness Concepts**

This course is designed to provide the student with knowledge needed to implement a sound fitness and wellness program that will yield the desired results. The emphasis is on teaching students how to take control of their own personal health and lifestyle habits so that they can make a deliberate effort to stay healthy and achieve the highest potential for well-being.

Laboratory three hours (includes a skill lab scheduled outside of class meeting times). \$25 Tech Fit fee.

Note: A grade of C or better is required for Health and Physical Education Majors.

**PE 3101: Methods of Teaching Rhythmic and Gymnastic Movements**

Methods and activities to develop rhythm, folk dance, and gymnastic skills related to teaching physical education.

Laboratory two hours.

Note: A grade of C or better is required for Health and Physical Education Majors.

**PE 3413: Coaching Theory**

The course exposes students to the theory of coaching, relevant to athletics. Emphasis is placed on organization, management, and content involved in coaching a variety of sports.

Note: A grade of C or better is required for Health and Physical Education Majors.

**PE 3512: Coaching Strategies: Football & Baseball**

Principles of coaching football and baseball, including off-season training programs, team organization, offense, defense, scouting, and use of visual aids.

One hour lecture and one hour laboratory.

Note: A grade of C or better is required for Health and Physical Education Majors.

**PE 3522: Coaching Strategies: Basketball & Track and Field**

Principles of in-season and off-season training programs and team organization for track and field. Additionally, the course is designed to provide a systematic process for teaching basketball skill development and team strategies. Emphasis on fundamental skills and drills, rules and evolution of the game, offensive and defensive strategies used by various successful coaches are introduced. Extensive use of floor demonstrations and video presentations enhance the course content.

One hour lecture and one hour laboratory.

Note: A grade of C or better is required for Health and Physical Education majors.

**PE 3532: Coaching Strategies: Softball and Volleyball**

This course will offer information relative to the following topics for both volleyball and softball: in-season and off-season training programs, team organization, offense, defense, special situations, scouting, and use of visual aids.

One hour lecture and one hour laboratory.

Note: A grade of C or better is required for Health and Physical Education majors.

**PE 3543: Motor Development and Lifespan Applications in Pedagogy**

Prerequisite: Admission to Stage II or by permission of the Department.

Motor development including fundamental motor pattern characteristics, human growth, perceptual motor development, fitness development across the lifespan, and applications of pedagogy concepts related to motor development.

Lecture one hour, laboratory two hours.

**PE 3573: Prevention and Care of Athletic Injuries**

Prerequisites: PE 2653 Anatomy and Physiology, 3663

Development of techniques in prevention and treatment of athletic injuries.

Note: A grade of C or better is required for Health and Physical Education majors.

**PE 3583: Methods and Materials in Physical Education for Kindergarten and Elementary Grades**

Prerequisite: PE 3103

Methods, materials, supervision, school problems, rhythmical activities, movements exploration, and group games for kindergarten and elementary teachers.

Lecture two hours, laboratory two hours. Lecture, activity, and a field experience scheduled outside of class meeting times.

Note: A grade of C or better is required for Health and Physical Education majors.

**PE 3593: Methods of Teaching Health and Physical Education for K-6 Teachers**

Develop knowledge of concepts of motor development and motor learning that includes manipulative skills and movement. Knowledge of activities to develop basic movement patterns, primary lead-up game skills, leisure activities, rhythmic skills and fitness in K-6 grades. Basic knowledge of safety and injury prevention including knowledge of health concepts, physical education development and how to integrate other subjects found in the K-6 curriculum into physical education activities.

Note: A grade of C or better is required for Health and Physical Education majors.

**PE 3603: Methods and Materials in Physical Education for Secondary Schools**

Prerequisites: PE 2101 Methods of Teaching Team Activities, PE 2111 Methods of Teaching Individual Activities and admission to Stage II.

A course in program planning and techniques of teaching physical education in the secondary schools, critical analysis of methods now in use in physical education, and criteria for evaluation of programs.

Lecture two hours, laboratory two hours. Lecture, activity, and a field experience scheduled outside of class meeting times.

Note: A grade of C or better is required for Health and Physical Education majors.

**PE 3661: Laboratory Experiences in Anatomy/Physiology and Kinesiology**

Prerequisite: PE 2653 Anatomy and Physiology or permission of department head.

The laboratory experience supplements Anatomy/Physiology and Kinesiology by providing practical experiences which enable students to bridge the gap between theory and practice.

Laboratory two hours.

Note: A grade of C or better is required for Health and Physical Education majors.

**PE 3663: Kinesiology**

Prerequisite: PE 2653 Anatomy and Physiology

Study of human movement and the physical and physiological principles upon which it depends. Body mechanics, posture, motor efficiency and the influence of growth and development upon motor performance.

Note: A grade of C or better is required for Health and Physical Education majors.

**PE 4033: Exercise Physiology**

Prerequisites: PE 2653 Anatomy and Physiology, 3663, and 3661, or permission of the department head.

Introduction to the basic effects of exercise on physiology of the systems of the body, and the principles of exercise prescriptions and programs.

Note: A grade of C or better is required for Health and Physical Education majors.

**PE 4103: Principles of Adapted Physical Activity**

Principles and methods for assessing, motivating, educating, and training special populations clients of all ages regarding their health and fitness needs. Special populations include those with chronic and temporary health conditions. This course will introduce students to the materials and practices required for the American College of Sports Medicine Certified Inclusive Fitness Trainer (clinical tract) or the National Strength and Conditioning Association Certified Special Populations Specialist (athletic tract) certifications.

Lecture two hours, laboratory two hours (includes activity), and a field experience scheduled outside of class meeting times.

Note: A grade of C or better is required for Health and Physical Education majors.

### **PE 4203: Methods of Teaching Adapted Physical Education**

Prerequisites: PE 3103, PE 3583 Methods and Materials in Physical Education for Kindergarten and Elementary Grades or permission of the department head.

Principles and methods of teaching students with disabilities in the schools.

Lecture two hours, laboratory two hours. Lecture, activity, and a field experience schedule outside of class meeting times.

Note: A grade of C or better is required for Health and Physical Education majors.

### **PE 4513: Organization and Administration of Health and Physical Education**

Organization and administration problems in grades K 12 to be treated as a single administrative unit.

Note: A grade of C or better is required for Health and Physical Education majors.

### **PE 4523: Measurement and Evaluation in Health and Physical Education**

Prerequisite: Admission to Stage II or permission from department head.

Assessment as a comprehensive process to define the dynamic relationship between Pre-K-12 students and the physical education curriculum which contributes to decision making about: classification, diagnosis and guidance, motivation, progress reporting, and program refinement.

Note: A grade of C or better is required for Health and Physical Education majors.

### **PE 4701: Special Methods in Health and Physical Education**

Prerequisites: Admission to student teaching phase of the teacher education program.

Co-requisite: Enrollment in SEED 4503 Seminar in Secondary Education and SEED 4809 Teaching in the Elementary and Secondary School

Intensive on campus exploration of the principles of curriculum construction, teaching methods, use of community resources, and evaluation as related to teaching health and physical education.

Note: A grade of C or better is required for Health and Physical Education majors.

### **PE 4991: Special Problems in Health and Physical Education**

Prerequisite: PE 4523 Measurement and Evaluation in Health and Physical Education

Open to physical education majors and minors of outstanding ability. Course content will include readings and research and the setting up and carrying out of a piece of research which will include review of literature, the problem, and conclusion.

### **PE 4992: Special Problems in Health and Physical Education**

Prerequisite: PE 4523 Measurement and Evaluation in Health and Physical Education

Open to physical education majors and minors of outstanding ability. Course content will include readings and research and the setting up and carrying out of a piece of research which will include review of literature, the problem, and conclusion.

### **PE 4993: Special Problems in Health and Physical Education**

Prerequisite: PE 4523 Measurement and Evaluation in Health and Physical Education

Open to physical education majors and minors of outstanding ability. Course content will include readings and research and the setting up and carrying out of a piece of research which will include review of literature, the problem, and conclusion.

## **PHYSICAL SCIENCE (PHSC)**

### **PHSC XXXX: Physical Science with Laboratory**

Physical Science with Laboratory

Four hours of science with laboratory from CHEM, ENVS, GEOL, PHSC, PHYS

CHEM 1113 A Survey of Chemistry: Survey of Chemistry and CHEM 1111 Survey of Chemistry Laboratory: Survey of Chemistry Laboratory

CHEM 2124 General Chemistry I: General Chemistry I

CHEM 2134 General Chemistry II: General Chemistry II

ENVS 1004 Principles of Environmental Science: Principles of Environmental Science

GEOL 1004 Essentials of Earth Science: Essentials of Earth Science

GEOL 1014 Physical Geology: Physical Geology

PHSC 1004 Principles of Environmental Science: Principles of Environmental Science

PHSC 1013 Introduction to Physical Science: Introduction to Physical Science and PHSC 1021 Physical Science Laboratory: Physical Science Laboratory

PHSC 1053 Astronomy: Astronomy and PHSC 1051 Observational Astronomy Laboratory: Observational Astronomy Laboratory

PHSC 1074 Physical Science Inquiry: Physical Science Inquiry

PHYS 1114 Applied Physics: Applied Physics

PHYS 2014 Algebra-Based Physics I: Algebra-Based Physics I

PHYS 2114 Calculus-Based Physics I: Calculus-Based Physics I

**PHSC 4XXX: PHYSICAL SCI TRANSFER ELECTIVE**

Credit transferred from another institution and articulated for physical science upper division elective.

**PHSC 3XXX: PHYSICAL SCI TRANSFER ELECTIVE**

Credit transferred from another institution and articulated for physical science upper division elective.

**PHSC 2XXX: PHYSICAL SCI TRANSFER ELECTIVE**

Credit transferred from another institution and articulated for physical science lower division elective.

**PHSC 1XXX: PHYSICAL SCI TRANSFER ELECTIVE**

Credit transferred from another institution and articulated for physical science lower division elective.

**PHSC 1001: Orientation to Physical Science**

Offered: Fall

Introduction to vital university affairs, department and university resources and curriculum. The course emphasizes information and skills that increase a student's likelihood of a successful college career. All students majoring in programs within the Department of Physical Sciences are strongly encouraged to take this course during their first fall semester on the Arkansas Tech University campus.

**PHSC 1004: Principles of Environmental Science**

Cross-listed: BIOL 1004 Principles of Environmental Science and ENVS 1004 Principles of Environmental Science

This course is designed to bring the student to a basic but informed awareness of and responsible behavior toward our environment and the role of the human race therein. The content will include a study of the philosophical and scientific basis for the study of ecosystems and the environment, the nature of ecosystems, the techniques used to study the environment, the origin and development of current environmental problems, the interdisciplinary nature of environmental studies, the processes of critical thinking and problem solving, and the moral and ethical implications of environmentally-mandated decisions.

Lecture three hours, laboratory three hours. \$40 laboratory fee.

**PHSC 1011: Orientation to Physical Science II**

Offered: Spring

Continuation of PHSC 1001 Orientation to Physical Science. Introduction to programs of study and employment opportunities for students of the physical sciences. All students majoring in programs within the Department of Physical Sciences are strongly encouraged to take this course during their spring semester on the Arkansas Tech University campus.

**PHSC 1013: Introduction to Physical Science**

ACTS Common Course - PHSC 1004 Principles of Environmental Science (when taken with PHSC 1021 Physical Science Laboratory)

Prerequisite: A score of 19 or above on the mathematics section of the ACTE exam or completion of MATH 0903 Beginning and Intermediate Algebra, Intermediate Algebra, with a grade of "C" or better.

An introduction to the natural laws governing the physical world, with emphasis upon the discovery and development of these laws and their effect upon man. Includes topics in physics and chemistry and may include other topics from other disciplines in physical science such as astronomy, meteorology, and/or geology.

Note: May not be taken for credit after completion of two laboratory courses in the physical science disciplines.

Note: To enroll in an internet section (TC1) of this course, the prerequisite COMS 1003 Introduction to Computer Based Systems or equivalent is required.

**PHSC 1021: Physical Science Laboratory**

ACTS Common Course - PHSC 1004 Principles of Environmental Science (when taken with PHSC 1013 Introduction to Physical Science)

Co-requisite or Prerequisite: To be taken concurrent with or following completion of PHSC 1013 Introduction to Physical Science.

An introduction to laboratory experiences in the physical sciences, including physics, chemistry, earth sciences, and astronomy.

Note: To enroll in an internet section (TC1) of this course, the prerequisite COMS 1003 Introduction to Computer Based Systems or equivalent is required.

Laboratory two hours. \$40 laboratory fee.

**PHSC 1051: Observational Astronomy Laboratory**

ACTS Common Course - PHSC 1204 (when taken with PHSC 1053 Astronomy)

Offered: Fall

Prerequisites: A score of 19 or above on the mathematics section of the ACTE exam or completion of MATH 0903 Beginning and Intermediate Algebra with a grade of "C" or better.

Co-requisite: PHSC 1053 Astronomy or consent of instructor.

An introduction to astronomical observations and techniques. Students will have the opportunity to use telescopes at the ATU astronomical observatory (weather permitting) to make observations and collect scientific data for analysis. This course includes telescope orientation, constellation recognition, identifying celestial objects, and interpreting astronomical data.

Note: When taken concurrently with PHSC 1053 Astronomy, this course satisfies the general education physical science laboratory requirement upon successful completion of both courses.



Note: Course PHSC 1051 Observational Astronomy Laboratory will run simultaneously with PHSC 3051 and duplicate credit will not be allowed. Credit for PHSC 3051 requires completion of an observational research project for upper division students, but is not required of students enrolled in PHSC 1051 Observational Astronomy Laboratory.

Laboratory 3 hours; 1 credit hour. \$40 laboratory fee.

### **PHSC 1053: Astronomy**

ACTS Common Course - PHSC 1204 (when taken with PHSC 1051 Observational Astronomy Laboratory)

Offered: Fall

Prerequisites: A score of 19 or above on the mathematics section of the ACTE exam or completion of MATH 0903 Beginning and Intermediate Algebra with a grade of "C" or better.

Co-requisite: PHSC 1051 Observational Astronomy Laboratory or consent of instructor.

A study of our universe; constellations, celestial motions, tools and methods of astronomical observations, the solar system, properties of stars and the interstellar medium, the birth, life and death of stars, our Milky Way galaxy, dynamics of stellar systems and other galaxies, and cosmology.

Note: When taken concurrently with PHSC 1051 Observational Astronomy Laboratory, satisfies general education physical science laboratory requirement upon successful completion of both courses.

Note: Course PHSC 1053 Astronomy will run simultaneously with PHSC 3053 Astronomy and duplicate credit will not be allowed. Credit for PHSC 3053 Astronomy requires completion of several assignments, a term paper and a research project for upper division students, but is not required of students enrolled in PHSC 1053 Astronomy.

### **PHSC 1074: Physical Science Inquiry**

Prerequisites: A score of 19 or above on the mathematics section of the ACTE exam or the completion of MATH 0903 Beginning and Intermediate Algebra, Intermediate Algebra, with a grade of "C" or better.

This course is designed to model physical science teaching and learning through the process of inquiry. Topics explored are Interactions and Energy, Forces, Systems, Behavior of Gases, Physical Changes, and Chemical Changes. The focus is upon the construction of knowledge regarding science content and process skills essential to the preparation of teachers of physical science in early childhood education. It is recommended for early childhood education majors seeking to fulfill undergraduate requirements in preparation for upper level science methods courses and is equivalent to 3 hours of lecture and 3 hours of laboratory experience in physical science. However, the course requires that students participate as active learners in an activity-based, cooperative learning style curriculum.

\$40 laboratory fee.

### **PHSC 2003: Physics in Society and the Environment**

The course is a study of physics in society and in relation to the environment. The development of physics is considered in historical and contemporary contexts.

### **PHSC 3033: Meteorology**

Offered: Spring

Prerequisites: any physical science course (PHSC, GEOL, CHEM, PHYS)

A study of the weather, the physics of the atmosphere, and associated phenomena.

### **PHSC 3053: Astronomy**

Offered: Fall

Prerequisite: MATH 1113 College Algebra

Optional co-requisite: PHSC 1051 Observational Astronomy Laboratory or consent of instructor.

A study of our universe; constellations, celestial motions, tools and methods of astronomical observations, the solar system, properties of stars and the interstellar medium, the birth, life and death of stars, our Milky Way galaxy, dynamics of stellar systems and other galaxies, and cosmology.

Note: When taken concurrently with PHSC 3051, satisfies general education physical science laboratory requirement upon successful completion of both courses. Credit for PHSC 3053 Astronomy requires completion of a term paper and a research project for upper division students.

Note: Duplicate credit for previously offered PHSC 3043 is not allowed.

### **PHSC 3213: Science Education in the Elementary School**

Cross-listed: BIOL 3213 Science Education in the Elementary School

Prerequisites: Junior standing, ECED 2001, ECED 2002, and at least six credit hours in science.

An overview of the most recent and research-based strategies and techniques for planning, teaching, and assessing elementary science. Inquiry-based methods and other constructivist approaches as described in the National Science Education Standards will be emphasized. Design and execution of learning activities for an elementary school setting are required.

Note: To enroll in an internet section (TC1 or AT1) of this course, one of these prerequisite courses is required: COMS 1003 Introduction to Computer Based Systems, EDMD 3013 Integrating Instructional Technology, or equivalent.

Lecture two hours, laboratory two hours; three credit hours. \$40 laboratory fee.

### **PHSC 3223: Science Education in the Middle Level**

Cross-listed: BIOL 3223 Science Education in the Middle Level

Prerequisites: 16 hours in science and MLED 2001.

This course is designed to provide pre-service teachers with an integrated approach to the teaching of science in the middle grades. Theoretical and practical aspects of teaching science will be explored and students will develop curricular materials based on their explorations.

Lecture two hours, laboratory 2 hours. \$40 laboratory fee.

### **PHSC 3233: Science Education in the Secondary School**

Cross-listed: BIOL 3233 Science Education in the Secondary School

Prerequisites: 16 hours in biology or 16 hours in physical science and SEED 2002 Education as a Profession.

This course will examine the issues of nature and history of science, developing lessons and assessments, and science education standards for the prospective secondary school teacher. Curriculum development, including assessment and planning skills, utilizing various instructional media and inquiry methodology are emphasized. Design and execution of learning activities for a secondary school setting are required.

Lecture two hours, laboratory two hours. \$40 laboratory fee.

### **PHSC 3243: Integrating the Three Dimensions of Science**

Cross-listed: BIOL 3243 Integrating the Three Dimensions of Science

Prerequisites: Junior Standing and at least 8 hours of science.

This course integrates the three major areas of discipline in science: physical science, life science and earth science, using as a focus the processes and cross-cutting concepts of science, technology, engineering and mathematics (STEM).

\$40 laboratory fee.

### **PHSC 3252: The Nature and Context of Science**

Cross-listed: BIOL 3252 The Nature and Context of Science

Offered: Spring

Prerequisite: At least 12 hours of science courses.

This seminar course examines science from a holistic perspective. It will concentrate on examining how current science develops scientific knowledge including unifying concepts across scientific disciplines, the place of science within modern society, technology and its role in science and society, and current scientific methodology.

### **PHSC 3253: Teaching Methods for STEM**

Cross-listed: BIOL 3253 Teaching Methods for STEM

Prerequisites: Junior Standing, ECED 2001, ECED 2002, PHSC 3243 Integrating the Three Dimensions of Science and completion of at least 8 hours of science.

An overview of strategies and techniques for planning, teaching, and assessing elementary science. An emphasis will be placed on best practices, crosscutting concepts, and core ideas outlined in current National Science Frameworks developed in conjunction with the National Research Council. Current adopted standards such as the Next Generation Science Standards (NGSS) and Common Core State Standards will be emphasized in designing learning experiences that integrate science, technology, math, and engineering (STEM) with language arts skills. Inquiry-based methods and other constructivist approaches as described in the National Science Education Frameworks will be emphasized. Design and execution of learning activities for an elementary school setting are required.

Lecture two hours, laboratory two hours; three credit hours. \$40 laboratory fee.

### **PHSC 4701: Special Methods in Physical Science**

Offered: On demand

Prerequisites: Admission to student teaching phase of the teacher education program.

Co-requisite: SEED 4909 Teaching in the Secondary School

Intensive on campus exploration of the principles of curriculum construction, teaching methods, use of community resources, and evaluation as related to teaching physical science.

## **PHYSICS (PHYS)**

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### **PHYS 4XXX: PHYSICS TRANSFER ELECTIVE**

Credit transferred from another institution and articulated for physics upper division elective.

### **PHYS 3XXX: PHYSICS TRANSFER ELECTIVE**

Credit transferred from another institution and articulated for physics upper division elective.

### **PHYS 2XXX: PHYSICS TRANSFER ELECTIVE**

Credit transferred from another institution and articulated for physics lower division elective.

### **PHYS 1XXX: PHYSICS TRANSFER ELECTIVE**

Credit transferred from another institution and articulated for physics lower division elective.

### **PHYS 1114: Applied Physics**

Offered: Spring

A survey of selected topics in physics. The "scientific method", mechanics, fluid mechanics, heat, electricity, sound, light, and nuclear radiation will be studied.

Note: May not be taken for credit after completion of PHYS 2014 Algebra-Based Physics I, PHYS 2024 Algebra-Based Physics II, PHYS 2114 Calculus-Based Physics I, or PHYS 2124 Calculus-Based Physics II.

Lecture three hours, laboratory three hours. \$40 laboratory fee.

### **PHYS 2000: Physics Laboratory I**

Co-requisite: PHYS 2014 Algebra-Based Physics I or PHYS 2114 Calculus-Based Physics I.

### **PHYS 2010: Physics Laboratory II**

Co-requisite: PHYS 2024 Algebra-Based Physics II or PHYS 2124 Calculus-Based Physics II.

### **PHYS 2014: Algebra-Based Physics I**

ACTS Common Course - PHYS 2014 Algebra-Based Physics I

Offered: Fall and summer (on demand).

Prerequisite: A grade of C or better in MATH 1113 College Algebra or consent of the instructor.

Co-requisite: PHYS 2000 Physics Laboratory I

Open to freshmen. A broad survey course emphasizing the understanding of the principles of physics necessary for students not specifically interested in advanced work in physics, chemistry or engineering. Topics include mechanics, heat, sound, wave motion, and fluid mechanics.

Lecture three hours, laboratory three hours. \$40 laboratory fee.

### **PHYS 2024: Algebra-Based Physics II**

ACTS Common Course - PHYS 2024 Algebra-Based Physics II

Offered: Spring and summer (on demand).

Prerequisite: PHYS 2014 Algebra-Based Physics I or permission of instructor.

Co-requisite: PHYS 2010 Physics Laboratory II

Continuation of PHYS 2014 Algebra-Based Physics I, covering electricity and magnetism, light, relativity, particle physics, and quantum effects.

Lecture three hours, laboratory three hours. \$40 laboratory fee.

### **PHYS 2114: Calculus-Based Physics I**

ACTS Common Course - PHYS 2034

Prerequisite or co-requisite: MATH 2924 Calculus II

Co-requisite: PHYS 2000 Physics Laboratory I

This course is designed for physics and engineering majors and focuses on introductory mechanics including kinematics, force, energy, work, and conservation of linear and angular momentum. Heat and fluids are also introduced.

Lecture and laboratory. \$40 laboratory fee.

### **PHYS 2124: Calculus-Based Physics II**

ACTS Common Course - PHYS 2044

Prerequisite: Permission of instructor; prerequisite or co-requisite, MATH 2934 Calculus III.

Co-requisite: PHYS 2010 Physics Laboratory II

This course is the continuation of PHYS 2114 Calculus-Based Physics I and focuses on introductory electricity, magnetism, and circuits. Electromagnetic waves and ray optics are also introduced.

Lecture and laboratory. \$40 laboratory fee.

### **PHYS 3003: Optics**

Offered: Spring even years

Prerequisite: PHYS 2124 Calculus-Based Physics II or consent of instructor.

Introduction to geometrical and physical optics.

Lecture two hours, laboratory two hours. \$40 laboratory fee.

### **PHYS 3023: Mechanics**

Offered: Fall even years

Prerequisite: PHYS 2114 Calculus-Based Physics I

Co-requisite: MATH 3243 Differential Equations I

The conservation laws. Euler's angles. Lagrange's and Hamilton's equations.

### **PHYS 3042: Intermediate Physics Laboratory**

Offered: On demand

Prerequisites: PHYS 2114 Calculus-Based Physics I and 2124

For physical science education majors. This course expands and refines essential content and laboratory skills through the modeling and experimental investigation of topics in both classical and modern physics.

Note: Will not satisfy the physics elective requirement for students majoring in physical science.

Laboratory three hours. \$40 laboratory fee.

### **PHYS 3133: Theory of Electricity and Magnetism**

Offered: Fall of even years

Prerequisite: PHYS 2124 Calculus-Based Physics II

Gauss's law, potential, Laplace's and Poisson's equations in rectangular, cylindrical, and spherical coordinates, inductance, capacitance, moving charges, dielectric phenomena, and Maxwell's equations.

### **PHYS 3153: Solid State Physics**

Offered: Fall odd years

Prerequisites: PHYS 2114 Calculus-Based Physics I, 2124; CHEM 2124 General Chemistry I.

Co-requisite: MATH 3243 Differential Equations I

An introduction to the physics governing the crystalline state of matter. Modern theories describing lattice vibrations, energy bands, crystal binding, and optical properties are presented. These ideas are then applied to the understanding of technologically important areas such as superconductivity, doped semiconductors, ferroelectric materials, and photorefractivity.

\$40 laboratory fee.

### **PHYS 3213: Modern Physics**

Offered: Fall of odd years

Prerequisite: PHYS 2124 Calculus-Based Physics II

Introduction to relativity, wave-particle interactions, atomic structure, quantum mechanics, quantum theory of the hydrogen atom, statistical mechanics, nuclear structure, and elementary particles.

### **PHYS 3991: Special Problems in Physics and Astronomy**

Offered: On demand

Prerequisite: Departmental approval

Advanced students carry out independent research activity relating to significant problems in physics and astronomy. Supervised by faculty member. Formal report and presentation required. One to three credits depending on problem selected and effort made.

\$40 laboratory fee.

### **PHYS 3992: Special Problems in Physics and Astronomy**

Offered: On demand

Prerequisite: Departmental approval

Advanced students carry out independent research activity relating to significant problems in physics and astronomy. Supervised by faculty member. Formal report and presentation required. One to three credits depending on problem selected and effort made.

\$40 laboratory fee.

### **PHYS 3993: Special Problems in Physics and Astronomy**

Offered: On demand

Prerequisite: Departmental approval

Advanced students carry out independent research activity relating to significant problems in physics and astronomy. Supervised by faculty member. Formal report and presentation required. One to three credits depending on problem selected and effort made.

\$40 laboratory fee.

### **PHYS 4003: Thermodynamics and Statistical Mechanics**

Offered: Spring of odd years

Prerequisite: PHYS 2124 Calculus-Based Physics II; Prerequisite or co-requisite, MATH 3243 Differential Equations I.

Applications of the three laws of thermodynamics, partition functions and transport phenomena.

### **PHYS 4013: Quantum Mechanics**

Offered: Spring of even years

Prerequisites: PHYS 3213 Modern Physics and MATH 3243 Differential Equations I

A formal course in wave and matrix mechanics, designed to enable a student to set up and solve the elementary practical problems of quantum mechanics.

### **PHYS 4023: Computational Physics**

Prerequisite: PHYS 2124 Calculus-Based Physics II

This course provides an introduction to numerical methods that are commonly used to approach physical problems. Students in the course will gain both an understanding of the construction of several common algorithms as well as hands-on experience applying these tools to routine problems such as finding, optimization, matrix manipulation, differential equations, and applications to calculus. The course includes collaborative projects meant to simulate "real world" coding tasks and provides physics students with a practical background in scientific computing. As time allows, optional additional topics could include machine learning, databases, and advanced data visualization.

### **PHYS 4061: Engineering Physics Design**

Co-requisite: Engineering Physics major with senior standing.

This course is meant to serve as a culminating experience during Engineering Physics students' final semester. Supervised by a faculty member, students carry out engineering design activities relating to a significant problem that is based on physics and engineering skills and knowledge acquired in previous coursework. A formal written report and oral presentation are required.

**PHYS 4113: Advanced Physics Laboratory**

Offered: Spring odd years

Prerequisite: PHYS 3213 Modern Physics

An application and investigation of advanced physical topics in the laboratory. Techniques of experimental [engineering] physics, such as computerized instrumentation, vacuum technology, optics, and electron optics will be applied to investigate various areas of advanced physics. Proper data reduction and analysis will be used to yield meaningful measurements. Intended as a culminating course, previous course work is applied to solve problems in the laboratory.

Lecture one hour, laboratory five hours. \$40 laboratory fee.

**PHYS 4213: Advanced Topics in Physics and Astronomy**

Offered: On Demand

Prerequisite: PHYS 2024 Algebra-Based Physics II or PHYS 2124 Calculus-Based Physics II

Introduction to relativity, elementary particle physics, quantum dynamics, big-bang cosmology, atomic nucleosynthesis, and large scale structure and exotic states of matter such as black holes. Forces and interactions between the building blocks of matter in addition to cosmological models will be studied to gain insight into the complex universe we observe today.

Lecture two hours, laboratory two hours. \$40 laboratory fee.

**PHYS 4951: Physics or Engineering Physics Capstone**

Offered: On demand

Prerequisite: Senior Standing

This course is meant to serve as a culminating experience during Physics and Engineering Physics students' final semester. Supervised by a faculty member, students carry out independent research activities relating to a significant problem that is based on physics and engineering design skills and knowledge acquired in previous coursework, as appropriate. A formal written report and oral presentation are required. One to four credits depending on the problem selected and the effort made.

\$40 laboratory fee.

**PHYS 4952: Physics or Engineering Physics Capstone**

Offered: On demand

Prerequisite: Senior Standing

This course is meant to serve as a culminating experience during Physics and Engineering Physics students' final semester. Supervised by a faculty member, students carry out independent research activities relating to a significant problem that is based on physics and engineering design skills and knowledge acquired in previous coursework, as appropriate. A formal written report and oral presentation are required. One to four credits depending on the problem selected and the effort made.

\$40 laboratory fee.

**PHYS 4953: Physics or Engineering Physics Capstone**

Offered: On demand

Prerequisite: Senior Standing

This course is meant to serve as a culminating experience during Physics and Engineering Physics students' final semester. Supervised by a faculty member, students carry out independent research activities relating to a significant problem that is based on physics and engineering design skills and knowledge acquired in previous coursework, as appropriate. A formal written report and oral presentation are required. One to four credits depending on the problem selected and the effort made.

\$40 laboratory fee.

**PHYS 4954: Physics or Engineering Physics Capstone**

Offered: On demand

Prerequisite: Senior Standing

This course is meant to serve as a culminating experience during Physics and Engineering Physics students' final semester. Supervised by a faculty member, students carry out independent research activities relating to a significant problem that is based on physics and engineering design skills and knowledge acquired in previous coursework, as appropriate. A formal written report and oral presentation are required. One to four credits depending on the problem selected and the effort made.

\$40 laboratory fee.

**PHYS 4991: Special Problems in Physics and Astronomy**

Offered: On demand

Prerequisite: Departmental approval

Advanced students carry out independent research activity relating to significant problems in physics and astronomy. Supervised by faculty member. Formal report and presentation required. One to four credits depending on problem selected and effort made.

\$40 laboratory fee.

**PHYS 4992: Special Problems in Physics and Astronomy**

Offered: On demand

Prerequisite: Departmental approval

Advanced students carry out independent research activity relating to significant problems in physics and astronomy. Supervised by faculty member. Formal report and presentation required. One to four credits depending on problem selected and effort made. \$40 laboratory fee.

**PHYS 4993: Special Problems in Physics and Astronomy**

Offered: On demand

Prerequisite: Departmental approval

Advanced students carry out independent research activity relating to significant problems in physics and astronomy. Supervised by faculty member. Formal report and presentation required. One to four credits depending on problem selected and effort made. \$40 laboratory fee.

**PHYS 4994: Special Problems in Physics and Astronomy**

Offered: On demand

Prerequisite: Departmental approval

Advanced students carry out independent research activity relating to significant problems in physics and astronomy. Supervised by faculty member. Formal report and presentation required. One to four credits depending on problem selected and effort made. \$40 laboratory fee.

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**POLITICAL SCIENCE (POLS)**

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**POLS 4XXX: POLS TRANSFER ELECTIVE**

Credit transferred from another institution and articulated for political science upper division elective.

**POLS 3XXX: POLS TRANSFER ELECTIVE**

Credit transferred from another institution and articulated for political science upper division elective.

**POLS 2XXX: POLS TRANSFER ELECTIVE**

Credit transferred from another institution and articulated for political science lower division elective.

**POLS 1XXX: POLS TRANSFER ELECTIVE**

Credit transferred from another institution and articulated for political science lower division elective.

**POLS 2003: American Government**

ACTS Common Course - PLSC 2003

A study of the principles and practices of American Government, explaining the origin and purpose of our governmental institutions in a broad sense, with consideration given to interstate and national state relations.

**POLS 2153: Introduction to Strategic Studies**

An introduction to strategic studies focusing on the key theoretical principles that have played a major role in shaping Western understandings of strategy, with particular focus on the United States.

**POLS 2253: Survey of Western Political Thought**

Cross-listed: PHIL 2253 Survey of Western Political Thought

An introduction to the subfield of political theory, examining the works of major political thinkers from ancient Greece to the present.

**POLS 2403: Comparative Government**

A study of the various political systems of the world, such as the governments of Western Europe, Socialist or Communist Systems, and developing world governments. The countries under examination are often selected to address important real-world circumstances.

**POLS 2413: International Relations**

A study of the theory and practice of international politics, with special emphasis upon the state system, decision-making, policy-making, war and arms control, ideology and nationalism, the global ecological system, interdependence, multinational institutions and corporations, and human rights.

**POLS 2513: Research Design**

This course is designed as an introduction to the field of political science research. This course teaches the scientific method as applied to political science, bibliographical aids, and the study and writing of political science. It is a hands-on course where students will use the skills learned to evaluate social science research.

**POLS 3013: Recent American Foreign and Military Policy**

The post World War II environment in which U.S. foreign and military policy functions; emphasis is on the formulation of policy, relationship of foreign policy and domestic affairs, problems of foreign and military policy coordination and control, and the military industrial complex.

**POLS 3023: Judicial Process**

Cross-listed: CJ 3023 Judicial Process

The structure and operation of the state and national court systems. Emphasis upon the role of the criminal courts in the political system and the consequences of judicial policy making.

**POLS 3033: American State and Local Government**

A comparative study of the nature of the organization and operation of state and local governments in the United States with emphasis on state and local government in Arkansas.

**POLS 3043: Judicial Politics**

This course examines the effect of the U.S. Supreme Court and its inferior courts on American politics, government and society, as well as the interactions and processes that determine judicial policy.

**POLS 3053: Introduction to Public Administration**

A study of public administration with attention devoted to organizational problems and pathology, leadership, communication, control, and the hiring, training, compensating, motivating, and firing of personnel. Numerous case studies are considered.

**POLS 3063: Modern Political Thought**

Cross-listed: PHIL 3063 Modern Political Thought

An examination of the major contributions to political thought during the Modern Era.

Note: Completion of POLS 2253 Survey of Western Political Thought recommended.

**POLS 3083: Political Parties and Interest Groups**

A study of American political parties and interest groups with emphasis on such topics as public opinion, the nature and history of parties and interest groups, organizational structures and procedures, public policy interest, nominations, and elections.

**POLS 3093: American Municipal Government**

A comparative study of the structure, functions, politics, and problems of urban, suburban, and metropolitan governments in the United States, with emphasis on municipal governments in Arkansas.

**POLS 3123: American Political Behavior**

A study of the individual's decision to participate in American political life and the impact those decisions have on policy formation. The course aims to understand the influences that lead to or retard individual political participation.

**POLS 3133: United States Congress**

Examination of the U.S. Congress in terms of its functions as both a lawmaking institution and a representative institution. Attention to the legislative process, congressional elections, party leadership, and executive-legislative relations.

**POLS 3143: The United States Presidency**

Analysis of the role of the presidency in the American political system. Topics include the theoretical and constitutional foundations of the president, the growth of the presidency as an institution, the evolving constitutional, political, and environmental restraints to presidential action, presidential leadership, and historical trends in the relationship between the presidency and the legislative and judicial branches of government.

**POLS 3253: Classical Political Thought**

Cross-listed: PHIL 3253 Classical Political Thought

An examination of the major contributions to political thought during the Classical Age, the Medieval Era, and the Renaissance.

Note: Completion of POLS 2253 Survey of Western Political Thought recommended.

**POLS 3423: Problems in International Affairs**

This course will examine approximately ten major issues in international affairs. It will examine the history, politics, conflicts, debates, and actors involved in each specific issue area. The specific topics are up to the instructor, and will vary from offering to offering depending on the situation and issues in international relations at the time of instruction.

Note: Course may be repeated for credit if topics vary

**POLS 3433: United Nations**

Offered: Fall

Study of the organization and functioning of the United Nations, significant problems confronting world organization, weaknesses of the UN, and the future of world organization. Students will conduct research and write papers on significant international issues confronting the UN and on the foreign policy of selected members of the UN.

Note: Students will participate each week in a mock session of the UN and will attend, at their own expense, the annual session of the Arkansas Model United Nations, which normally meets on Friday and Saturday of the first week in December.

Note: Only one Model United Nations course may be taken for credit during a semester.

**POLS 3473: National Security Policy**

A study of national security policy making, with an emphasis on current national security issues.

**POLS 3513: Research Methods**

Introduction to elementary descriptive and inferential statistics, with an emphasis on applications in political science.

**POLS 4033: Principles of Legal Study**

This course is designed to introduce students to the LSAT the standardized exam needed to get into law school. The class begins with a breakdown of each of the sections of the exam. Later on in the semester the students will lead the class in solving LSAT questions. During the course of the semester students will be given three practice LSAT exams to see how much they are progressing.

**POLS 4043: American Constitutional Law**

A comprehensive study of the United States Supreme Court's decisions in the evolution of American Government as seen in the leading cases dealing with judicial review, separation of powers, and federal systems; protection of personal rights, interstate commerce, taxation, and due process of law in economic regulation and control; and civil liberties and civil rights.

**POLS 4183: American Legal History**

This course concerns the history and development of law, legal institutions, and legal culture in the United States from its colonial origins to the present day, with emphasis on constitutional case law and the interaction of law with the overall development of American society.

**POLS 4233: American Political Thought**

Cross-listed: HIST/PHIL 4233 American Political Thought

The background and development of American political ideas from the colonial period to the present. Emphasis is placed on colonial political theory, the Founding, conflict and consensus prior to the Civil War, the response to industrialization, the rise of the positive state, nationalism, the New Left and New Right, and current trends.

**POLS 4951: Undergraduate Research in Political Science**

Offered: On demand

Prerequisite: Departmental approval

Advanced students carry out independent research activity relating to a significant problem in a major field of study. Supervised by faculty member. Formal report and presentation required.

Note: One to four credits depending on problem selected and effort made.

**POLS 4952: Undergraduate Research in Political Science**

Offered: On demand

Prerequisite: Departmental approval

Advanced students carry out independent research activity relating to a significant problem in a major field of study. Supervised by faculty member. Formal report and presentation required.

Note: One to four credits depending on problem selected and effort made.

**POLS 4953: Undergraduate Research in Political Science**

Offered: On demand

Prerequisite: Departmental approval

Advanced students carry out independent research activity relating to a significant problem in a major field of study. Supervised by faculty member. Formal report and presentation required.

Note: One to four credits depending on problem selected and effort made.

**POLS 4954: Undergraduate Research in Political Science**

Offered: On demand

Prerequisite: Departmental approval

Advanced students carry out independent research activity relating to a significant problem in a major field of study. Supervised by faculty member. Formal report and presentation required.

Note: One to four credits depending on problem selected and effort made.



**POLS 4963: Senior Seminar**

Prerequisite: POLS 2513 Research Design

A required course for senior Political Science majors. Course content will cover a directed seminar in a specified area of Political Science. Research techniques will be emphasized.

**POLS 4971: Internship**

Cross-listed: HIST 4971 Internship

Prerequisites: Junior or senior standing, 2.75 grade point average, and consent of department head.

A supervised placement in selected agency settings in student/trainee status under professional guidance of both an agency supervisor and a faculty member. Emphasis will be on providing hands-on experience in research, editing, cultural management, public service, or some other area related to the discipline. Written report required and minimum of 100 clock hours of supervision required per credit hour.

Note: May be repeated for a maximum of 6 hours credit.

**POLS 4972: Internship**

Cross-listed: HIST 4972 Internship

Prerequisites: Junior or senior standing, 2.75 grade point average, and consent of department head.

A supervised placement in selected agency settings in student/trainee status under professional guidance of both an agency supervisor and a faculty member. Emphasis will be on providing hands-on experience in research, editing, cultural management, public service, or some other area related to the discipline. Written report required and minimum of 100 clock hours of supervision required per credit hour.

Note: May be repeated for a maximum of 6 hours credit.

**POLS 4973: Internship**

Cross-listed: HIST 4973 Internship

Prerequisites: Junior or senior standing, 2.75 grade point average, and consent of department head.

A supervised placement in selected agency settings in student/trainee status under professional guidance of both an agency supervisor and a faculty member. Emphasis will be on providing hands-on experience in research, editing, cultural management, public service, or some other area related to the discipline. Written report required and minimum of 100 clock hours of supervision required per credit hour.

Note: May be repeated for a maximum of 6 hours credit.

**POLS 4974: Internship**

Cross-listed: HIST 4974 Internship

Prerequisites: Junior or senior standing, 2.75 grade point average, and consent of department head.

A supervised placement in selected agency settings in student/trainee status under professional guidance of both an agency supervisor and a faculty member. Emphasis will be on providing hands-on experience in research, editing, cultural management, public service, or some other area related to the discipline. Written report required and minimum of 100 clock hours of supervision required per credit hour.

Note: May be repeated for a maximum of 6 hours credit.

**POLS 4975: Internship**

Cross-listed: HIST 4975 Internship

Prerequisites: Junior or senior standing, 2.75 grade point average, and consent of department head.

A supervised placement in selected agency settings in student/trainee status under professional guidance of both an agency supervisor and a faculty member. Emphasis will be on providing hands-on experience in research, editing, cultural management, public service, or some other area related to the discipline. Written report required and minimum of 100 clock hours of supervision required per credit hour.

Note: May be repeated for a maximum of 6 hours credit.

**POLS 4976: Internship**

Cross-listed: HIST 4976 Internship

Prerequisites: Junior or senior standing, 2.75 grade point average, and consent of department head.

A supervised placement in selected agency settings in student/trainee status under professional guidance of both an agency supervisor and a faculty member. Emphasis will be on providing hands-on experience in research, editing, cultural management, public service, or some other area related to the discipline. Written report required and minimum of 100 clock hours of supervision required per credit hour.

Note: May be repeated for a maximum of 6 hours credit.

**POLS 4983: Political Science Seminar**

A directed seminar in an area of political science. The specific focus will depend upon research underway, community or student need, and the unique educational opportunity available.

Note: This course may be repeated for credit if course content differs.

**POLS 4991: Special Problems in Political Science**

Admission requires consent of department head.

**POLS 4992: Special Problems in Political Science**

Admission requires consent of department head.

**POLS 4993: Special Problems in Political Science**

Admission requires consent of department head.

**POLS 4994: Special Problems in Political Science**

Admission requires consent of department head.

**PRIOR LEARNING ASSESSMENT (PLA)**

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**PLA 3001: Portfolio Development for Prior Learning Assessment**

Prerequisite: Completion of 60 hours of credit, which includes all general education requirements, and 12 hours of coursework after being admitted to Arkansas Tech University.

The basis for requesting credit for prior learning is the development of a portfolio with assistance from a faculty advisor. Every student requesting credit for prior learning must enroll in this course and complete a portfolio which demonstrates the college-level learning that has resulted from experiences outside a formal academic framework. The student utilizes this method to document knowledge acquired which is equivalent to upper-division college-level credit.

Note: Grading is on a Pass/Fail basis.

**PLA 4201: Prior Learning Assessment Credit**

Prerequisite: PLA 3001 Portfolio Development for Prior Learning Assessment

Based on a recommendation from the designated PLA reviewer, and reviewed by the appropriate academic dean and the University Registrar, the portfolio assessment completed in PLA 3001 Portfolio Development for Prior Learning Assessment will determine the number of hours awarded for prior learning. This variable-credit course provides the opportunity for the student to enroll in the number of hours that were approved through the portfolio. Regular tuition charges will be applied.

Note: Grading is on a Pass/Fail basis.

Note: The Arkansas Higher Education Coordinating Board sets credit limits for experiential/prior learning assessment.

**PLA 4202: Prior Learning Assessment Credit**

Prerequisite: PLA 3001 Portfolio Development for Prior Learning Assessment

Based on a recommendation from the designated PLA reviewer, and reviewed by the appropriate academic dean and the University Registrar, the portfolio assessment completed in PLA 3001 Portfolio Development for Prior Learning Assessment will determine the number of hours awarded for prior learning. This variable-credit course provides the opportunity for the student to enroll in the number of hours that were approved through the portfolio. Regular tuition charges will be applied.

Note: Grading is on a Pass/Fail basis.

Note: The Arkansas Higher Education Coordinating Board sets credit limits for experiential/prior learning assessment.

**PLA 4203: Prior Learning Assessment Credit**

Prerequisite: PLA 3001 Portfolio Development for Prior Learning Assessment

Based on a recommendation from the designated PLA reviewer, and reviewed by the appropriate academic dean and the University Registrar, the portfolio assessment completed in PLA 3001 Portfolio Development for Prior Learning Assessment will determine the number of hours awarded for prior learning. This variable-credit course provides the opportunity for the student to enroll in the number of hours that were approved through the portfolio. Regular tuition charges will be applied.

Note: Grading is on a Pass/Fail basis.

Note: The Arkansas Higher Education Coordinating Board sets credit limits for experiential/prior learning assessment.

**PLA 4204: Prior Learning Assessment Credit**

Prerequisite: PLA 3001 Portfolio Development for Prior Learning Assessment

Based on a recommendation from the designated PLA reviewer, and reviewed by the appropriate academic dean and the University Registrar, the portfolio assessment completed in PLA 3001 Portfolio Development for Prior Learning Assessment will determine the number of hours awarded for prior learning. This variable-credit course provides the opportunity for the student to enroll in the number of hours that were approved through the portfolio. Regular tuition charges will be applied.

Note: Grading is on a Pass/Fail basis.

Note: The Arkansas Higher Education Coordinating Board sets credit limits for experiential/prior learning assessment.

**PLA 4205: Prior Learning Assessment Credit**

Prerequisite: PLA 3001 Portfolio Development for Prior Learning Assessment

Based on a recommendation from the designated PLA reviewer, and reviewed by the appropriate academic dean and the University Registrar, the portfolio assessment completed in PLA 3001 Portfolio Development for Prior Learning Assessment will determine the number of hours awarded for prior learning. This variable-credit course provides the opportunity for the student to enroll in the number of hours that were approved through the portfolio. Regular tuition charges will be applied.

Note: Grading is on a Pass/Fail basis.

Note: The Arkansas Higher Education Coordinating Board sets credit limits for experiential/prior learning assessment.

**PLA 4206: Prior Learning Assessment Credit**

Prerequisite: PLA 3001 Portfolio Development for Prior Learning Assessment

Based on a recommendation from the designated PLA reviewer, and reviewed by the appropriate academic dean and the University Registrar, the portfolio assessment completed in PLA 3001 Portfolio Development for Prior Learning Assessment will determine the number of hours awarded for prior learning. This variable-credit course provides the opportunity for the student to enroll in the number of hours that were approved through the portfolio. Regular tuition charges will be applied.

Note: Grading is on a Pass/Fail basis.

Note: The Arkansas Higher Education Coordinating Board sets credit limits for experiential/prior learning assessment.

**PLA 4207: Prior Learning Assessment Credit**

Prerequisite: PLA 3001 Portfolio Development for Prior Learning Assessment

Based on a recommendation from the designated PLA reviewer, and reviewed by the appropriate academic dean and the University Registrar, the portfolio assessment completed in PLA 3001 Portfolio Development for Prior Learning Assessment will determine the number of hours awarded for prior learning. This variable-credit course provides the opportunity for the student to enroll in the number of hours that were approved through the portfolio. Regular tuition charges will be applied.

Note: Grading is on a Pass/Fail basis.

Note: The Arkansas Higher Education Coordinating Board sets credit limits for experiential/prior learning assessment.

**PLA 4208: Prior Learning Assessment Credit**

Prerequisite: PLA 3001 Portfolio Development for Prior Learning Assessment

Based on a recommendation from the designated PLA reviewer, and reviewed by the appropriate academic dean and the University Registrar, the portfolio assessment completed in PLA 3001 Portfolio Development for Prior Learning Assessment will determine the number of hours awarded for prior learning. This variable-credit course provides the opportunity for the student to enroll in the number of hours that were approved through the portfolio. Regular tuition charges will be applied.

Note: Grading is on a Pass/Fail basis.

Note: The Arkansas Higher Education Coordinating Board sets credit limits for experiential/prior learning assessment.

**PLA 4209: Prior Learning Assessment Credit**

Prerequisite: PLA 3001 Portfolio Development for Prior Learning Assessment

Based on a recommendation from the designated PLA reviewer, and reviewed by the appropriate academic dean and the University Registrar, the portfolio assessment completed in PLA 3001 Portfolio Development for Prior Learning Assessment will determine the number of hours awarded for prior learning. This variable-credit course provides the opportunity for the student to enroll in the number of hours that were approved through the portfolio. Regular tuition charges will be applied.

Note: Grading is on a Pass/Fail basis.

Note: The Arkansas Higher Education Coordinating Board sets credit limits for experiential/prior learning assessment.

**PLA 4210: Prior Learning Assessment Credit**

Prerequisite: PLA 3001 Portfolio Development for Prior Learning Assessment

Based on a recommendation from the designated PLA reviewer, and reviewed by the appropriate academic dean and the University Registrar, the portfolio assessment completed in PLA 3001 Portfolio Development for Prior Learning Assessment will determine the number of hours awarded for prior learning. This variable-credit course provides the opportunity for the student to enroll in the number of hours that were approved through the portfolio. Regular tuition charges will be applied.

Note: Grading is on a Pass/Fail basis.

Note: The Arkansas Higher Education Coordinating Board sets credit limits for experiential/prior learning assessment.

**PLA 4211: Prior Learning Assessment Credit**

Prerequisite: PLA 3001 Portfolio Development for Prior Learning Assessment

Based on a recommendation from the designated PLA reviewer, and reviewed by the appropriate academic dean and the University Registrar, the portfolio assessment completed in PLA 3001 Portfolio Development for Prior Learning Assessment will determine the number of hours awarded for prior learning. This variable-credit course provides the opportunity for the student to enroll in the number of hours that were approved through the portfolio. Regular tuition charges will be applied.

Note: Grading is on a Pass/Fail basis.

Note: The Arkansas Higher Education Coordinating Board sets credit limits for experiential/prior learning assessment.

**PLA 4212: Prior Learning Assessment Credit**

Prerequisite: PLA 3001 Portfolio Development for Prior Learning Assessment

Based on a recommendation from the designated PLA reviewer, and reviewed by the appropriate academic dean and the University Registrar, the portfolio assessment completed in PLA 3001 Portfolio Development for Prior Learning Assessment will determine the number of hours awarded for prior learning. This variable-credit course provides the opportunity for the student to enroll in the number of hours that were approved through the portfolio. Regular tuition charges will be applied.

Note: Grading is on a Pass/Fail basis.

Note: The Arkansas Higher Education Coordinating Board sets credit limits for experiential/prior learning assessment.

### **PLA 4213: Prior Learning Assessment Credit**

Prerequisite: PLA 3001 Portfolio Development for Prior Learning Assessment

Based on a recommendation from the designated PLA reviewer, and reviewed by the appropriate academic dean and the University Registrar, the portfolio assessment completed in PLA 3001 Portfolio Development for Prior Learning Assessment will determine the number of hours awarded for prior learning. This variable-credit course provides the opportunity for the student to enroll in the number of hours that were approved through the portfolio. Regular tuition charges will be applied.

Note: Grading is on a Pass/Fail basis.

Note: The Arkansas Higher Education Coordinating Board sets credit limits for experiential/prior learning assessment.

### **PLA 4214: Prior Learning Assessment Credit**

Prerequisite: PLA 3001 Portfolio Development for Prior Learning Assessment

Based on a recommendation from the designated PLA reviewer, and reviewed by the appropriate academic dean and the University Registrar, the portfolio assessment completed in PLA 3001 Portfolio Development for Prior Learning Assessment will determine the number of hours awarded for prior learning. This variable-credit course provides the opportunity for the student to enroll in the number of hours that were approved through the portfolio. Regular tuition charges will be applied.

Note: Grading is on a Pass/Fail basis.

Note: The Arkansas Higher Education Coordinating Board sets credit limits for experiential/prior learning assessment.

### **PLA 4215: Prior Learning Assessment Credit**

Prerequisite: PLA 3001 Portfolio Development for Prior Learning Assessment

Based on a recommendation from the designated PLA reviewer, and reviewed by the appropriate academic dean and the University Registrar, the portfolio assessment completed in PLA 3001 Portfolio Development for Prior Learning Assessment will determine the number of hours awarded for prior learning. This variable-credit course provides the opportunity for the student to enroll in the number of hours that were approved through the portfolio. Regular tuition charges will be applied.

Note: Grading is on a Pass/Fail basis.

Note: The Arkansas Higher Education Coordinating Board sets credit limits for experiential/prior learning assessment.

## **PROFESSIONAL STUDIES (PS)**

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### **PS 3013: Professional Studies Seminar**

Prerequisite: Successful completion of general education English requirement or permission of instructor.

This course is designed to introduce students to the field of professional studies and to the Bachelor of Professional Studies degree. Topics include: overview of the professional studies degree; survey of current issues in the professions; professional competencies and skills; career and academic program planning; learning and communicating online; academic writing and APA.

Note: Participation in the course requires access to a computer, the internet, and a webcam or other video capture technology.

### **PS 3023: Professional Communications**

Cross-listed: OL 3023 Professional Communications

Prerequisites: Successful completion of the general education English requirement.

This course introduces theories and practice of communication appropriate for a variety of professional settings. Course topics include, but are not limited to, communication, teamwork, business writing, technology, public speaking, conducting effective meetings, factors affecting communication, and challenges and opportunities for communication in the workplace. Students will work individually and as members of project groups to effectively carry out course learning objectives.

Note: Participation in the course requires access to a computer, the internet, and a webcam or other video capture technology.

### **PS 3133: Principles of Personnel Management**

Cross-listed: OL 3133 Principles of Personnel Management

Prerequisite: Successful completion of the general education English requirement.

This course supports the needs of professionals whose career fields require competencies in the area of human resources/personnel management. The focus of the course is on the practical application, essential theories, and process of personnel management from the perspective of a generalist. Course content will include the essential aspects of recruitment, selection, training, legal rights and responsibilities, compensation and appraisal.

Note: Participation in the course requires access to a computer, the internet, and a webcam or other video capture technology.

### **PS 3143: Applied Research**

Cross-listed: OL 3143 Applied Research

Prerequisite: Successful completion of the general education English requirement or permission of instructor.

In this course, students will learn the basic skills necessary to identify, define, research, and analyze complex organizational issues. Students will learn applied research fundamentals, including literature searches and analysis, needs assessment, data collection and management, sampling strategies, survey design and questionnaire development, proposal and report writing, and research ethics in organizations.

Note: This course must be taken as a prerequisite for OS/PS 4943 Applied Leadership Project unless waived upon advisor approval.

Note: Participation in the course requires access to a computer, the internet, and a webcam or other video capture technology.

**PS 4143: Nonprofit Governance**

Cross-listed: OL 4143 Nonprofit Governance

Prerequisite: Successful completion of the general education English requirement.

This course examines the theoretical, philosophical, practical and ethical perspectives related to the effective management and leadership of nonprofit organizations in the twenty-first century. Upon completion of the course, the student will possess an understanding of 1) the historical development of the nonprofit sector, 2) the multiple rationales for the existence of the nonprofit sector, 3) the distinctive characteristics of nonprofit organizations, 4) the structures, processes and complexities of organizational governance shared by volunteer board members and professional staff, 5) the dynamic environment of the contemporary nonprofit organization, and 6) the current issues of importance to nonprofit decision makers.

Note: Participation in the course requires access to a computer, the internet, and a webcam or other video capture technology.

**PS 4243: Adult Learning in Organizations**

Cross-listed: OL 4243 Adult Learning in Organizations

Prerequisite: Successful completion of the general education English requirement or permission of instructor.

This course provides an overview of adult learning in the context of the workplace. Students will explore the historical context of learning in the workplace, basic theories of instructional design and adult learning, frameworks and models of program planning in the workplace, learning interventions, and the overall relationship between lifelong learning and work.

Note: Participation in the course requires access to a computer, the internet, and a webcam or other video capture technology.

**PS 4343: Community Development**

Cross-listed: OL 4343 Community Development

Prerequisite: Successful completion of the general education English requirement.

This course covers the basic principles and issues in community development in the United States. Topics include: the definition of community; community assessment; methods of planning and problem solving; community needs; community assets; and community activism; and evaluating community based organizations. Students will work individually and in groups to design a non-profit organization based on a community needs assessment. The focus will be on assessment, planning, leadership, financing, and evaluating a community-based organization.

Note: Participation in the course requires access to a computer, the internet, and a webcam or other video capture technology.

**PS 4443: Professional Leadership**

Cross-listed: OL 4443 Professional Leadership

Prerequisite: Successful completion of the general education English requirement.

This course provides an overview of various leadership styles practiced by professionals in the public and private sector. The focus of the leadership skills identified will focus on the following competency areas: operations management, technology applications, facilities planning and management, human resource management, fiscal management, and organizational behavior.

Note: Participation in the course requires access to a computer, the internet, and a webcam or other video capture technology.

**PS 4543: Workplace Supervision**

Cross-listed: OL 4543 Workplace Supervision

Prerequisite: Successful completion of the general education English requirement.

This course provides an overview of various leadership and supervisory skills practiced by professionals in the public and private sector. The leadership skills identified will focus on the following competency areas: communication, employee coaching, project management, business analysis, continuous improvement, and resource management and how they pertain to supervisors within the workplace.

Note: Participation in the course requires access to a computer, the internet, and a webcam or other video capture technology.

**PS 4643: Organizational Globalization and Diversity**

Cross-listed: OL 4643 Organizational Globalization and Diversity

Prerequisite: Successful completion of the general education English requirement.

This course will discuss cultural (racial, gender, ethnic, religious) and global diversity in the workplace and classroom. Topics include cultural self-awareness, the impact of demographic changes and projections, issues in cross/intercultural settings, and theoretical perspectives of multicultural education. Applied strategies from personal, leadership, and management perspective will be explored.

Note: Participation in the course requires access to a computer, the internet, and a webcam or other video capture technology.

**PS 4743: Organizational Change**

Cross-listed: OL 4743 Organizational Change

Prerequisite: Successful completion of general education English requirement.

This course is designed to provide students with both the conceptual framework and the practical skills needed to design, implement and evaluate effective organizational change. Uncertainty, complexity and rapidly changing organizational environments create the necessity for organizations to adapt in order to survive in the 21st century. Students will work individually or in groups to engage in various activities intended to illustrate or practice the skills involved in planning and implementing organizational change.

Note: Participation in the course requires access to a computer, the internet, and a webcam or other video capture technology.

**PS 4843: Training and Organizational Development**

Cross-listed: OL 4843 Training and Organizational Development

This course is designed to introduce students to training and development in organizations. Students will learn about practical approaches and models to employee training, coaching, mentoring, and performance improvement in a workplace setting. Topics include strategic training, training design, training methods, evaluation, diversity training, and ethics.

Note: Participation in course requires access to a webcam or other video capture technology.

### **PS 4943: Applied Leadership Project**

Cross-listed: OL 4943 Applied Leadership Project

Prerequisites: Successful completion of general education English requirement, OL/PS 3143 Applied Research, and permission of the program advisor. This course will provide an opportunity for the student to facilitate a process for identifying a specific problem in an actual industry or business environment relevant to the student's specialty area. The student will outline a formal plan of action for identifying the problem through the development of a needs assessment which identifies deficiencies or areas of improvement needed within the business. At the conclusion, the student will develop a strategic recommended plan of action based on the findings from the empirical research. The student will demonstrate presentation ability, appropriate leadership styles, critical thinking, and communications skills in a formal presentation of the strategic plan to the group responsible for implementing the strategies.

Note: Student must earn a grade of C or higher to enroll in OL/PS 4963 Organizational Leadership Capstone.

Note: Participation in the course requires access to a computer, the internet, and a webcam or other video capture technology.

### **PS 4951: Undergraduate Research in Professional Studies**

Offered: On demand

Prerequisites: Successful completion of the general education English requirement and departmental approval.

Advanced students carry out independent research activity relating to a significant problem in a major field of study. Supervised by faculty member. Formal report and presentation required.

Note: One to four credits depending on problem selected and effort made.

Note: Participation in the course requires access to a computer, the internet, and a webcam or other video capture technology.

### **PS 4952: Undergraduate Research in Professional Studies**

Offered: On demand

Prerequisites: Successful completion of the general education English requirement and departmental approval.

Advanced students carry out independent research activity relating to a significant problem in a major field of study. Supervised by faculty member. Formal report and presentation required.

Note: One to four credits depending on problem selected and effort made.

Note: Participation in the course requires access to a computer, the internet, and a webcam or other video capture technology.

### **PS 4953: Undergraduate Research in Professional Studies**

Offered: On demand

Prerequisites: Successful completion of the general education English requirement and departmental approval.

Advanced students carry out independent research activity relating to a significant problem in a major field of study. Supervised by faculty member. Formal report and presentation required.

Note: One to four credits depending on problem selected and effort made.

Note: Participation in the course requires access to a computer, the internet, and a webcam or other video capture technology.

### **PS 4954: Undergraduate Research in Professional Studies**

Offered: On demand

Prerequisites: Successful completion of the general education English requirement and departmental approval.

Advanced students carry out independent research activity relating to a significant problem in a major field of study. Supervised by faculty member. Formal report and presentation required.

Note: One to four credits depending on problem selected and effort made.

Note: Participation in the course requires access to a computer, the internet, and a webcam or other video capture technology.

### **PS 4963: Organizational Leadership Capstone**

Cross-listed: OL 4963 Organizational Leadership Capstone

Prerequisites: Successful completion of general education English requirement, permission of the department.

In this course, students develop an ePortfolio highlighting various competencies learned throughout the degree program. The course prepares students with the skills, knowledge, and ability to communicate a critical understanding of their work through the articulation of goals, critique, and self-assessment. The course introduces students to the portfolio development process and improves their ability to think critically and communicate more effectively while developing personal goals and mission statements, understanding personal leadership styles, researching career options related to their concentration or focused area of study, working collaboratively with other students, and engaging in critical inquiry of the role education and professional development plays in one's life.

Note: Student must earn a grade of C or higher.

Note: Participation in the course requires access to a computer, the internet, and a webcam or other video capture technology.

### **PS 4991: Special Problems in Professional Studies**

Prerequisite: Successful completion of the general education English requirement.

This course is designed to address current issues and topics relevant to professional disciplines in the workforce. Content will be determined by contemporary trends and timely issues.

Note: Participation in the course requires access to a computer, the internet, and a webcam or other video capture technology.

### **PS 4992: Special Problems in Professional Studies**

Prerequisite: Successful completion of the general education English requirement.

This course is designed to address current issues and topics relevant to professional disciplines in the workforce. Content will be determined by contemporary trends and timely issues.

Note: Participation in the course requires access to a computer, the internet, and a webcam or other video capture technology.

### **PS 4993: Special Problems in Professional Studies**

Prerequisite: Successful completion of the general education English requirement.

This course is designed to address current issues and topics relevant to professional disciplines in the workforce. Content will be determined by contemporary trends and timely issues.

Note: Participation in the course requires access to a computer, the internet, and a webcam or other video capture technology.

### **PS 4994: Special Problems in Professional Studies**

Prerequisite: Successful completion of the general education English requirement.

This course is designed to address current issues and topics relevant to professional disciplines in the workforce. Content will be determined by contemporary trends and timely issues.

Note: Participation in the course requires access to a computer, the internet, and a webcam or other video capture technology.

## **PSYCHOLOGY (PSY)**

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### **PSY 4XXX: PSYCHOLOGY TRANSFER ELECTIVE**

Credit transferred from another institution and articulated for psychology upper division elective.

### **PSY 3XXX: PSYCHOLOGY TRANSFER ELECTIVE**

Credit transferred from another institution and articulated for psychology upper division elective.

### **PSY 2XXX: PSYCHOLOGY TRANSFER ELECTIVE**

Credit transferred from another institution and articulated for psychology lower division elective.

### **PSY 1XXX: PSYCHOLOGY TRANSFER ELECTIVE**

Credit transferred from another institution and articulated for psychology lower division elective.

### **PSY 2003: General Psychology**

ACTS Common Course - PSYC 1103

An introduction to basic concepts in the study of behavior and to elementary principles of genetics, individual differences, motivation, emotion, personality, sensation, and perception.

Note: A grade of "C" or higher is required for Psychology majors.

### **PSY 2023: Consumer Psychology**

Prerequisite: PSY 2003 General Psychology

An introduction to the application of psychological principles to the study of the acts of individuals involved in obtaining and using economic goods and services, including the decision making processes that precede and determine these acts. Emphasis is placed on the role of perception, learning, personality, and attitude change.

### **PSY 2033: Psychology of Adjustment**

Prerequisite: PSY 2003 General Psychology

A course to provide a broad introduction to psychology as applied to human behavior. Focus is on the theoretical and experimental issues underlying the development and function of mental and emotional states. Emphasis is on normal functioning.

\$20 testing fee.

### **PSY 2053: Statistics for the Behavioral Sciences**

Cross-listed: SOC 2053 Statistics for the Behavioral Sciences

Prerequisites: MATH 1003 College Mathematics, or higher, and PSY 2003 General Psychology or SOC 1003 Introductory Sociology, or consent.

An introduction to descriptive and inferential statistical methods pertinent to behavioral sciences research, including correlation, sampling distributions, t-tests, chi square and analysis of variance. Emphasis is upon the logical and applied aspects.

Note: A grade of "C" or higher is required for Psychology majors.

**PSY 2063: Research Design for the Behavioral Sciences**

Cross-listed: SOC 2063 Research Design for the Behavioral Sciences

Prerequisite: MATH 1003 College Mathematics, or higher, and PSY 2003 General Psychology or SOC 1003 Introductory Sociology, or consent.

This course is designed to introduce you to the foundations of behavioral science, the logic of research design and the many possible modes of operation. This class focuses on teaching students in the behavioral sciences the basic principles that guide the research process, the elements of research design, how to read and critique research articles, and how to write a literature review for a research project.

Note: A grade of "C" or higher is required for Psychology majors.

**PSY 2093: Human Sexuality**

Prerequisite: PSY 2003 General Psychology

A survey of the psychological themes associated with human sexuality. Topics include, but are not limited to: love and intimacy, sexual behaviors, sexual problems, gender, and sexual orientation.

**PSY 2133: Cross-Cultural Psychology**

Prerequisite: PSY 2003 General Psychology

This course is designed to link basic principles in cross-cultural developmental psychology and practical everyday events and questions as above ones together to help students cultivate a global and multicultural perspective on human behavior and gain an understanding of, and appreciation for, human development as it takes place in diverse cultural settings throughout the world. Experiential learning will be an important component of this course. Each student will have a chance to observe the behavior of a child/adolescent of different ethnic background from his or her own and develop their own cross-cultural viewpoint on human development.

**PSY 3003: Abnormal Psychology**

Prerequisite: PSY 2003 General Psychology

This course focuses on the theories and representative research about the presentation, etiology, and treatment of mental disorders.

**PSY 3013: Psychosocial Aspects of Death and Dying**

Cross-listed: SOC 3013 Psychosocial Aspects of Death and Dying

Prerequisite: Upper division standing.

This course studies the psychosocial and sociological aspects of death. The course will provide a basic insight into the dynamics surrounding death from the individual and societal level, its impact on survivors, and the effect death has on the living.

**PSY 3033: Criminal Psychology**

Cross-listed: CJ 3033 Criminal Psychology

Prerequisite: PSY 2003 General Psychology

The course familiarizes students with various models, theories, and research regarding criminality from a psychological perspective. Genetic, constitutional, and biological factors will be emphasized, and some practical applications to dealing with criminals will be considered.

**PSY 3053: Behavioral Neuroscience**

Prerequisites: a grade of "C" or higher in PSY 2003 General Psychology, PSY/SOC 2053 Statistics for the Behavioral Sciences, and PSY/SOC 2063 Research Design for the Behavioral Sciences.

An introduction to the physiological correlates of behavior, with emphasis upon the nervous system.

**PSY 3063: Developmental Psychology: Childhood**

Prerequisite: A grade of "C" or higher in PSY 2003 General Psychology, PSY/SOC 2053 Statistics for the Behavioral Sciences, and PSY/SOC 2063 Research Design for the Behavioral Sciences.

A study of how the maturation process affects an individual's physical and psychological state from conception through adolescence. Representative topics include (but not limited to) genetic influences, child cognitive processes, moral reasoning, and testing.

**PSY 3073: Psychology of Learning**

Prerequisite: A grade of "C" or higher in PSY 2003 General Psychology, PSY/SOC 2053 Statistics for the Behavioral Sciences, and PSY/SOC 2063 Research Design for the Behavioral Sciences.

An introduction to the basic processes in learning and conditioning, including human and animal experimental findings. Emphasis will be placed on conditioning paradigms, reinforcement principles, memory functions and their use in behavior change.

**PSY 3083: Psychology of Women**

Prerequisite: PSY 2003 General Psychology

The purpose of this course is to examine the lives of girls and women, including topics such as gender stereotypes, the development of gender roles, gender comparisons, women and work, love relationships, women's physical and mental health, violence against women, and women in later adulthood. Students who take this course should acquire an understanding of what it means to be female in North America.

**PSY 3093: Industrial and Organizational Psychology**

Prerequisite: PSY 2003 General Psychology



A survey of psychological applications in industrial settings with emphasis upon selection, placement, and training techniques; organizational theory; and decision making processes.

**PSY 3103: Health Psychology**

This course introduces students to the mind-body relationship and the contribution of psychology in understanding health promotion, health care, and the etiology and treatment of physical illness. Representative topics covered in this course include changing health habits, stress, and coping, health care utilization, patient-provider relations, and managing chronic illness such as heart disease, AIDS, diabetes, and cancer.

**PSY 3123: Evolutionary Psychology**

A directed seminar in an area of psychology. The specific focus will depend upon research underway, student need, and current developments in the field of psychology.

Note: May repeat for credit if course content differs.

**PSY 3133: Self and Society**

Cross-listed: SOC 3133 Self and Society

Prerequisite: SOC 1003 Introductory Sociology or PSY 2003 General Psychology

A sociological survey of the ways in which social structure and personality interact. Topics typically covered are: socialization, attitudes and value formation and change, and group influences upon self-concept and self-esteem.

**PSY 3141: Seminar in Psychology**

Prerequisite: A grade of "C" or higher in PSY 2003 General Psychology, PSY/SOC 2053 Statistics for the Behavioral Sciences, and PSY/SOC 2063 Research Design for the Behavioral Sciences.

A directed seminar in an area of psychology. The specific focus will depend upon research underway, student need, and current developments in the field of psychology.

Note: May be repeated for credit if course content differs.

**PSY 3142: Seminar in Psychology**

Prerequisite: A grade of "C" or higher in PSY 2003 General Psychology, PSY/SOC 2053 Statistics for the Behavioral Sciences, and PSY/SOC 2063 Research Design for the Behavioral Sciences.

A directed seminar in an area of psychology. The specific focus will depend upon research underway, student need, and current developments in the field of psychology.

Note: May be repeated for credit if course content differs.

**PSY 3143: Seminar in Psychology**

Prerequisite: A grade of "C" or higher in PSY 2003 General Psychology, PSY/SOC 2053 Statistics for the Behavioral Sciences, and PSY/SOC 2063 Research Design for the Behavioral Sciences.

A directed seminar in an area of psychology. The specific focus will depend upon research underway, student need, and current developments in the field of psychology.

Note: May be repeated for credit if course content differs.

**PSY 3144: Seminar in Psychology**

Prerequisite: A grade of "C" or higher in PSY 2003 General Psychology, PSY/SOC 2053 Statistics for the Behavioral Sciences, and PSY/SOC 2063 Research Design for the Behavioral Sciences.

A directed seminar in an area of psychology. The specific focus will depend upon research underway, student need, and current developments in the field of psychology.

Note: May be repeated for credit if course content differs.

**PSY 3153: Personality Psychology**

Prerequisite: A grade of "C" or higher in PSY 2003 General Psychology, PSY/SOC 2053 Statistics for the Behavioral Sciences, and PSY/SOC 2063 Research Design for the Behavioral Sciences.

An introduction to the various theoretical viewpoints of the normal personality structure and its development.

**PSY 3163: Developmental Psychology: Adulthood**

Prerequisite: A grade of "C" or higher in PSY 2003 General Psychology, PSY/SOC 2053 Statistics for the Behavioral Sciences, and PSY/SOC 2063 Research Design for the Behavioral Sciences.

The study of how the maturation process affects an individual's physical and psychological state from adolescence through old age. Representative topics include (but not limited to) early, middle, and late adulthood biological, psychosocial and cognitive development.

**PSY 3173: Psychology of Consciousness**

Prerequisite: A grade of "C" or higher in PSY 2003 General Psychology, PSY/SOC 2053 Statistics for the Behavioral Sciences, and PSY/SOC 2063 Research Design for the Behavioral Sciences.

An introduction to the various theoretical viewpoints as to the topic of consciousness and how it is investigated.

**PSY 3183: Development Psychology: Adolescence**

Prerequisite: PSY 2003 General Psychology

Since its creation in the early 20th century, the term adolescence has held a distinct position in the development of the person. This course explores the themes related to the period of adolescence, biological, psychosocial, typical and atypical development. Themes investigated in the course concern pubertal development, peers and relationship intimacy, the "adolescent rebellion", identity and vocational milestones.

**PSY 3184: Animal Behavior**

Cross-listed: BIOL 3184 Animal Behavior

Prerequisite: sophomore standing in biology or psychology, or approval of instructor.

An introductory course in animal behavior covering behavioral responses in primitive and advanced animals exposed to a wide range of environmental and social conditions. Laboratory exercises will include field as well as in-lab exercises and will focus on observational techniques and analyses of behavioral patterns in vertebrates and invertebrates.

Lecture three hours, laboratory two hours. \$40 laboratory fee.

**PSY 3191: Careers in Psychology**

Prerequisite: PSY 2003 General Psychology

This course provides an overview of the multiple educational and careers paths available to psychology majors.

**PSY 3813: Lifespan Development**

Prerequisites: PSY 2003 General Psychology

A study of the processes of human development from conception through the lifespan. Research, application, and other considerations for nursing majors will be emphasized. Topics include, but are not limited to: how the maturation process affects an individual's physical and psychological state, genetic influences, child cognitive processes, moral reasoning, and early, middle, and late adulthood biological, psychosocial, and cognitive developmental processes.

**PSY 4003: Capstone: Advanced Research Method and Lab for Psychology**

Prerequisites: PSY 2003 General Psychology, PSY/SOC 2053 Statistics for the Behavioral Sciences, and PSY/SOC 2063 Research Design for the Behavioral Sciences

A study of research methods in psychology. Emphasis is placed upon developing skills in data gathering and analysis, report writing and application of basic research strategies.

Note: A grade of "C" or higher is required for Psychology majors.

**PSY 4013: History of Psychology**

Prerequisite: A grade of "C" or higher in PSY 2003 General Psychology, PSY/SOC 2053 Statistics for the Behavioral Sciences, and PSY/SOC 2063 Research Design for the Behavioral Sciences.

A survey of the developments in psychology from the ancient Greeks to the emergence of psychology as a modern experimental science.

**PSY 4021: Internships in Psychology**

Prerequisite: PSY 2003 General Psychology

Supervised internship in a psychological-services or applied research setting. Emphasis will be placed on the student acquiring first-hand experience and entry-level skills in practitioner roles.

Note: May be repeated for a maximum of 6 hours of internship.

**PSY 4022: Internships in Psychology**

Prerequisite: PSY 2003 General Psychology

Supervised internship in a psychological-services or applied research setting. Emphasis will be placed on the student acquiring first-hand experience and entry-level skills in practitioner roles.

Note: May be repeated for a maximum of 6 hours of internship.

**PSY 4023: Internships in Psychology**

Prerequisite: PSY 2003 General Psychology

Supervised internship in a psychological-services or applied research setting. Emphasis will be placed on the student acquiring first-hand experience and entry-level skills in practitioner roles.

Note: May be repeated for a maximum of 6 hours of internship.

**PSY 4024: Internships in Psychology**

Prerequisite: PSY 2003 General Psychology

Supervised internship in a psychological-services or applied research setting. Emphasis will be placed on the student acquiring first-hand experience and entry-level skills in practitioner roles.

Note: May be repeated for a maximum of 6 hours of internship.

**PSY 4033: Psychological Tests and Measurements**

Prerequisite: A grade of "C" or higher in PSY 2003 General Psychology, PSY/SOC 2053 Statistics for the Behavioral Sciences, and PSY/SOC 2063 Research Design for the Behavioral Sciences.

Theory of psychological testing, statistical procedures, and training in administration, scoring and profiling of various tests of ability, achievement, interests, and personality.

\$20 testing fee.

**PSY 4043: Social Psychology**

Cross-listed: SOC 4043 Social Psychology

Prerequisites: a grade of "C" or higher in PSY 2003 General Psychology, PSY/SOC 2053 Statistics for the Behavioral Sciences, and PSY/SOC 2063 Research Design for the Behavioral Sciences.

The study of how individuals are influenced by the actual or implied presence of other persons. Emphasis is placed on attitudes, social cognition, social influence, aggression, altruism, self and other perception.

**PSY 4053: Sensation and Perception**

Prerequisite: A grade of "C" or higher in PSY 2003 General Psychology, PSY/SOC 2053 Statistics for the Behavioral Sciences, and PSY/SOC 2063 Research Design for the Behavioral Sciences.

The study of general perceptual process. While the main senses will be covered, emphasis will be placed on visual functioning. The role of perception in organismic adaptation will be explored.

**PSY 4073: Cognitive Psychology**

Prerequisite: A grade of "C" or higher in PSY 2003 General Psychology, PSY/SOC 2053 Statistics for the Behavioral Sciences, and PSY/SOC 2063 Research Design for the Behavioral Sciences.

A study of the basic principles of mental processes, and their influence on behavior. Specifically, the course focuses on the conscious and unconscious processes involved in the acquisition, storage, transformation, and use of knowledge.

**PSY 4103: Capstone: Advanced Psychological Science**

Prerequisites: PSY 2003 General Psychology, PSY 2053 Statistics for the Behavioral Sciences with a C or better, PSY 2063 Research Design for the Behavioral Sciences with a C or better.

A study and demonstration of scientific and psychological literacy. With scientific literacy the emphasis is placed upon being able to evaluate science beyond the classroom (e.g. the media, popular culture, etc.). With psychological literacy the emphasis is placed upon developing skills related to communicating in various modes to various audiences, reflective of one's own and other's behavior and mental processes, acting ethically, analysis of information to evaluate courses of action, and demonstrating a vocabulary and knowledge base subject matter of psychology. The course also focuses on the demonstration of psychological literacy related to the individual, social, and organizational issues.

**PSY 4133: Psychopharmacology**

Prerequisite: A grade of "C" or higher in PSY 2003 General Psychology, PSY/SOC 2053 Statistics for the Behavioral Sciences, and PSY/SOC 2063 Research Design for the Behavioral Sciences.

An introduction to the field of psychopharmacology. Representative topics include (but are not limited to) neuronal structures and processes, neurochemicals and neurotransmission, and the biological basis and pharmacological treatment of neurodegenerative diseases and mental illness.

**PSY 4203: Capstone: Psychology in the Community**

Prerequisites: PSY 2003 General Psychology, PSY 2053 Statistics for the Behavioral Sciences with a C or better, PSY 2063 Research Design for the Behavioral Sciences with a C or better

This course facilitates student experiences and work with clients and organizations that address issues, topics, and themes you are learning about in psychology. Through this educational and "hands on" curriculum, you will apply the information learned in your courses to practical, real-life situations encountered in work experiences. You will work with a chosen employer organization to seek solutions to their personal and communal issues.

All work internships must be secured by the student. The instructor will facilitate the following course learning objectives (CLO)

1. Exploring the areas of psychology through work experiences
2. Applying psychology content of the degree coursework to the work experiences.
3. Communicating with professionals in the field and to the discipline of psychology
4. Constructing a final product or portfolio on work experience and psychological applications

**PSY 4951: Undergraduate Research in Psychology**

Offered: On demand

Prerequisite: PSY 2003 General Psychology

Advanced students carry out independent research activity relating to a significant problem in a major field of study. Supervised by faculty member. Formal report and presentation required. One to four credits depending on problem selected and effort made.

**PSY 4952: Undergraduate Research in Psychology**

Offered: On demand

Prerequisite: PSY 2003 General Psychology

Advanced students carry out independent research activity relating to a significant problem in a major field of study. Supervised by faculty member. Formal report and presentation required. One to four credits depending on problem selected and effort made.

**PSY 4953: Undergraduate Research in Psychology**

Offered: On demand

Prerequisite: PSY 2003 General Psychology

Advanced students carry out independent research activity relating to a significant problem in a major field of study. Supervised by faculty member. Formal report and presentation required. One to four credits depending on problem selected and effort made.

**PSY 4954: Undergraduate Research in Psychology**

Offered: On demand

Prerequisite: PSY 2003 General Psychology

Advanced students carry out independent research activity relating to a significant problem in a major field of study. Supervised by faculty member. Formal report and presentation required. One to four credits depending on problem selected and effort made.

**PSY 4991: Special Problems in Psychology**

Prerequisite: PSY 2003 General Psychology

Independent work under individual guidance of a faculty member.

**PSY 4992: Special Problems in Psychology**

Prerequisite: PSY 2003 General Psychology

Independent work under individual guidance of a faculty member.

**PSY 4993: Special Problems in Psychology**

Prerequisite: PSY 2003 General Psychology

Independent work under individual guidance of a faculty member.

**PSY 4994: Special Problems in Psychology**

Prerequisite: PSY 2003 General Psychology

Independent work under individual guidance of a faculty member.

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**READING (RDNG)**

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**RDNG 3003: Teaching Literacy Foundations**

Prerequisite: Admission to Stage II of the Teacher Education Program.

The focus of this course is on the development of language and literacy of young children, and specific techniques appropriate for emergent readers and developing readers in the elementary grades, K-6. The aim of this course will be teaching all children to read independently including struggling readers and ESL students. The course covers issues relating to the socialization patterns and practices of literacy learning in the home and school. It requires the application of knowledge of the Science of Reading components: phonological awareness, phonics, vocabulary, fluency, and comprehension, with an emphasis on the theories and strategies appropriate for teaching, diagnosis of reading difficulties, and intervention strategies for struggling readers. A variety of approaches to reading and writing instruction, assessment practices, and issues in reading curriculum development will be addressed.

Note: A field experience is required in this course

**RDNG 3163: Integrated Language Arts**

Prerequisite: RDNG 3003 Teaching Literacy Foundations and Admission to Stage II of the Teacher Education Program.

Integrating language arts creates linguistic opportunities where literacy skills (reading, writing, listening and speaking) can be used together for real purposes and real audiences. Students in this course will explore, evaluate, create and apply a variety of integrated literacy strategies and activities, which will enhance their own as well as their future student's cognitive (critical thinking skills) and metacognitive (thinking about thinking) language art skills.

Note: A field experience is required in this course

**RDNG 4003: Literacy Assessment and Intervention**

Prerequisite: RDNG 3003 Teaching Literacy Foundations and Admission to Stage II of the Teacher Education Program.

Co-requisite: ELED 4033 Classroom and Behavior Management

This course prepares teacher candidates to examine, assess and diagnose literacy development for the purpose of instructional planning and interventions. Teacher candidates will determine the nature of a reading problem by assessing the following components of a comprehensive literacy program: Phonological awareness, phonics, fluency, vocabulary, and comprehension. Candidates will investigate and practice applying a variety of methods and tools for diagnosing and assessing literacy problems using both formal and informal assessments. Data from the assessments will be used to analyze and evaluate results for instructional planning appropriate for struggling readers and writers with intervention strategies, activities, and technology that will monitor progress and increase literacy skills. A practicum will be required as part of the course of study in which students will assess, diagnose and teach students with reading and writing difficulties.

Note: A field experience is required in this course

**RDNG 4013: Child and Adolescent Literature**

Prerequisite: Admission to Stage II of the Teacher Education Program.

Co-requisite: RDNG 4003 Literacy Assessment and Intervention

A study of issues and trends in literature for children/adolescents and its current practices in teaching literacy and other curricular practices.

Note: A field experience is required in this course

**RECREATION/PARK ADMINISTRATION (RP)****RP 4XXX: REC/PARK TRANSFER ELECTIVE**

Credit transferred from another institution and articulated for recreation and park administration upper division elective.

**RP 3XXX: REC/PARK TRANSFER ELECTIVE**

Credit transferred from another institution and articulated for recreation and park administration upper division elective.

**RP 2XXX: REC/PARK TRANSFER ELECTIVE**

Credit transferred from another institution and articulated for recreation and park administration lower division elective.

**RP 1XXX: REC/PARK TRANSFER ELECTIVE**

Credit transferred from another institution and articulated for recreation and park administration lower division elective.

**RP 1001: Orientation to Recreation and Park Administration**

Orientation to the university and recreation and park administration as a profession. Exploration of successful student and career paths.

Note: This course may be taken in place of TECH 1001 Orientation to the University.

**RP 1002: Backpacking**

This course is an introduction to basic backpacking skills, equipment, food, and backcountry travel. Day hikes and overnight hikes.

Note: Students will need to provide own personal equipment (backpack, sleeping bag, etc.) and be willing to share tents, stoves, cooking gear, etc. with other students in the course. Some students may need to borrow or purchase such gear depending on the equipment owned by members of the class. \$50 course fee required.

This is an activity course. No more than four hours of activity credit may be counted toward graduation. A student registering for an activities course in excess of these limits receives no credit for the additional course and the grade is not included in the computation of grade point.

**RP 1011: Sport Hunting**

An introduction to the fundamentals of sport hunting, materials, and personal skills. Emphasis on state game laws, personal equipment and usage, game species and their natural habitats, and firearm safety. Arkansas Hunter Safety certification awarded with successful completion.

This is an activity course. No more than four hours of activity credit may be counted toward graduation. A student registering for an activities course in excess of these limits receives no credit for the additional course and the grade is not included in the computation of grade point.

**RP 1013: Principles of Recreation and Park Administration**

A study of the history of the recreation and park profession and the basic sociological and ecological intermix of contemporary recreation and park services.

**RP 1021: Boating Education**

This course will take students through the Arkansas Game and Fish Commission Boating Guide. Those who successfully complete the course will be awarded Boating Safety Certification. A variety of audio visual presentations will be used, and participation in one weekend day of actual boating experience is required. Certification is awarded upon completion.

This is an activity course. No more than four hours of activity credit may be counted toward graduation. A student registering for an activities course in excess of these limits receives no credit for the additional course and the grade is not included in the computation of grade point.

**RP 1031: Introduction to Cycling**

Introduction to Cycling is designed to introduce the beginner biker to the basics needed for lifelong enjoyment of this recreational activity and sport. Students will be introduced to techniques of road cycling and off-road cycling. Emphasis on choosing clothing and equipment, maintenance, and riding skills. Students will have riding opportunities at area trails, as well as classroom instruction.

Note: Participants are expected to provide their own bikes and associated gear and equipment.

\$50 fee required to cover transportation to area trails.

This is an activity course. No more than four hours of activity credit may be counted toward graduation. A student registering for an activities course in excess of these limits receives no credit for the additional course and the grade is not included in the computation of grade point.

**RP 1041: Principles and Techniques of Fishing**

This course provides an introduction to the sport of fishing. Students will learn to identify species of freshwater fish, emphasizing fish inhabiting Arkansas streams and lakes. Students will learn casting techniques, ethics, catch-and-release techniques, knot tying, and lure and bait selection. Cleaning and cooking your catch of the day will be covered.

Note: Arkansas fishing license required. Bring your own pole and tackle. Field trips to area fishing holes.

\$10 laboratory fee.

This is an activity course. No more than four hours of activity credit may be counted toward graduation. A student registering for an activities course in excess of these limits receives no credit for the additional course and the grade is not included in the computation of grade point.

### **RP 1993: Basic Forest Firefighting**

This class is taught jointly by the U.S. Forest Service and ATU using classroom theory and weekend field exercises which will enable successful candidates to obtain the "Red Card" recognized by most federal and many state firefighting agencies as a minimum requirement for wildland fire firefighting certification. This class consists of the following wildland fire training courses recognized by the National Wildland Coordinating Group (NWCG): S-130 Basic Firefighting; S-190 Introduction to Fire Behavior; S-110 Wildland Fire Suppression Orientation; I-100 Introduction to Incident Command System; and Standards for Survival. These courses will be taught together to provide a complete picture of the basics of forest firefighting. This training is required before any person can participate on a wildland fire suppression crew for the U.S. Forest Service, other federal agencies and most other state wildland fire agencies. Instruction will be by U.S. Forest Service certified instructors and RP faculty.

### **RP 2003: Experience Programming**

Experience program planning, supervising, and evaluating. This course examines the theory, principles, and leadership techniques of programming for individuals and groups in the community, institutions, and camps.

Note: May not be taken for credit after completion of RP 2002 and RP 2012.

### **RP 2013: Open Space Management**

An introduction to management of various open spaces, landscapes, and trail systems. This course will address the environmental, human, and economical aspects for better management of open spaces.

### **RP 2023: Trail Planning and Management**

An experiential learning course on planning and design process for the evolution of trails.

\$50 course fee.

### **RP 2033: Leadership in Experience Industries**

A study of the processes, methods, and characteristics of leadership and supervision in the experience industries. This course will help students further develop the vital leadership skills needed in all experience industries.

\$100 lab fee.

### **RP 2133: Introduction to Travel and Tourism**

Cross-listed: HA 2133 Introduction to Travel and Tourism

The introduction to travel and tourism, its components and relationship to the recreation and hospitality industry. The course will explore the current and future trends in travel and tourism and the effects on the economy, as well as the social and political impacts of travel and tourism.

### **RP 2881: Special Topics**

Offered: On demand.

Investigative studies and special problems and topics related to parks, recreation, and hospitality administration.

Note: May be repeated if content differs.

### **RP 2882: Special Topics**

Offered: On demand.

Investigative studies and special problems and topics related to parks, recreation, and hospitality administration.

Note: May be repeated if content differs.

### **RP 2883: Special Topics**

Offered: On demand.

Investigative studies and special problems and topics related to parks, recreation, and hospitality administration.

Note: May be repeated if content differs.

### **RP 2991: Special Problems**

Offered: On demand.

Investigative studies and special problems and topics related to parks, recreation, and hospitality administration.

Note: May be repeated if content differs.

### **RP 2992: Special Problems**

Offered: On demand.

Investigative studies and special problems and topics related to parks, recreation, and hospitality administration.

Note: May be repeated if content differs.

**RP 2993: Special Problems**

Offered: On demand.

Investigative studies and special problems and topics related to parks, recreation, and hospitality administration.

Note: May be repeated if content differs.

**RP 3013: Inclusive Recreation**

This course introduces students to the concept of Inclusive Recreation, which is the planning, implementation and evaluation of recreation programs designed to include ALL persons, including those with disabilities.

**RP 3023: Camp Administration**

Theory and principles of camp administration, programming, leadership, and supervision in public, private, and school camps. Field trips, school camp. \$100 lab fee.

**RP 3033: Entrepreneurship in Experience Industries**

An introduction to the spectrum of planning, delivery and assessment of goods and services in the commercial experience industries.

**RP 3034: Master Planning for Parks and Tourism**

Fundamentals of the site planning process and application to park and recreation development, including consideration of factors both external (user preferences) and internal to the site (function, organization and aesthetic treatment). Emphasis on resource capabilities and potentials.

Lecture two hours, laboratory four hours.

**RP 3043: Work Experience**

Prerequisite: Departmental Approval

Supervised field application of class skills and knowledge in Parks and Recreation work situations. Students are given the opportunity to take part in meaningful management and work experiences in actual work situations under the supervision of both university faculty and professionals in the field. Minimum of 100 clock hours of work experience is required.

**RP 3053: Natural Resource Management**

Study of the economic, social, political, and physical factors of the natural environment and methods to guide, direct, and influence orderly growth and development.

**RP 3063: Outdoor Education**

An introduction to outdoor education foundations, methods, and practice. Preparation and planning for teaching in, about and for the outdoors. Leadership of outdoor education programs.

\$100 transportation and supplies fee.

**RP 3093: Interpretive Methods**

An analysis of various interpretive techniques, interpretive planning, and utilization of interpretation to obtain management goals. Students will plan, design and implement interpretive programs using various media.

**RP 3113: Human Resource Management in Parks, Recreation, and Hospitality Administration**

Cross-listed: RP 3113 Human Resource Management in Parks, Recreation, and Hospitality Administration

Prerequisites: Junior standing and nine hours of RP or HA courses.

An overview of personnel considerations in various Recreation and Park agencies and the Hospitality industry. Laws, legal issues, structure, staffing, motivation, training, conduct, policies, and other aspects of agency/industry human resource management will be examined.

**RP 3133: Tourism Planning**

An examination of the tourism planning process and techniques. Topics include tourism as a system, levels of planning, environmental, cultural and economic components, attractions, transportation, infrastructure and marketing.

**RP 3403: Experience Industry Finance Management**

Prerequisites: Junior standing and Recreation and Park Administration major.

An introduction to recreation and park financial management including revenue and expenditure management.

**RP 3503: Sports for Communities and Tourism**

An overview of recreational sport and event management in various settings. Topics include informal, intramural, club, extramural, instructional sports, and sporting events programming; values of recreational sports; administration and operation of recreational sports and sporting events; terminology and career opportunities in various sport settings.

**RP 3763: Introduction to Turfgrass Management**

An introduction to turf management emphasizing structure, growth, adaptation, and management of turfgrass. Methods for establishment, fertilization, mowing, cultivation, irrigation and pest management.

**RP 3791: Turfgrass Management: Equipment**

An introduction to turfgrass equipment. Visits to golf course or other turfgrass sites where students will examine and operate various types of turf equipment. Equipment maintenance discussed. Equipment design and selection discussed.

\$25 travel fee.

**RP 3793: Turfgrass Pest Control**

An introduction to the integrated management of pests affecting turfgrass. Maintenance practices related to pest and abiotic turfgrass problems, safety, and materials.

**RP 3993: Wildland Fire Practices in Natural Resource Management**

Prerequisites: RP 1993 Basic Forest Firefighting or permission.

Advanced study of the organization, deployment, and techniques of fire suppression applicable to wildfires affecting residences, outbuildings, and other human-structure barriers in remote areas and outlying suburban locales. Particular emphasis on wildland structure and urban interface fire suppression problems. This is a science-based course. Emphasis is placed on: (1) uncontrolled wildland fire and the many positive and negative impacts with which fire personnel must deal; (2) planning and implementing controlled burn projects to attain desired future conditions and reduce fire hazards, and (3) the dilemma of ever-expanding wildland/urban interface issues. The overall purpose of this course is to provide the student with integral fire knowledge and skills necessary to become an effective member of a fire/natural resource management team.

Note: Weekend field exercises required.

**RP 4001: Internship Preparation**

Prerequisites: PR major, senior standing, and completion of RP 3043 Work Experience or permission of department head.

Preparation for the internship experience. This course is graded Pass/Fail.

**RP 4013: Experience Industry Administration**

Prerequisite: Six hours of RP courses.

A study of the administrative process of planning, organizing, staffing, directing, evaluating, budgeting, and coordinating of recreation and park agencies.

**RP 4023: Research Methods**

Prerequisite: Twelve hours of RP courses.

An introduction to the spirit and theory of research including the scientific method and its application to the recreation and parks profession.

**RP 4043: Field Seminar in Interpretive Methods**

This off-campus course will be of one-week duration conducted at recreation and park facilities in Arkansas and the nearby region. The course will center on discussion of interpretive facilities, techniques, problems and innovations with leading professionals on site.

A fee of \$100 will be assessed to cover transportation, food and entry fees for some sites. Lodging is usually provided by park agencies at the site free or at a very low cost.

NOTE: May only be repeated for 6 hours of credit.

**RP 4053: Water Resources Development**

A study of water resources with emphasis on surface supply and small watershed and reservoir recreation. Supply and pollution in federal, state, local and private water use allocation will be considered.

**RP 4063: Park Management**

Basic principles, practices, and problems pertaining to the management of public park systems with emphasis on maintenance and operation schedules, construction and maintenance equipment, employee safety, office procedures, law enforcement, personnel management, and public relations.

**RP 4073: Principles and Techniques of Therapeutic Recreation**

Prerequisite: RP 3013 Inclusive Recreation or permission of instructor.

A professional course which examines the foundation, theory, philosophy, and historical significance of therapeutic recreation. Emphasis on the therapeutic recreation process as it relates to program development and service delivery for individuals with illnesses and/ or disabilities in various clinical and community settings.

**RP 4093: Resort and Club Management**

Cross-listed: HA 4093 Resort and Club Management

Prerequisites: Junior standing and nine hours of RP or HA courses or by permission.

An in-depth study of resorts and clubs with respect to their planning, development, organization, management, marketing, visitor characteristics, and environmental consequences.

**RP 4103: Recreation Law and Policy**

An examination of the relationship between recreation and the law. Specific topics include liability negligence, contracts, safety codes, law enforcement, insurance, and administration policy. Identification of legal decision making organizations and the court system, including the policy dimensions of land acquisition, personnel disputes, and current issues in land use.



**RP 4112: Internship II**

Offered: Fall semester only immediately following RP 4114 Internship I. Must enroll in RP 4114 Internship I Internship I previous summer term.

Prerequisites: Recreation and Park Administration major in senior standing, current certifications in CPR and Standard First Aid, consent of department head and completion of all other courses applicable to degree. Placement in selected agency settings in student intern status under professional guidance of both agency supervisor and faculty. Emphasis will be placed on application of classroom theory to agency requirements which fulfill student's individual career interests. No prior experience credit will be granted. In RP 4112 Internship II a minimum of 160 clock hours during a minimum of 4 weeks of supervised internship is required. Student cannot document more than 50 hours of work experience per week.

Note: RP 4112 Internship II Internship II is a continuation of RP 4114 Internship I. Students are encouraged to obtain and read the syllabus and manual for RP 4112 Internship II and begin working on the requirements for RP 4112 Internship II while enrolled in RP 4114 Internship I.

**RP 4114: Internship I**

Prerequisites: Recreation and Park Administration major in senior standing, current certifications in CPR and Standard First Aid, consent of department head and completion of all other courses applicable to degree.

Placement in selected agency settings in student intern status under professional guidance of both agency supervisor and faculty. Emphasis will be placed on application of classroom theory to agency requirements which fulfill student's individual career interests. No prior experience credit will be granted. In RP 4114 Internship I a minimum of 400 clock hours during a minimum of 10 weeks of supervised internship is required. Student cannot document more than 50 hours of work experience per week.

\$100 supervisor travel fee is required

Note: Must enroll in RP 4112 Internship II Internship II for fall semester immediately following RP 4114 Internship I to complete an additional 160 hours of internship. Students are encouraged to obtain and read the syllabus and manual for RP 4112 Internship II and begin working on the requirements for RP 4112 Internship II while enrolled in RP 4114 Internship I.

**RP 4116: Internship**

Prerequisites: Recreation and Park major; senior standing, current certifications in CPR, Standard and Advanced First Aid, consent of department head and completion of all other courses applicable to degree.

Placement in selected agency settings as a student intern under professional guidance of both agency supervisor and faculty. Emphasis will be placed on application of classroom theory to agency requirements which fulfill student's individual career interest. No prior experience credit will be granted. Minimum of 560 clock hours during a minimum of 14 weeks of supervised internship is required. Student cannot document more than 40 hours of work experience per week. A written report is required within two weeks of internship completion.

\$100 supervisor travel fee required.

**RP 4173: Therapeutic Recreation Assessment and Documentation**

Prerequisites: RP 4073 Principles and Techniques of Therapeutic Recreation or permission of instructor.

This course is an examination of the various assessment tools, styles of documentation, and methods of assessment and documentation utilized in therapeutic recreation services. The purpose of this course is to provide students with the basic skills and knowledge necessary to conduct therapeutic recreation assessments and to properly document health care information.

**RP 4273: Administration and Operation of Therapeutic Recreation Programs**

Prerequisites: RP 3013 Inclusive Recreation and 4073 or permission of instructor.

Program design and planning for effective administration of client centered services for special populations. Management of therapeutic recreation services including standards of practice, clinical supervision, reimbursement, marketing, budgeting, and writing policies and procedures.

**RP 4373: Interventions in Therapeutic Recreation**

Prerequisites: RP 3013 Inclusive Recreation, RP 4073 Principles and Techniques of Therapeutic Recreation, or permission of instructor.

This course is designed to provide an understanding of the various interventions utilized in therapeutic recreation services and to develop technical competencies necessary for the provision of quality therapeutic recreation services. Emphasis will be placed on the skillful application of various processes and techniques utilized to facilitate therapeutic changes in the client.

**RP 4473: Issues and Trends in Therapeutic Recreation**

Offered: Spring of odd year

Prerequisites: RP 3013 Inclusive Recreation, RP 4073 Principles and Techniques of Therapeutic Recreation, RP 4173 Therapeutic Recreation Assessment and Documentation, and RP 4273 Administration and Operation of Therapeutic Recreation Programs or permission of instructor.

This course provides an examination of current issues, trends, and professionalization concerns in therapeutic recreation, including professional organizations, ethics, current legislation, professional development, professional standards, credentialing, accreditation standards, improving organizational performance, and current controversies.

**RP 4573: Interventions in Therapeutic Recreation II**

Offered: Spring of even years

Study of the concepts and intervention techniques used in the application and process aspects of therapeutic recreation. Content includes evidence-based practice, planning and leading interventions, instructional techniques, counseling theory and practice, implementing groups, communication techniques, and facilitation techniques. A practical learning component is included.

**RP 4753: Sports Field Management**

A survey of design and management practices for turfgrass sports fields. Personnel and budgeting requirements for operations and maintenance. \$25 travel fee.

**RP 4763: Golf Course Operations and Design**

Golf course turfgrass management as influenced by golf course design, including operations, financial analysis, personnel, and environment. \$25.00 travel fee.

**RP 4881: Advanced Special Topics**

Offered: On demand.

Investigative studies and special problems and topics related to parks, recreation, and hospitality administration.

Note: May be repeated if content differs.

**RP 4882: Advanced Special Topics**

Offered: On demand.

Investigative studies and special problems and topics related to parks, recreation, and hospitality administration.

Note: May be repeated if content differs.

**RP 4883: Advanced Special Topics**

Offered: On demand.

Investigative studies and special problems and topics related to parks, recreation, and hospitality administration.

Note: May be repeated if content differs.

**RP 4951: Undergraduate Research in Recreation and Park Administration**

Offered: On demand

Prerequisite: Departmental approval.

Advanced students carry out independent research activity relating to a significant problem in a major field of study. Supervised by faculty member.

Formal report and presentation required. One to four credits depending on problem selected and effort made.

**RP 4952: Undergraduate Research in Recreation and Park Administration**

Offered: On demand

Prerequisite: Departmental approval.

Advanced students carry out independent research activity relating to a significant problem in a major field of study. Supervised by faculty member.

Formal report and presentation required. One to four credits depending on problem selected and effort made.

**RP 4953: Undergraduate Research in Recreation and Park Administration**

Offered: On demand

Prerequisite: Departmental approval.

Advanced students carry out independent research activity relating to a significant problem in a major field of study. Supervised by faculty member.

Formal report and presentation required. One to four credits depending on problem selected and effort made.

**RP 4954: Undergraduate Research in Recreation and Park Administration**

Offered: On demand

Prerequisite: Departmental approval.

Advanced students carry out independent research activity relating to a significant problem in a major field of study. Supervised by faculty member.

Formal report and presentation required. One to four credits depending on problem selected and effort made.

**RP 4991: Special Problems**

Offered: On demand.

Investigative studies and special problems and topics related to parks, recreation, and hospitality administration.

Note: May be repeated if content differs.

**RP 4992: Special Problems**

Offered: On demand.

Investigative studies and special problems and topics related to parks, recreation, and hospitality administration.

Note: May be repeated if content differs.

**RP 4993: Special Problems**

Offered: On demand.

Investigative studies and special problems and topics related to parks, recreation, and hospitality administration.

Note: May be repeated if content differs.

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## REHABILITATION SCIENCE (RS)

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### **RS 4XXX: REHAB SCI TRANSFER ELECTIVE**

Credit transferred from another institution and articulated for rehabilitation science upper division elective.

### **RS 3XXX: REHAB SCI TRANSFER ELECTIVE**

Credit transferred from another institution and articulated for rehabilitation science upper division elective.

### **RS 2XXX: REHAB SCI TRANSFER ELECTIVE**

Credit transferred from another institution and articulated for rehabilitation science lower division elective.

### **RS 1XXX: REHAB SCI TRANSFER ELECTIVE**

Credit transferred from another institution and articulated for rehabilitation science lower division elective.

### **RS 2003: Introduction to Rehabilitation Science**

A survey of the history, philosophy, and roles of the rehabilitation and social services movement. In addition, the course will focus on public attitudes toward people with disability, adjustment to disability, and an orientation to the various community resources which can be utilized toward the rehabilitation of people with disabilities.

Note: A grade of C or better is required for Rehabilitation Science majors.

### **RS 2033: Introduction to Vocational Rehabilitation**

Prerequisite: RS 2003 Introduction to Rehabilitation Science

An overview of the history, philosophy, and legal basis of vocational rehabilitation plus an in-depth study of the case process. This class will emphasize the vocational rehabilitation process through studying closed case files and case recording procedures.

### **RS 2043: Introduction to Social Services**

Prerequisite: RS 2003 Introduction to Rehabilitation Science

An introduction to the history, philosophy, and legal basis of the social services movement. This class will also emphasize the social service case process and case management practices.

### **RS 2163: Introduction to Addictions**

Prerequisites: RS 2003 Introduction to Rehabilitation Science, PSY 2003 General Psychology, SOC 1003 Introductory Sociology, or consent of the instructor.

A study of drug abuse emphasizing etiology, patterns of use and abuse, and problems related to research and approaches to treatment.

### **RS 3003: Medical and Psychosocial Aspects of Disability**

Prerequisite: RS 2003 Introduction to Rehabilitation Science

A study of the etiology, treatment, and prognosis of various disabling conditions. Emphasis will be placed on medical information as received in medical reports, and as related to vocational functioning and to the everyday psychological and social adjustment problems associated with disability.

### **RS 3013: The World of Work**

Prerequisite: RS 2003 Introduction to Rehabilitation Science

A survey of the world of work emphasizing the role of work in our society, how disability changes one's work role, how career choices are made, and placement techniques.

### **RS 3073: Organization and Structure in the Rehabilitation-Human Services Setting**

Prerequisite: RS 2003 Introduction to Rehabilitation Science

This course will provide the student with an overview of organizational and administrative structure in the rehabilitation human services setting. Additionally, it will focus on the dynamics involved in developing a successful managerial style.

### **RS 3083: Supported Employment Concepts and Strategies**

Prerequisite: RS 2003 Introduction to Rehabilitation Science and 3013 or consent.

An introduction to the ideas, philosophies, models, concepts, and issues that characterize supported employment. Applications with different disability populations will be reviewed.

### **RS 3093: Rehabilitation Services for the Aging Adult**

Prerequisite: RS 2003 Introduction to Rehabilitation Science

A study of aging and the elderly from a rehabilitation viewpoint. This course will focus on intervention strategies, actual and potential, that might enable other people to maximize their potential and affect the needs for institutionalization.

### **RS 3123: Ethics and Professional Development**

Prerequisite: RS 2003 Introduction to Rehabilitation Science

A study of personal values, CRCC, ACA, and APA professional guidelines, and decision making models that will assist future human service practitioners to effectively deal with ethical dilemmas. This course will emphasize critical thinking and problem solving, and will utilize instructor and student generated dilemmas.

Note: A grade of C or better is required for Rehabilitation Science majors.

### **RS 3133: Diversity and Inclusion in Human Service Settings**

Prerequisite: RS 2003 Introduction to Rehabilitation Science and ANTH 1213 Introduction to Anthropology or ANTH 2003 Cultural Anthropology

An introduction to issues of multiculturalism and diversity and the importance of understanding these issues when working with individuals. This class will emphasize understanding one's own culture, examine various cultures including disability, and stress the importance of understanding each individual in relationship to his/her culture.

### **RS 3141: Rehabilitation Science Seminar**

Prerequisite: RS 2003 Introduction to Rehabilitation Science

A directed seminar in an area of rehabilitation science. The specific focus will depend upon research underway, community or student need, and the unique educational opportunity available.

Note: May be repeated for credit if course content differs.

### **RS 3142: Rehabilitation Science Seminar**

Prerequisite: RS 2003 Introduction to Rehabilitation Science

A directed seminar in an area of rehabilitation science. The specific focus will depend upon research underway, community or student need, and the unique educational opportunity available.

Note: May be repeated for credit if course content differs.

### **RS 3143: Rehabilitation Science Seminar**

Prerequisite: RS 2003 Introduction to Rehabilitation Science

A directed seminar in an area of rehabilitation science. The specific focus will depend upon research underway, community or student need, and the unique educational opportunity available.

Note: May be repeated for credit if course content differs.

### **RS 3153: Assistive Technology in Rehabilitation Settings**

Prerequisite: RS 2003 Introduction to Rehabilitation Science or consent.

A study of the types of technology devices and services available to individuals with disabilities. Emphasis will be placed on knowledge of resources, assessment of individual needs, funding of devices and services, and methods to use assistive technology to improve the quality of life for all individuals.

### **RS 3163: Addictions Assessment, Planning, and Treatment Strategies**

Prerequisites: RS 2003 Introduction to Rehabilitation Science or consent of instructor.

A study and assessment of addiction disorders and related treatment planning approaches with an overview of evidence based intervention techniques and strategies. Group facilitation skills and meeting cultural issues in the group setting will be addressed.

### **RS 3173: Addictions and the Family**

Prerequisites: RS 2003 Introduction to Rehabilitation Science or consent of instructor.

A study of the impact of addictions upon families, the social fabric of the nation. The course includes a review of family systems theory and family addictions counseling models.

### **RS 3183: Mental Health Issues in Rehabilitation Settings**

Prerequisite: RS 2003 Introduction to Rehabilitation Science

This course is a survey of various mental health diagnoses/conditions and their influence and treatment within the field of rehabilitation services. The objective of the course is to serve as an overview of: 1. the nature of psychiatric illness/ disorder, 2. the principles and methodologies of psychiatric rehabilitation, 3. the settings in which the principles of psychiatric rehabilitation might be applied.

### **RS 3204: Interviewing Skills**

Prerequisite: RS 2003 Introduction to Rehabilitation Science

This course is designed to facilitate basic mastery of core communication skills (micro skills) necessary to build meaningful and effective helping relationships. Students will need to think, be creative, and practice in order to transfer the micro skills they learn to outside the classroom. Rehabilitation Science is an applied program of study. RS 3023 is a prerequisite methods course which prepares students for field placement activities such as interviewing and interpersonal communication, and geared for students who plan on providing direct client/patient services in their future careers and/or for all students who have an interest in helping and/or want to improve their interpersonal communication skills. This course is intended to challenge students to increase their self-awareness, sensitivity, and competence to communicate in authentic and sensitive ways to better connect and communicate with others from diverse backgrounds. In addition, this course will provide an introduction to person-centered counseling theory which will be used as a model throughout this principles (i.e. empathy, unconditional positive regards, and genuineness) of the person-centered approach will be emphasized.

Note: A grade of C or better is required for Rehabilitation Science majors.

**RS 3243: Social Services for Individuals and Families**

Prerequisite: RS 2003 Introduction to Rehabilitation Science

A study of the varied and numerous services offered by federal, state, and privately funded social service programs with an emphasis on protective services, foster care, and adoption services.

**RS 4012: Internship in Rehabilitation Services**

(Twelve hour course)

Prerequisites: RS 2003 Introduction to Rehabilitation Science, grade of C or higher in RS 3023, rehab major, senior standing, 2.00 cumulative grade point average, and consent of the instructor.

A full-time, one semester supervised internship in a rehabilitation or social services setting, either public or private. Emphasis will be placed on the student acquiring first-hand experience and entry level skills in practitioner roles such as case management, interviewing and counseling, and coordination of client services among the various community helping services.

Note: The purchase of professional liability insurance is required.

Note: A grade of C or better is required for Rehabilitation Science majors.

**RS 4023: Case Management Strategies**

Prerequisite: RS 2003 Introduction to Rehabilitation Science

This course is an introduction to case management and caseload management procedures, techniques, and issues. The relationship of evaluation, counseling, vocational rehabilitation, independent living, and utilization of community resources is investigated. RS 4023 Case Management Strategies is a prerequisite methods course which prepares students for field placement activities such as case management, caseload management, interviewing, and interpersonal communication and management skills, including computer applications and technologies for caseload management are presented.

Note: A grade of C or better is required for Rehabilitation Science majors.

**RS 4084: Field Placement Related to Child Welfare Services**

Prerequisites: RS 2003 Introduction to Rehabilitation Science, RS 3043, RS 3243 Social Services for Individuals and Families, grade of C or higher in RS 3023, senior standing, completion of at least six hours in the related emphasis area, 2.50 grade point average, and consent of the instructor.

A supervised 14-week field placement in a Division of Children and Family Services setting. Emphasis will be placed on the student's acquiring first-hand experiences in practitioner roles such as case management, interviewing, risk assessment, interagency collaboration, crisis management, and problem solving.

Note: The purchase of professional liability insurance is required.

**RS 4104: Service Learning in Rehabilitation Science**

Prerequisites: RS 2003 Introduction to Rehabilitation Science, RS 3203, RS 3123 Ethics and Professional Development, and RS 4023 Case Management Strategies with a C or better. For students choosing RS 4012 Internship in Rehabilitation Services, the internship option, this course may only be taken with permission from the Rehabilitation Science Program Director.

This course is designed to provide students with the opportunity to engage in rehabilitation related work in the community. Students will have the opportunity to complete volunteer work and contribute to others while utilizing rehabilitation related concepts learned in the classroom. This course must be completed before enrolling in RS 4024 and RS 4034.

Note: A grade of C or better is required for Rehabilitation Science majors.

**RS 4123: Survey of Counseling Theories**

Prerequisites: RS 2003 Introduction to Rehabilitation Science and PSY 2003 General Psychology or consent of the instructor

A comparative study of the major theories of counseling, stressing their philosophical views of mankind, assumptions, techniques, strengths, and weaknesses.

**RS 4133: Seminar in Severe Disabilities**

Prerequisites: PSY 2003 General Psychology, RS 2003 Introduction to Rehabilitation Science, or consent.

A study of what makes a disabling condition a severe disability. This course will stress independent research and class presentations by the students dealing with the various severe disabilities.

**RS 4143: Disabilities throughout the Life Span**

Prerequisites: PSY 2003 General Psychology, RS 2003 Introduction to Rehabilitation Science, or consent.

A study of the delivery of services to, and the rehabilitation of, those handicapped individuals classified as being developmentally disabled, i.e., mental retardation, cerebral palsy, and epilepsy. Emphasis will be placed on prevocational, vocational, and community-living training for such individuals and the planning required for the provision of such services.

**RS 4173: Family Centered Services**

Prerequisites: RS 2003 Introduction to Rehabilitation Science, RS 3023, and 3243 or consent of the instructor.

An advanced course focusing upon family and community strengths and child welfare practice.

**RS 4183: Family Services Seminar**

Prerequisites: RS 2003 Introduction to Rehabilitation Science, RS 3023, and 3243 or consent of the instructor.

A capstone course for students emphasizing child welfare services.

### **RS 4194: Field Placement Experiences**

Prerequisites: RS 2003 Introduction to Rehabilitation Science, RS 3204 Interviewing Skills, RS 3123 Ethics and Professional Development, and RS 4023 Case Management Strategies all with C or better, junior standing, 2.000 grade point average, and consent of the instructor.

A supervised 14-week field placement (Fall, Spring), or a 10-week field placement (Summer).

Note: This course must be taken twice. It can only be taken once in a semester.

Note: A grade of C or better is required for Rehabilitation Science majors.

### **RS 4951: Undergraduate Research in Rehabilitation Science**

Offered: On demand

Prerequisite: RS 2003 Introduction to Rehabilitation Science and departmental approval.

Advanced students carry out independent research activity relating to a significant problem in a major field of study. Supervised by faculty member. Formal report and presentation required. One to four credits depending on problem selected and effort made.

### **RS 4952: Undergraduate Research in Rehabilitation Science**

Offered: On demand

Prerequisite: RS 2003 Introduction to Rehabilitation Science and departmental approval.

Advanced students carry out independent research activity relating to a significant problem in a major field of study. Supervised by faculty member. Formal report and presentation required. One to four credits depending on problem selected and effort made.

### **RS 4953: Undergraduate Research in Rehabilitation Science**

Offered: On demand

Prerequisite: RS 2003 Introduction to Rehabilitation Science and departmental approval.

Advanced students carry out independent research activity relating to a significant problem in a major field of study. Supervised by faculty member. Formal report and presentation required. One to four credits depending on problem selected and effort made.

### **RS 4954: Undergraduate Research in Rehabilitation Science**

Offered: On demand

Prerequisite: RS 2003 Introduction to Rehabilitation Science and departmental approval.

Advanced students carry out independent research activity relating to a significant problem in a major field of study. Supervised by faculty member. Formal report and presentation required. One to four credits depending on problem selected and effort made.

### **RS 4991: Special Problems in Rehabilitation Science**

Prerequisites: RS 2003 Introduction to Rehabilitation Science and twelve hours of rehabilitation science and prior approval of the Director of Rehabilitation Science.

Independent work under individual guidance of a staff member.

### **RS 4992: Special Problems in Rehabilitation Science**

Prerequisites: RS 2003 Introduction to Rehabilitation Science and twelve hours of rehabilitation science and prior approval of the Director of Rehabilitation Science.

Independent work under individual guidance of a staff member.

### **RS 4993: Special Problems in Rehabilitation Science**

Prerequisites: RS 2003 Introduction to Rehabilitation Science and twelve hours of rehabilitation science and prior approval of the Director of Rehabilitation Science.

Independent work under individual guidance of a staff member.

### **RS 4994: Special Problems in Rehabilitation Science**

Prerequisites: RS 2003 Introduction to Rehabilitation Science and twelve hours of rehabilitation science and prior approval of the Director of Rehabilitation Science.

Independent work under individual guidance of a staff member.

## **SCIENCE WITH LABORATORY (SCIL)**

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### **SCIL 1XXX: Science with Laboratory**

Science with Laboratory (4 hours each)

BIOL 1004 Principles of Environmental Science: Principles of Environmental Science

BIOL 1014 Introduction to Biological Science: Introduction to Biological Science

BIOL 1114 Principles of Biology: Principles of Biology

BIOL 2004 Basic Human Anatomy and Physiology: Basic Human Anatomy and Physiology

BIOL 2014 Human Anatomy: Human Anatomy

BIOL 2054 Microbiology for Health Sciences: Microbiology for Health Sciences

BIOL 2124 Principles of Zoology: Principles of Zoology

BIOL 2134 Principles of Botany: Principles of Botany  
 BIOL2144: Honors Zoology  
 BIOL 2404 Human Anatomy and Physiology I: Human Anatomy and Physiology I  
 CHEM 1113 A Survey of Chemistry: A Survey of Chemistry and CHEM 1111 Survey of Chemistry Laboratory: Survey of Chemistry Laboratory  
 CHEM 2124 General Chemistry I: General Chemistry I  
 GEOL 1004 Essentials of Earth Science: Essentials of Earth Science  
 GEOL 1014 Physical Geology: Physical Geology  
 PHSC 1004 Principles of Environmental Science: Principles of Environmental Science  
 PHSC 1013 Introduction to Physical Science: Introduction to Physical Science and PHSC 1021 Physical Science Laboratory: Physical Science Laboratory  
 PHSC 1053 Astronomy: Astronomy and PHSC 1051 Observational Astronomy Laboratory: Observational Astronomy Laboratory  
 PHSC 1074 Physical Science Inquiry: Physical Science Inquiry  
 PHYS 1114 Applied Physics: Applied Physics  
 PHYS 2014 Algebra-Based Physics I: Physical Principles I  
 PHYS 2114 Calculus-Based Physics I: General Physics I

## SECONDARY EDUCATION (SEED)

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### **SEED 2002: Education as a Profession**

Prerequisite: Sophomore standing or departmental approval.

This course is designed to help teacher candidates understand the field of education systemically and to understand the professional roles and ethical responsibilities required of the professional educators. The course consists of classroom instruction and a guided field component.

Note: A grade of "C" or higher in the course is required in order to be eligible for admission into Stage II of Teacher Education.

### **SEED 3552: Child and Adolescent Development**

The primary purpose of this course is to prepare teacher education candidates for classroom interaction by tracing influences of normal human development in all domains and showing how heredity and environmental factors affect the individuals' capacity to learn and function in a school environment. The teacher candidate will examine current research, concepts and issues related to normal adolescent development as well as exceptionalities that may be present. A range of cultural, social, and cognitive factors will be explored through reading, discussion, observation, literature search, interviews and case studies.

### **SEED 3702: Introduction to Educational Technology**

This is a research-based course involving applications of media techniques to facilitate learning. Media presentations are planned and implemented using practical and theoretical considerations about learning characteristics, exceptionalities, and cultural differences. Various projection techniques as well as microcomputer applications are utilized.

### **SEED 4052: Educating Diverse and Exceptional Learners**

Prerequisite: Admission to Stage II of the teacher education program.

A study of the major areas of diversity including, gifted, emotionally disturbed, children from economically disadvantaged homes and other considerations that place students at risk for academic failure, and their special needs in a school program.

Note: May not be taken for credit after completion of EDFD 5053, EDFD 4052 or repeated for credit as EDFD 5052 or equivalent.

### **SEED 4054: Educating Developing, Diverse, and Exceptional Learners**

Prerequisite: Admission to Stage II of the teacher education program.

Co-requisite: SEED 4556 Classroom Application of Educational Psychology

This course is designed to prepare teacher education candidates for classroom interaction by tracing influences of normal human development in all domains and showing how heredity and environmental factors affect the individuals' capacity to learn and function in a school environment. The course will also examine diversity including children with learning disabilities, intellectual disabilities, emotional disabilities, children who are gifted, children from economically disadvantaged homes, and the needs of diverse learners in the educational environment.

Note: May not be taken for credit after completion of EDFD 4052 or SEED 3554 or repeated for credit as EDFD 5052.

### **SEED 4503: Seminar in Secondary Education**

Prerequisites: Admission to Stage II and Student Teaching.

Co-requisite: SEED 4809 Teaching in the Elementary and Secondary School or SEED 4909 Teaching in the Secondary School

This course is designed to provide secondary teacher candidates with knowledge and understanding of the history of American Education, school law, and other contemporary education issues. This course will also address teaching/ learning strategies for content area learning and assessment.

### **SEED 4556: Classroom Application of Educational Psychology**

Prerequisite: Admission to Stage II of the Teacher Education Program.

Co-requisite: SEED 4054 Educating Developing, Diverse, and Exceptional Learners

This course introduces secondary teacher candidates to educational psychology as a research- oriented discipline and a science of practical application. The course also requires that students apply the theories and principles to instructional planning, teaching, managing and accessing students. The course consists of classroom instruction and a field component.

**SEED 4809: Teaching in the Elementary and Secondary School**

Prerequisites: Admission to Stage II and student teaching.

Co-requisite: SEED 4503 Seminar in Secondary Education

A minimum of twelve weeks of supervised full-time student teaching at both the elementary and secondary levels. Meets requirements for K 12 licensure in art and music and licensure at both the elementary and secondary levels for physical education.

\$100 course fee.

**SEED 4909: Teaching in the Secondary School**

Prerequisites: Admission to Stage II and student teaching.

Co-requisite: SEED 4503 Seminar in Secondary Education

A minimum of twelve weeks of supervised full-time student teaching at the secondary level.

\$100 course fee.

**SEED 4991: Special Problems in Secondary Education**

Offered: Each semester on demand.

Prerequisites: Senior standing and approval of department head.

Individual study of significant topics or problems relating to education under the guidance of an assigned faculty member.

**SEED 4992: Special Problems in Secondary Education**

Offered: Each semester on demand.

Prerequisites: Senior standing and approval of department head.

Individual study of significant topics or problems relating to education under the guidance of an assigned faculty member.

**SEED 4993: Special Problems in Secondary Education**

Offered: Each semester on demand.

Prerequisites: Senior standing and approval of department head.

Individual study of significant topics or problems relating to education under the guidance of an assigned faculty member.

**SEED 4994: Special Problems in Secondary Education**

Offered: Each semester on demand.

Prerequisites: Senior standing and approval of department head.

Individual study of significant topics or problems relating to education under the guidance of an assigned faculty member.

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**SOC SCI/FINE ART/HUM/COMM (SFHS)**

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**SFHS 1XXX: Social Sciences/Fine Arts/Humanities/Communication Courses**

Social Sciences (6-9 hours)

(Students majoring in engineering may substitute up to six hours of upper level humanities, social sciences, mathematics, or science)

AGBU 2063 Principles of Agricultural Macroeconomics Principles of Agriculture Macroeconomics

AGBU 2073 Principles of Agricultural Microeconomics Principles of Agriculture Microeconomics

AMST 2003 American Studies American Studies

ANTH 1213 Introduction to Anthropology Introduction to Anthropology

ANTH 2003 Cultural Anthropology Cultural Anthropology

ECON 2003 Principles of Macroeconomics Principles of Economics I

ECON 2013 Principles of Microeconomics Principles of Economics II

ECON 2103 Honors Principles of Economics I Honors Principles of Economics I

GEOG 2013 Regional Geography of the World Regional Geography of the World

HIST 1503 World History to 1500 World Civilization I

HIST 1513 World History since 1500 World Civilization II

HIST 1543 Honors World History to 1500 Honors World Civilization I

HIST 1903 Survey of American History Survey of American History

HIST 2003 United States History to 1877 United States History to 1877

HIST 2013 United States History since 1877 United States History since 1877

HIST 2043 Honors United States History to 1877 Honors United States History to 1877

POLS 2003 American Government American Government

PSY 2003 General Psychology General Psychology

SOC 1003 Introductory Sociology Introductory Sociology

Fine Arts and Humanities (6-9 hours)

ART 2123 Experiencing Art Experiencing Art

ENGL 2003 Introduction to World Literature Introduction to World Literature

ENGL 2013 Introduction to American Literature Introduction to American Literature

ENGL 2023 Honors World Literature Honors World Literature

ENGL 2173 Introduction to Film Introduction to Film

JOUR 2173 Introduction to Film Introduction to Film



MUS 2003 Introduction to Music Introduction to Music  
 PHIL 2003 Introduction to Philosophy Introduction to Philosophy  
 PHIL 2043 Honors Introduction to Philosophy Honors Introduction to Philosophy  
 PHIL 2053 Introduction to Critical Thinking Introduction to Critical Thinking  
 TH 2273 Introduction to Theatre Introduction to Theatre  
 Speech Communications (0-3 hours)  
 SPH 1003 Introduction to Speech Communication  
 SPH 2003 Public Speaking  
 SPH 2173 Business and Professional Speaking

## **SOCIAL SCI/FINE ART/HUMANITIES (SFAH)**

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### **SFAH 1XXX: Social Sciences/Fine Arts/Humanities Courses**

#### Social Sciences

(Students majoring in engineering may substitute up to six hours of upper level humanities, social sciences, mathematics, or science)

AGBU 2063 Principles of Agricultural Macroeconomics Principles of Agriculture Macroeconomics  
 AGBU 2073 Principles of Agricultural Microeconomics Principles of Agriculture Microeconomics  
 AMST 2003 American Studies American Studies  
 ANTH 1213 Introduction to Anthropology Introduction to Anthropology  
 ANTH 2003 Cultural Anthropology Cultural Anthropology  
 ECON 2003 Principles of Macroeconomics Principles of Economics I  
 ECON 2013 Principles of Microeconomics Principles of Economics II  
 ECON 2103 Honors Principles of Economics I Honors Principles of Economics I  
 GEOG 2013 Regional Geography of the World Regional Geography of the World  
 HIST 1503 World History to 1500 World Civilization I  
 HIST 1513 World History since 1500 World Civilization II  
 HIST 1543 Honors World History to 1500 Honors World Civilization I  
 HIST 1903 Survey of American History Survey of American History  
 HIST 2003 United States History to 1877 United States History to 1877  
 HIST 2013 United States History since 1877 United States History since 1877  
 HIST 2043 Honors United States History to 1877 Honors United States History to 1877  
 POLS 2003 American Government American Government  
 PSY 2003 General Psychology General Psychology  
 SOC 1003 Introductory Sociology Introductory Sociology

#### Fine Arts and Humanities

ART 2123 Experiencing Art Experiencing Art  
 ENGL 2003 Introduction to World Literature Introduction to World Literature  
 ENGL 2013 Introduction to American Literature Introduction to American Literature  
 ENGL 2023 Honors World Literature Honors World Literature  
 ENGL 2173 Introduction to Film Introduction to Film  
 JOUR 2173 Introduction to Film Introduction to Film  
 MUS 2003 Introduction to Music Introduction to Music  
 PHIL 2003 Introduction to Philosophy Introduction to Philosophy  
 PHIL 2043 Honors Introduction to Philosophy Honors Introduction to Philosophy  
 TH 2273 Introduction to Theatre Introduction to Theatre

## **SOCIAL SCIENCES (SS)**

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### **SS 1XXX: Social Science Courses**

#### Social Sciences

AGBU 2063 Principles of Agricultural Macroeconomics Principles of Agriculture Macroeconomics  
 AGBU 2073 Principles of Agricultural Microeconomics Principles of Agriculture Microeconomics  
 AMST 2003 American Studies American Studies  
 ANTH 1213 Introduction to Anthropology Introduction to Anthropology  
 ANTH 2003 Cultural Anthropology Cultural Anthropology  
 ECON 2003 Principles of Macroeconomics Principles of Economics I  
 ECON 2103 Honors Principles of Economics I Honors Principles of Economics I  
 ECON 2013 Principles of Microeconomics Principles of Economics II  
 FIN 2013 Personal Finance Personal Finance  
 GEOG 2013 Regional Geography of the World Regional Geography of the World  
 HIST 1503 World History to 1500 World Civilization  
 HIST 1513 World History since 1500 World Civilization II  
 HIST 1543 Honors World History to 1500 Honors World Civilization I  
 HIST 1903 Survey of American History Survey of American History  
 HIST 2003 United States History to 1877 U.S. History I

HIST 2013 United States History since 1877 U.S. HISTORY II

HIST 2043 Honors United States History to 1877 Honors U.S. History I

LEAD 1003 Introduction to Leadership Introduction to Leadership

POLS 2003 American Government American Government

PSY 2003 General Psychology General Psychology

SOC 1003 Introductory Sociology Introductory Sociology

(Students majoring in engineering may substitute up to six hours of upper level humanities, social sciences, mathematics, or science)

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## **SOCIOLOGY (SOC)**

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### **SOC 4XXX: SOCIOLOGY TRANSFER ELECTIVE**

Credit transferred from another institution and articulated for sociology upper division elective.

### **SOC 3XXX: SOCIOLOGY TRANSFER ELECTIVE**

Credit transferred from another institution and articulated for sociology upper division elective.

### **SOC 2XXX: SOCIOLOGY TRANSFER ELECTIVE**

Credit transferred from another institution and articulated for sociology lower division elective.

### **SOC 1XXX: SOCIOLOGY TRANSFER ELECTIVE**

Credit transferred from another institution and articulated for sociology lower division elective.

### **SOC 1003: Introductory Sociology**

ACTS Common Course - SOCI 1013

An introduction to the nature of society, social groups, processes of interaction, social change, and the relationship of behavior to culture.

### **SOC 2003: Introduction to Criminal Justice**

Cross-listed: CJ 2003 Introduction to Criminal Justice

An overview of the criminal justice system and the workings of each component. Topics include the history, structure and functions of law enforcement, judicial and correctional organizations, their interrelationship and effectiveness, and the future trends in each.

### **SOC 2023: Sociology of the Ozark-Ouachita Region**

Prerequisite: SOC 1003 Introductory Sociology

An introduction to the nature of society, social groups, social interaction, social change, and the relationship of behavior to culture in the Ozark-Ouachita region. The full range of sociological topics are covered, including crime and delinquency, marriage and family, social class and race, religion, and contemporary social movements.

### **SOC 2033: Social Problems**

ACTS Common Course - SOCI 2013

Cross-listed: CJ 2033 Social Problems

Prerequisite: SOC 1003 Introductory Sociology

A sociological analysis of contemporary social problems including inequalities, deviance, population changes, and troubled institutions.

### **SOC 2043: Crime and Delinquency**

Cross-listed: CJ 2043 Crime and Delinquency

Prerequisite: SOC 1003 Introductory Sociology or SOC(CJ) 2003

A study of the major areas of crime and delinquency; with emphasis on theories of crime and the nature of criminal behavior.

### **SOC 2053: Statistics for the Behavioral Sciences**

Cross-listed: PSY 2053 Statistics for the Behavioral Sciences

Prerequisites: MATH 1003 College Mathematics, or higher, and PSY 2003 General Psychology or SOC 1003 Introductory Sociology, or consent.

An introduction to descriptive and inferential statistical methods pertinent to behavioral science research, including correlation, sampling distributions, t-tests, chi square and analysis of variance. Emphasis is upon the logical and applied aspects.

### **SOC 2063: Research Design for the Behavioral Sciences**

Cross-listed: PSY 2063 Research Design for the Behavioral Sciences

Prerequisite: MATH 1003 College Mathematics, or higher, and PSY 2003 General Psychology or SOC 1003 Introductory Sociology, or consent.

This course is designed to introduce you to the foundations of behavioral science, the logic of research design and the many possible modes of operation. This class focuses on teaching students in the behavioral sciences the basic principles that guide the research process, the elements of research design, how to read and critique research articles, and how to write a literature review for a research project.

**SOC 2073: Classical Theories of Sociology**

A study of the historical development of social thought.

Note: May not be taken for credit after completion of SOC 4023 Sociology of Gender, PHIL 4053, or equivalent.

**SOC 2083: Contemporary Theories of Sociology**

A survey course of sociological theories and theory development from the classical period to post-modernism.

**SOC 3013: Psychosocial Aspects of Death and Dying**

Cross-listed: PSY 3013 Psychosocial Aspects of Death and Dying

Prerequisite: Upper division standing.

This course studies the psychological and sociological aspects of death. The course will provide a basic insight into the dynamics surrounding death from the individual and societal level, its impact on survivors, and the effect death has on the living.

**SOC 3023: The Family**

Prerequisite: SOC 1003 Introductory Sociology

A study of the American family institution with emphasis upon role relationships, norms, and models. Some attention is given to cross cultural comparisons.

**SOC 3033: Environment and Society**

Prerequisite: SOC 1003 Introductory Sociology

This course focuses on the study of interrelationships between society and the natural environment from traditional to postindustrial forms. Topics in this class will include economic approaches to the natural environment, philosophical/ethical approaches to the natural environment, public opinion on the natural environment, the importance of the environmental movement and policy development on environmental issues.

**SOC 3063: Communities**

Prerequisite: SOC 1003 Introductory Sociology

An exploration and analysis of the sociological concept of community from classical approaches to recent debates.

**SOC 3083: Social Deviance**

Cross-listed: CJ 3083 Social Deviance

Prerequisite: SOC 1003 Introductory Sociology or SOC (CJ) 2003

An introduction to the sociological and criminological study of human deviance. Various theories of deviance will be examined and applied to real life examples.

**SOC 3093: Sociology of Education**

Prerequisite: SOC 1003 Introductory Sociology

A study of education as a social system, its organizational characteristics, and its inter relationships with other social systems such as the family, religion, economics, government, and politics.

**SOC 3103: The Juvenile Justice System**

Cross-listed: CJ 3103 The Juvenile Justice System

Prerequisite: SOC(CJ) 2003

An in-depth look at the juvenile justice system including the structure, statuses and roles as well as current issues, problems, and trends.

**SOC 3113: Social Movements and Social Change**

Prerequisite: SOC 1003 Introductory Sociology

An examination of past and current social movements and their effects on social policy and social change. Topics will include classical and contemporary theories of social movements and social change.

**SOC 3133: Self and Society**

Cross-listed: PSY 3133 Self and Society

Prerequisite: SOC 1003 Introductory Sociology or PSY 2003 General Psychology

A sociological survey of the ways in which social structure and personality interact. Topics typically covered are: socialization, attitudes and value formation and change, and group influences upon self-concept and self-esteem.

**SOC 3153: Prison and Corrections**

Cross-listed: CJ 3153 Prison and Corrections

Prerequisites: SOC 1003 Introductory Sociology and SOC (CJ) 2033

An introduction to and analysis of contemporary American corrections. Emphasis will be on current and past correctional philosophy, traditional and modern correctional facilities, correctional personnel and offenders, new approaches in corrections, and the relationship of corrections to the criminal justice field.

**SOC 3163: Introduction to Social Research**

Prerequisites: SOC 1003 Introductory Sociology and SOC (PSY) 2053

An introduction to research methodology, with emphasis upon conceptualization, design, and processes.

**SOC 4003: Minority Relations**

Prerequisite: SOC 1003 Introductory Sociology

A study of minority groups with emphasis upon discrimination, socio historical characteristics and processes of change. Minorities considered include racial, ethnic, and gender.

**SOC 4013: Drugs in Society**

Cross-listed: CJ 4013 Drugs in Society

Prerequisite: SOC 1003 Introductory Sociology or CJ 2003 Introduction to Criminal Justice

This course presents a comprehensive study of the history and prohibition of drug use in the United States, as well as the effects of drugs on society in the form of crime, prison and treatment. The main focus of this class is on the history of drug use, how certain drugs become illegal, and the intended and unintended consequences of drug prohibition for communities and society.

**SOC 4023: Sociology of Gender**

Prerequisite: SOC 1003 Introductory Sociology

This course addresses definitions of gender, gendered identities, how gender is created and maintained as a social construct, and the importance of gender in our daily lives. This class mainly focuses on the theoretical and empirical literature that encourages critical thinking about gender and challenges students to move beyond their preconceived notions/assumptions about gender.

**SOC 4033: Policing and Society**

Cross-listed: CJ 4033 Policing and Society

Prerequisites: SOC 1003 Introductory Sociology and CJ/SOC 2003 Introduction to Criminal Justice

A comprehensive study of historical and contemporary issues in American policing. Topics include theories of policing, police training and socialization, police discretion, technological advancements in policing, community policing, interaction with minority communities, and current controversies.

**SOC 4043: Social Psychology**

Cross-listed: PSY 4043 Social Psychology

Prerequisites: a grade of "C" or higher in PSY 2003 General Psychology, PSY/SOC 2053 Statistics for the Behavioral Sciences, and PSY/SOC 2063 Research Design for the Behavioral Sciences.

The study of how individuals are influenced by the actual or implied presence of other persons. Emphasis is placed on attitudes, social cognition, social influence, aggression, altruism, self and other perception.

**SOC 4053: Sociology of Health and Illness**

Prerequisite: SOC 1003 Introductory Sociology

An in-depth look at the sociology of health and illness including an examination of the social structures related to the medical system, the social psychology of health and illness, a comparative analysis of sick role behavior as well as the study of social causes and consequences of health and illness.

**SOC 4063: Social Stratification**

Prerequisite: SOC 1003 Introductory Sociology

A study of social class and consequences for society and individuals.

**SOC 4073: Sociology of Religion**

Prerequisite: SOC 1003 Introductory Sociology.

A study of the various theoretical explanations of religion, including its relationship to the larger society and the world system.

**SOC 4143: Seminar in Sociology**

A directed seminar in an area of sociology. The specific focus will depend upon research underway, community or student need, and the unique educational opportunity available.

Note: May be repeated for credit if course content differs.

**SOC 4183: Social Gerontology**

Prerequisite: SOC 1003 Introductory Sociology

An introduction to the sociology of aging: content provides general and specific knowledge regarding the aging process. Implications for economic, political, and family institutions are emphasized.

**SOC 4206: The Law in Action**

Cross-listed: CJ 4206 The Law in Action

Offered: Summer only

Prerequisites: SOC/CJ 2043 Crime and Delinquency, 9 hours of criminal justice coursework, senior classification, and instructor permission.

An examination of sociological theories of law and main currents of legal philosophy is followed by participant observation of actual community legal agencies, including police, courts, and others as available.

### **SOC 4283: Sociology Capstone**

Prerequisites: All required sociology courses (lower and upper division) and 9 hours of upper division electives in sociology, or consent of instructor. This course must be completed by all sociology majors prior to graduation. The course content/topic is determined by the professor and current issues in the local community, which may vary semester to semester. Emphasis will be placed on linking theory, research methods, and social action to community defined problems in the form of applied sociology.

### **SOC 4951: Undergraduate Research in Sociology**

Offered: On demand

Prerequisite: Departmental approval

Advanced students carry out independent research activity relating to a significant problem in a major field of study. Supervised by faculty member. Formal report and presentation required. One to four credits depending on problem selected and effort made.

### **SOC 4952: Undergraduate Research in Sociology**

Offered: On demand

Prerequisite: Departmental approval

Advanced students carry out independent research activity relating to a significant problem in a major field of study. Supervised by faculty member. Formal report and presentation required. One to four credits depending on problem selected and effort made.

### **SOC 4953: Undergraduate Research in Sociology**

Offered: On demand

Prerequisite: Departmental approval

Advanced students carry out independent research activity relating to a significant problem in a major field of study. Supervised by faculty member. Formal report and presentation required. One to four credits depending on problem selected and effort made.

### **SOC 4954: Undergraduate Research in Sociology**

Offered: On demand

Prerequisite: Departmental approval

Advanced students carry out independent research activity relating to a significant problem in a major field of study. Supervised by faculty member. Formal report and presentation required. One to four credits depending on problem selected and effort made.

### **SOC 4991: Special Problems in Sociology**

Prerequisite: Prior approval by instructor

Content will be determined by specific curriculum review and student need.

### **SOC 4992: Special Problems in Sociology**

Prerequisite: Prior approval by instructor

Content will be determined by specific curriculum review and student need.

### **SOC 4993: Special Problems in Sociology**

Prerequisite: Prior approval by instructor

Content will be determined by specific curriculum review and student need.

### **SOC 4994: Special Problems in Sociology**

Prerequisite: Prior approval by instructor

Content will be determined by specific curriculum review and student need.

## **SPANISH (SPAN)**

### **SPAN 4XXX: SPANISH TRANSFER ELECTIVE**

Credit transferred from another institution and articulated for Spanish upper division elective.

### **SPAN 3XXX: SPANISH TRANSFER ELECTIVE**

Credit transferred from another institution and articulated for Spanish upper division elective.

### **SPAN 1013: Beginning Spanish I**

ACTS Common Course - SPAN 1013 Beginning Spanish I

Training in the elements of Spanish communication {speaking and writing) and comprehension (listening and reading) within a variety of cultural contexts.

Note: Advanced placement and credit by examination are available to students who have previously studied Spanish.

### **SPAN 1023: Beginning Spanish II**

ACTS Common Course - SPAN 1023 Beginning Spanish II

Continued training in basic Spanish communication (speaking and writing) and comprehension (listening and reading) skills to increase proficiency in the language within a variety of cultural contexts.

Note: Advanced placement and credit by examination are available to students who have previously studied Spanish.

### **SPAN 2001: La Casa Immersion Experience**

Prerequisite: Two years of high school Spanish or equivalent.

Study of contemporary language and culture in an immersion Spanish-speaking setting.

### **SPAN 2013: Intermediate Spanish I**

ACTS Common Course - SPAN 2013 Intermediate Spanish I

Prerequisite: SPAN 1023 Beginning Spanish II or equivalent.

Development of the language skills necessary for communication (speaking and writing) and comprehension (listening and reading) skills to increase proficiency in the language at the intermediate level within a variety of cultural contexts.

Note: Advanced placement and credit by examination are available to students who have previously studied Spanish.

### **SPAN 2023: Intermediate Spanish II**

ACTS Common Course - SPAN 2023 Intermediate Spanish II

Prerequisite: SPAN 2013 Intermediate Spanish I or equivalent.

Further development of the language skills necessary for communication (speaking and writing) and comprehension (listening and reading) skills to provide mastery of the fundamental tools in a variety of cultural contexts.

Note: Advanced placement and credit by examination are available to students who have previously studied Spanish.

### **SPAN 2033: Intermediate Spanish II for Heritage Speakers**

ACTS Common Course - SPAN 2033 Intermediate Spanish II

Prerequisite: SPAN 2013 Intermediate Spanish I or equivalent.

Development of the language skills necessary for communication (speaking and writing) and comprehension (listening and reading) skills for students who grew up in an environment where Spanish was spoken frequently.

Note: Advanced placement credit is available to students who have previously studied Spanish.

### **SPAN 2303: Spanish for Medical Interpretation I**

Prerequisite: SPAN 2023 Intermediate Spanish II or SPAN 2033 Intermediate Spanish II for Heritage Speakers

Useful terminology and expressions for the medical and social service situation, with a minimum of grammar.

### **SPAN 2313: Spanish for Medical Interpretation II**

Prerequisites: SPAN 2023 Intermediate Spanish II or SPAN 2303 Spanish for Medical Interpretation I or SPAN 2033 Intermediate Spanish II for Heritage Speakers.

Useful terminology and expressions for the medical or social service situation, with a minimum of grammar.

### **SPAN 3003: Conversation and Composition I**

Prerequisite: SPAN 2023 Intermediate Spanish II or SPAN 2033 Intermediate Spanish II for Heritage Speakers or permission of instructor.

Development of advanced control of Spanish communication and comprehension through conversation and composition based on analysis of authentic short texts and media.

Three hours of applied course work.

Note: Advanced placement and credit by examination are available to students who have previously studied or are proficient in Spanish.

### **SPAN 3013: Conversation and Composition II**

Prerequisite: SPAN 3003 Conversation and Composition I or permission of instructor.

Continuation of SPAN 3003 Conversation and Composition I. Further development of advanced proficiency of Spanish communication and comprehension through conversation and composition based on analysis of authentic short texts and media.

Three hours of applied course work.

Note: Advanced placement and credit by examination are available to students who have previously studied or are proficient in Spanish.

### **SPAN 3023: Introduction to Linguistics**

Cross-listed: COMM 3023 Introduction to Linguistics, ENGL 3023 Introduction to Linguistics, FR 3023 Introduction to Linguistics, and GER 3023 Introduction to Linguistics

Prerequisites: ENGL 1023 Composition II or equivalent and SPAN 2023 Intermediate Spanish II or SPAN 2033 Intermediate Spanish II for Heritage Speakers, or equivalent.

A study of basic concepts in language, comparative characteristics of different languages, and the principles of linguistic investigation.

### **SPAN 3113: Business Spanish**

Prerequisite: SPAN 3003 Conversation and Composition I or permission of instructor.

The study of business culture, terminology, presentations and cases in the Hispanic world. This course will present a detailed examination of business practices in Latin America and other Spanish speaking countries. Emphasis will be given to business protocols when conducting business correspondence, personal interviews, and appointments, among others. Attention will also be given to the use of technology in business.

### **SPAN 3123: Spanish Civilization and Culture**

Prerequisite: SPAN 3013 Conversation and Composition II or permission of instructor.

Study of the geography, history, arts, institutions, customs and contemporary life of the Spanish people.

### **SPAN 3133: Spanish-American Civilization and Culture**

Prerequisite: SPAN 3013 Conversation and Composition II or permission of instructor.

Study of the geography, history, arts, institutions, customs, and contemporary life of the peoples of Spanish America, with some attention to the major pre-Colombian civilizations.

### **SPAN 3143: Study Abroad**

Prerequisites: Completion of SPAN 2023 Intermediate Spanish II or SPAN 2033 Intermediate Spanish II for Heritage Speakers or equivalent and permission of the World Languages Study Abroad supervisor.

Study of the contemporary language and culture in a Spanish speaking country.

Note: May substitute for SPAN 3003 Conversation and Composition I or SPAN 3013 Conversation and Composition II, depending on the student's proficiency level.

### **SPAN 3163: Community Internship Experience**

Prerequisite: Completion of SPAN 2023 Intermediate Spanish II or SPAN 2033 Intermediate Spanish II for Heritage Speakers or equivalent.

Study of contemporary language and culture in a Spanish-speaking community or setting.

Note: May be taken instead of SPAN 3143 Study Abroad to meet degree requirements.

### **SPAN 3213: Advanced Grammar and Usage**

Prerequisite: SPAN 2023 Intermediate Spanish II or SPAN 2033 Intermediate Spanish II for Heritage Speakers

The course is designed to build writing competence and strengthen grammatical competence. Grammar will be studied within the context of writing assignments. The course will deepen the knowledge of the language through the usage of applied linguistics, syntax, grammar, and semantics.

### **SPAN 3233: Introduction to Literature**

Prerequisites: SPAN 2023 Intermediate Spanish II or SPAN 2033 Intermediate Spanish II for Heritage Speakers or equivalent.

Introduction to the study of Hispanic literature.

### **SPAN 3383: Principles of Interpretation**

Prerequisite: Completion of or concurrent enrollment in SPAN 3003 Conversation and Composition I.

Theory and practice based course on English-Spanish interpretation for health care and court settings.

### **SPAN 4003: Oral Communication**

Prerequisite: SPAN 3013 Conversation and Composition II or permission of instructor.

This course is designed to strengthen students' oral communication skills.

### **SPAN 4023: Introduction to Spanish Linguistics**

Prerequisites: SPAN 3003 Conversation and Composition I and 3213.

The purpose of this course is to provide students with the fundamental knowledge of Spanish linguistics as the basis for future application of linguistic principles. This course explores Spanish phonetics, phonology, morphology, syntax and semantics.

### **SPAN 4203: Short Story**

Prerequisite: SPAN 3003 Conversation and Composition I.

An analysis of Spanish-language short stories.

### **SPAN 4213: Spanish Literature**

Prerequisite: SPAN 3233 Introduction to Literature.

A survey of the literature of Spain with readings from representative works.

### **SPAN 4223: Spanish-American Literature**

Prerequisite: SPAN 3233 Introduction to Literature.

A survey of Spanish American literature with readings from representative works.

### **SPAN 4283: Seminar in Spanish**

Prerequisite: SPAN 3003 Conversation and Composition I.

Course content will vary. May be repeated for credit if course content varies.

**SPAN 4701: Foreign Language Pedagogy**

Cross-listed: FR 4701 Foreign Language Pedagogy, GER 4701 Foreign Language Pedagogy.

Prerequisite: Admission to student teaching phase of the teacher education program.

Co-requisite: SEED 4909 Teaching in the Secondary School.

Intensive on-campus exploration of the principles of curriculum construction, applied methods, professional collaboration, and evaluation as related to teaching French, German, or Spanish, followed by professional internship application of these principles under the supervision of a qualified departmental instructor.

**SPAN 4703: Foreign Language Teaching Methods**

Cross-listed: FR 4703 Foreign Language Teaching Methods, GER 4703 Foreign Language Teaching Methods.

Prerequisite: SPAN 3013 Conversation and Composition II and SPAN 3123 Spanish Civilization and Culture or SPAN 3133 Spanish-American Civilization and Culture or equivalent; admission to Stage II of the Secondary Education sequence or equivalent.

Survey of instructional methods and discussions and demonstration of practical techniques for the teaching of a foreign language.

**SPAN 4803: Spanish-Language Film**

Prerequisites: SPAN 3123 Spanish Civilization and Culture or SPAN 3133 Spanish-American Civilization and Culture or equivalent.

An introduction to Spanish-language film theory and major films.

**SPAN 4813: U.S. Latino/a Literature and Culture**

Prerequisite: SPAN 1023 Beginning Spanish II.

This survey course offers an overview of the history of U.S. Latino/a literature, introducing the major trends and placing them into a historical framework stretching from the nineteenth century to today. Topics to be discussed include the construction of identity in terms of race, gender, sexuality, and class; bilingualism and code-switching; the experiences of exile, the immigrant, the marketing of the Latino/a identity; and the relationship of the artist to his or her community.

**SPAN 4951: Undergraduate Research in Spanish**

Offered: On demand

Prerequisite: Departmental approval.

Advanced students carry out independent research activity relating to a significant problem in a major field of study. Supervised by faculty member. Formal report and presentation required. One to four credits depending on problem selected and effort made.

**SPAN 4952: Undergraduate Research in Spanish**

Offered: On demand

Prerequisite: Departmental approval.

Advanced students carry out independent research activity relating to a significant problem in a major field of study. Supervised by faculty member. Formal report and presentation required. One to four credits depending on problem selected and effort made.

**SPAN 4953: Undergraduate Research in Spanish**

Offered: On demand

Prerequisite: Departmental approval.

Advanced students carry out independent research activity relating to a significant problem in a major field of study. Supervised by faculty member. Formal report and presentation required. One to four credits depending on problem selected and effort made.

**SPAN 4954: Undergraduate Research in Spanish**

Offered: On demand

Prerequisite: Departmental approval.

Advanced students carry out independent research activity relating to a significant problem in a major field of study. Supervised by faculty member. Formal report and presentation required. One to four credits depending on problem selected and effort made.

**SPAN 4991: Special Problems in Spanish**

Prerequisites: SPAN 2023 Intermediate Spanish II or SPAN 2033 Intermediate Spanish II for Heritage Speakers and consent of the instructor and the department head.

Designed to provide advanced students with a course of study in an area not covered by departmental course offerings.

**SPAN 4992: Special Problems in Spanish**

Prerequisites: SPAN 2023 Intermediate Spanish II or SPAN 2033 Intermediate Spanish II for Heritage Speakers and consent of the instructor and the department head.

Designed to provide advanced students with a course of study in an area not covered by departmental course offerings.

**SPAN 4993: Special Problems in Spanish**

Prerequisites: SPAN 2023 Intermediate Spanish II or SPAN 2033 Intermediate Spanish II for Heritage Speakers and consent of the instructor and the department head.

Designed to provide advanced students with a course of study in an area not covered by departmental course offerings.



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## SPECIAL EDUCATION (SPED)

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### **SPED 2023: Development and Characteristics of Diverse Learners**

This course covers characteristics of children with exceptional learning needs. An emphasis will be placed on typical and atypical development, an overview of various exceptionalities including Giftedness, and the special needs of children from different cultures and language backgrounds. A field experience is required.

### **SPED 3033: Foundations of Special Education**

Prerequisite: Admission to Stage II of the Teacher Education Program.

This course explores the development of the current administrative system for serving students with diversity. It shows how and why the present system for children with disabilities, children with giftedness, and children of other diversities is used for the benefit of those students. SPED3003 students become prepared not only for teaching diverse populations but also for serving on the IEP and other committees that make important decisions that will affect their futures.

Note: A field experience is required in this course

### **SPED 3153: Planning, Instruction, and Assessment for Students with Disabilities**

Prerequisite: Admission to Stage II of the Teacher Education Program.

The primary purpose of this course is to empower elementary (K-6) teacher education candidates to respond effectively to the broad range of needs found in today's classrooms. Student diversity will be considered within the context of an educational framework, focusing specifically on an array of exceptionalities but also taking into consideration other influences, such as: culture, class, gender, language, etc. The need and means to provide effective learning opportunities for all students through varied teaching and learning in the classroom will be cultivated. Through a variety of hands-on activities, students will focus on the evaluation, creation and application of effective, research based planning, instruction and assessments strategies for creating classrooms which foster educational equality for all exceptional children.

Note: A field experience is required in this course

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## SPEECH (SPH)

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### **SPH 1XXX: SPEECH TRANSFER ELECTIVE**

Credit transferred from another institution and articulated for speech lower division elective.

### **SPH 4XXX: SPEECH TRANSFER ELECTIVE**

Credit transferred from another institution and articulated for speech upper division elective.

### **SPH 3XXX: SPEECH TRANSFER ELECTIVE**

Credit transferred from another institution and articulated for speech upper division elective.

### **SPH 2XXX: SPEECH TRANSFER ELECTIVE**

Credit transferred from another institution and articulated for speech lower division elective.

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## STATISTICS (STAT)

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### **STAT 2163: Introduction to Statistical Methods**

ACTS Common Course - MATH 2103

Prerequisites: MATH 1003 College Mathematics, MATH 1113 College Algebra, or consent of the instructor.

Descriptive statistics, random variables, probability and sampling distributions, estimation, hypothesis testing, regression, analysis of variance, non-parametric techniques.

Note: May not be taken for credit after completion of STAT 3153 Applied Statistics.

Note: A grade of C or better must be earned in this course if being used to satisfy the general education mathematics requirement.

### **STAT 2304: Programming Languages for Data Science**

Prerequisite: Any introductory statistics course.

The goal of this course is to introduce the basic computer programming using Python and R to the undergraduate students who are interested in working in the rapidly growing fields of data science and data analytics. Python and R are two open-source programming languages with a large data scientist community. This course will introduce the basic programming skills and tools necessary to efficiently collect, process, visualize, and analyze the datasets. Hands-on projects will be given to help students gain experience with software packages.

### **STAT 3113: Regression Analysis**

Prerequisite: Any introductory statistics course or permission of instructor.

This course introduces the methods for fitting and interpreting regression models. Topics include simple linear regression (SLR), multiple linear regression (MLR), model checking, variable selection methods, dummy variables, diagnostic measures, logistic regression, and time series analysis. Instruction will include the use of statistical programming language.

### **STAT 3153: Applied Statistics**

Prerequisite: MATH 2924 Calculus II

A balanced approach emphasizing both theory and applications will be taken. Topics include descriptive statistics, exploratory data analysis, probability and probability models, discrete and continuous random variables, confidence intervals, hypothesis testing, and control charts. Students will be required to collect data, use a current statistical software package to analyze the data, and make inferences based upon the data analysis as part of an individual and/ or group project.

Note: A grade of C or better must be earned in the course used to satisfy the general education mathematics requirement.

### **STAT 3183: Statistical Process Control**

Offered: Spring

Prerequisite: An introductory statistics course or permission of instructor.

Statistical process control is an important topic for anyone interested in applying statistics in industry. This course focuses on theory and methods of quality monitoring including process capability, control charts, acceptance sampling, quality engineering, and quality design.

### **STAT 3203: Actuarial Probability I**

Offered: Fall

Prerequisite: MATH 2934 Calculus III

In this course we develop knowledge of the fundamental probability tools for quantitatively assessing risk. The application of these tools to problems encountered in actuarial science is emphasized. A thorough command of the supporting calculus is assumed. A very basic knowledge of insurance and risk management is assumed.

### **STAT 3213: Actuarial Probability II**

Offered: Spring

Prerequisite: STAT 3203 Actuarial Probability I

This course is a continuation to STAT 3203 Actuarial Probability I. At the end of the course, a student is prepared to take Exam P of the Society of Actuaries.

### **STAT 4113: Categorical Data Analysis**

Offered: Fall

Prerequisite: STAT 3113 Regression Analysis or permission of instructor.

Statistical tools to analyze univariate and multivariate categorical responses. Emphasis is given to Generalized Linear Models, including logistic regression and loglinear models.

### **STAT 4153: Experimental Design and Analysis**

Prerequisite: Any introductory statistics course or permission of instructor, and junior standing or above.

This course introduces students to both design and analysis of experiments as well as statistical computing. Emphasis is given to develop an understanding of experimental methods and major experimental designs. Students will be required to design and carry out an experiment, use a current statistical software package to analyze the data, and make inferences based upon the analysis.

### **STAT 4163: Mathematical Statistics**

Prerequisite: STAT 3153 Applied Statistics

This is an introductory course in mathematical statistics. Topics include distribution functions (both discrete and continuous), multivariate distributions, distributions of functions of random variables, and statistical inference.

Note: A grade of C or better must be earned in the course used to satisfy the general education mathematics requirement.

### **STAT 4173: Advanced Biostatistics**

Prerequisites: An introductory statistics course or permission of instructor.

This course will include analysis of variance, one factor experiments, experimental design with two or more factors, linear and multiple regression analysis, and categorical data analysis.

Note: A grade of C or better must be earned in the course used to satisfy the general education mathematics requirement.

### **STAT 4283: Financial Mathematics I**

Offered: Fall

Prerequisite: MATH 2914 Calculus I

This is an introductory course in Financial Mathematics. The student will learn about the different types of interest (simple interest, discount interest, compound interest), annuities, debt retirement methods, and investing in stocks and bonds.

### **STAT 4293: Financial Mathematics II**

Offered: Spring

Prerequisite: MATH 4283

This is a continuation of STAT 4283 Financial Mathematics I. Topics include loans, bonds, cash flow and portfolios, immunization, derivatives and options. At the end of this course, a student is prepared to take Exam FM of the Society of Actuaries.

**STAT 4383: Machine Learning**

Offered: Fall

Prerequisites: MATH 2914 Calculus I and 4003

This course is directed towards advanced undergraduates in statistics, mathematics, or related quantitative fields. The focus of the course is an accessible overview of the field of machine learning and provide the students with valuable hands-on experience by illustrating how to implement each of the machine learning methods using Python. Topics covered include Decision Tree, Support Vector Machines, and the kernel methods, AdaBoost and GBDT method, Logistic regression, and neural network, and more.

**STAT 4393: Statistical Learning**

Offered: Spring

Prerequisite: STAT 3113 Regression Analysis or permission of instructor.

This course is directed towards advanced undergraduates or master's students in statistical or related quantitative fields. The focus of the course is an accessible overview of the field of statistical learning and provide the students with valuable hands-on experience by illustrating how to implement each of the statistical learning methods using R or other statistical programming language. Topics covered include: regression techniques, classification methods, linear model selection and regularization, unsupervised learning, and more.

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**STUDY ABROAD/STUDY AWAY (SA)**

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**SA 1001: Study Abroad/Study Away**

This is a variable hour and variable level course that acts as a placeholder for students who are taking classes at other institutions through Arkansas Tech University's study abroad or study away program.

**SA 1002: Study Abroad/Study Away**

This is a variable hour and variable level course that acts as a placeholder for students who are taking classes at other institutions through Arkansas Tech University's study abroad or study away program.

**SA 1003: Study Abroad/Study Away**

This is a variable hour and variable level course that acts as a placeholder for students who are taking classes at other institutions through Arkansas Tech University's study abroad or study away program.

**SA 1004: Study Abroad/Study Away**

This is a variable hour and variable level course that acts as a placeholder for students who are taking classes at other institutions through Arkansas Tech University's study abroad or study away program.

**SA 2001: Study Abroad/Study Away**

This is a variable hour and variable level course that acts as a placeholder for students who are taking classes at other institutions through Arkansas Tech University's study abroad or study away program.

**SA 2002: Study Abroad/Study Away**

This is a variable hour and variable level course that acts as a placeholder for students who are taking classes at other institutions through Arkansas Tech University's study abroad or study away program.

**SA 2003: Study Abroad/Study Away**

This is a variable hour and variable level course that acts as a placeholder for students who are taking classes at other institutions through Arkansas Tech University's study abroad or study away program.

**SA 2004: Study Abroad/Study Away**

This is a variable hour and variable level course that acts as a placeholder for students who are taking classes at other institutions through Arkansas Tech University's study abroad or study away program.

**SA 3001: Study Abroad/Study Away**

This is a variable hour and variable level course that acts as a placeholder for students who are taking classes at other institutions through Arkansas Tech University's study abroad or study away program.

**SA 3002: Study Abroad/Study Away**

This is a variable hour and variable level course that acts as a placeholder for students who are taking classes at other institutions through Arkansas Tech University's study abroad or study away program.

**SA 3003: Study Abroad/Study Away**

This is a variable hour and variable level course that acts as a placeholder for students who are taking classes at other institutions through Arkansas Tech University's study abroad or study away program.

**SA 3004: Study Abroad/Study Away**

This is a variable hour and variable level course that acts as a placeholder for students who are taking classes at other institutions through Arkansas Tech University's study abroad or study away program.

**SA 4001: Study Abroad/Study Away**

This is a variable hour and variable level course that acts as a placeholder for students who are taking classes at other institutions through Arkansas Tech University's study abroad or study away program.

**SA 4002: Study Abroad/Study Away**

This is a variable hour and variable level course that acts as a placeholder for students who are taking classes at other institutions through Arkansas Tech University's study abroad or study away program.

**SA 4003: Study Abroad/Study Away**

This is a variable hour and variable level course that acts as a placeholder for students who are taking classes at other institutions through Arkansas Tech University's study abroad or study away program.

**SA 4004: Study Abroad/Study Away**

This is a variable hour and variable level course that acts as a placeholder for students who are taking classes at other institutions through Arkansas Tech University's study abroad or study away program.

**TECH (TECH)**

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**TECH 1001: Orientation to the University**

A course designed to provide information and enhance skills that will enable students to take responsibility for a successful transition to college. The course will expose students to college resources and requirements and promote the development of practical skills for college success.

**TECH 1013: Introduction to the University**

This course is designed specifically to enhance student adjustment to college life, student adaptation to the higher education learning experience, student comprehension of personal responsibility, and student advancement regarding career pathways.

**THEATRE (TH)**

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**TH 4XXX: THEATRE TRANSFER ELECTIVE**

Credit transferred from another institution and articulated for theatre upper division elective.

**TH 3XXX: THEATRE TRANSFER ELECTIVE**

Credit transferred from another institution and articulated for theatre upper division elective.

**TH 2XXX: THEATRE TRANSFER ELECTIVE**

Credit transferred from another institution and articulated for theatre lower division elective.

**TH 1XXX: THEATRE TRANSFER ELECTIVE**

Credit transferred from another institution and articulated for theatre lower division elective.

**TH 2203: Play Analysis**

A course designed for the theatre major. Contains techniques and vocabulary essential for doing a production-based analysis for the student actor, designer or director.

**TH 2273: Introduction to Theatre**

ACTS Common Course - DRAM 1003

Prerequisite: ENGL 1013 Composition I or equivalent.

A study of theatre as an art form with particular attention to scenic, dramatic, literary and historic elements.

Note: TH 2273 Introduction to Theatre may be used to fulfill the fine arts general education requirement.

**TH 2301: Introduction to Theatrical Dance**

An introduction to the basic skills and discipline of stage movement and the steps and vocabulary of jazz, tap and ballet.

Note: This course counts as a PE activity credit in degree programs that are not intended for teacher licensure.

**TH 2331: Advanced Theatrical Dance**

Prerequisite: TH 2301 Introduction to Theatrical Dance

This course provides a continuation of the skills development for stage movement, and the steps, vocabulary, and discipline of ballet, tap, jazz, modern dance, and basic partnering.

Note: This course counts as a PE activity credit in degree programs that are not intended for teacher licensure.

### **TH 2511: Practicum in Set Construction and Lighting**

Credit will be given for forty hours of participation in these elements of stagecraft.

### **TH 2513: Introduction to Theatrical Design and Production**

An introduction to the field of technical theatre.

### **TH 2521: Practicum in Set Construction and Lighting**

Credit will be given for forty hours of participation in these elements of stagecraft.

### **TH 2611: Practicum in Costume and Makeup**

Credit will be given for forty hours of participation in these elements of stagecraft.

### **TH 2621: Practicum in Costume and Makeup**

Credit will be given for forty hours of participation in these elements of stagecraft.

### **TH 2703: Acting Theories and Techniques**

An introduction to standard acting techniques, including method acting.

### **TH 2711: Acting Practicum**

Prerequisite: Consent of instructor

Credit will be given for a large part in a major production or for a small part preceded by a series of smaller parts in previous productions.

### **TH 2713: Intermediate Acting**

Prerequisite: TH 2703 Acting Theories and Techniques or equivalent

Emphasis on character development, character interaction, and scene work, with special attention to comedy.

### **TH 2721: Acting Practicum**

Prerequisite: Consent of instructor

Credit will be given for a large part in a major production or for a small part preceded by a series of smaller parts in previous productions.

### **TH 3263: Narrative Film Production**

A course studying the fundamental skills in film-making, including narrative structure, shot planning, camera work, and editing.

### **TH 3513: Stagecraft Techniques**

An introductory course for both majors and non-majors who want to learn the technical aspects of dramatic productions. A study of construction fundamentals and skills involved in scenic art. This course also introduces the student to the production process, theatre job descriptions, professional hierarchy, and technical specialist collaboration.

This course requires a weekly lab in addition to the class for supervised practice of class skills.

### **TH 3523: Principles of Theatrical Lighting**

Prerequisite: TH 3513 Stagecraft Techniques, or consent of instructor.

An introduction to lighting design, including the history of theatrical lighting, electrical theory and practice, lighting control systems, color theory and creative process. This course requires a weekly lab in addition to the class for supervised practice of class skills and familiarization with the production process.

### **TH 3703: Advanced Acting: Styles**

Prerequisite: TH 2713 Intermediate Acting or equivalent.

The analysis and performance of scenes from plays from various historical periods, with attention to vocal and kinesthetic qualities appropriate to different styles.

### **TH 3711: Practicum in Stage Management**

Prerequisite: Consent of Instructor

Student will be given credit for stage-managing a full-length production or a slate of one-acts.

Note: Each number may be taken for credit one time with a maximum of 7 practicum credits counted toward the major.

### **TH 3721: Practicum in Stage Management**

Prerequisite: Consent of Instructor

Student will be given credit for stage-managing a full-length production or a slate of one-acts.

Note: Each number may be taken for credit one time with a maximum of 7 practicum credits counted toward the major.

**TH 3731: Practicum in Acting**

Prerequisite: Consent of Instructor

Credit will be given for a large part in a major production or for a small part preceded by a series of smaller parts in previous productions.

**TH 3741: Practicum in Acting**

Prerequisite: Consent of Instructor

Credit will be given for a large part in a major production or for a small part preceded by a series of smaller parts in previous productions.

**TH 3803: Directing Theories and Techniques**

An introduction to standard directing techniques.

**TH 3811: Directing Practicum**

Prerequisite: Consent of instructor

Credit will be given for directing a one act play.

**TH 3821: Directing Practicum**

Prerequisite: Consent of instructor

Credit will be given for directing a one act play.

**TH 3833: Advanced Directing**

Prerequisites: TH 3811 Directing Practicum, and consent of instructor.

Credit will be given for directing a full length play.

**TH 4091: Internship**

Credit for work in professional theatre settings. Credit hours will be based on hours on the job.

Note: May be taken for a total of four hours.

**TH 4092: Internship**

Credit for work in professional theatre settings. Credit hours will be based on hours on the job.

Note: May be taken for a total of four hours.

**TH 4093: Internship**

Credit for work in professional theatre settings. Credit hours will be based on hours on the job.

Note: May be taken for a total of four hours.

**TH 4094: Internship**

Credit for work in professional theatre settings. Credit hours will be based on hours on the job.

Note: May be taken for a total of four hours.

**TH 4243: Senior Project in Theatre History**

Research project approved by the department to facilitate graduate school application.

**TH 4283: Children's Theatre: Techniques and Practicum**

Prerequisites: Consent of instructor

The philosophy of teaching acting to children, in theory and in practice. The course is designed for theatre majors, teachers, and others interested in child development. The semester equivalent of two hours of class lecture is combined with the semester equivalent of two hours of supervised laboratory experience in a children's theatre setting.

Note: May not be taken for credit after completion of COMM 5283 or equivalent.

**TH 4293: Social Media Influencing**

A course for majors and non-majors. This course addresses the basics of online influencing, including building and maintaining an online community, marketing and monetizing digital content, and leveraging viral triggers.

**TH 4313: Theatre History I: Antiquity to Romanticism**

A historical survey of the development of drama and theatre from classical Greece to the age of romanticism.

Note: May not be repeated for credit as TH 5313.

**TH 4323: Theatre History II: Late 18th Century to the Present**

The development of theatre from the late 1700s through the twenty-first century, including melodrama, realism, experimental theatre, feminism, political theatre, multiculturalism, and collective creation.

Note: May not be repeated for credit as TH 5323.

**TH 4503: Scene Design**

Prerequisite: TH 3513 Stagecraft Techniques, or permission of instructor.

A study of the elements of design for the stage, from conception to finished production models, focusing on line, form, mass, and color.

Note: May not be repeated for credit as TH 5503 or equivalent.

**TH 4511: Practicum in Set Construction and Lighting**

Prerequisite: Consent of Instructor

Student will be given credit for 40 hours of set construction participation.

**TH 4513: Drafting for the Stage**

Prerequisite: TH 3513 Stagecraft Techniques or permission of the Instructor.

Introduction to the United States Institute for Technical Theatre drafting techniques and language. Production of floor plans, elevations, construction drawings and perspectives for theatrical construction.

This course requires a weekly lab in addition to the class skills and familiarization with the production process.

**TH 4521: Practicum in Set Construction and Lighting**

Prerequisite: Consent of Instructor

Student will be given credit for 40 hours of set construction participation.

**TH 4523: Advanced Stagecraft**

Prerequisites: TH 3513 Stagecraft Techniques, TH 4513 Drafting for the Stage or permission of instructor.

A course for technical theatre emphasis majors that trains the student for managing a theatre shop. Teaches advanced construction techniques, welding, pyrotechnics, and people managing skills.

This course requires a weekly lab in addition to the class for supervised practice of class skills and production process.

**TH 4543: Senior Project in Design**

Portfolio creation project approved by the department to facilitate graduate school application process or professional placement.

**TH 4563: Sound Design for Moving Image**

Theory and practical application of sound design techniques for film, theatre, games, commercials, and vocal production with special focus on the narrative, aesthetic, and emotional impact of sounds and music for visual media.

\$45 course fee.

**TH 4611: Practicum in Costume and Makeup**

Prerequisite: Consent of Instructor

Student will be given credit for 40 hours in costume or makeup participation.

Note: Each course number may only be taken for credit 1 time with a maximum of 7 practicum hours counting toward the major.

**TH 4613: Introduction to Costuming**

An examination of the history, theory and practice of costume design. It makes use of lecture, practical experience and personal exploration through a variety of artistic media to help each student understand both the art and technology of costume design.

**TH 4621: Practicum in Costume and Makeup**

Prerequisite: Consent of Instructor

Student will be given credit for 40 hours in costume or makeup participation.

Note: Each course number may only be taken for credit 1 time with a maximum of 7 practicum hours counting toward the major.

**TH 4711: Practicum in Stage Management**

Prerequisite: Consent of Instructor

Student will be given credit for stage-managing a full-length production or a slate of one-acts.

Note: Each number may be taken for credit one time with a maximum of 7 practicum credits counted toward the major.

**TH 4721: Practicum in Stage Management**

Prerequisite: Consent of Instructor

Student will be given credit for stage-managing a full-length production or a slate of one-acts.

Note: Each number may be taken for credit one time with a maximum of 7 practicum credits counted toward the major.

**TH 4731: Practicum in Acting**

Prerequisite: Consent of Instructor

Credit will be given for a large part in a major production or for a small part preceded by a series of smaller parts in previous productions.

**TH 4741: Practicum in Acting**

Prerequisite: Consent of Instructor

Credit will be given for a large part in a major production or for a small part preceded by a series of smaller parts in previous productions.

**TH 4821: Practicum in Directing**

Prerequisite: Consent of Instructor

Student will be given credit for the assistance in the directing of a full-length production or for the independent directing of a one-act.

**TH 4831: Practicum in Directing**

Prerequisite: Consent of Instructor

Student will be given credit for the assistance in the directing of a full-length production or for the independent directing of a one-act.

**TH 4843: Senior Project in Theatrical Performance**

Portfolio creation project approved by the department to facilitate graduate school application or professional placement.

**TH 4951: Undergraduate Research in Theatre**

Offered: On demand

Prerequisite: Departmental approval

Advanced students carry out independent research activity relating to a significant problem in a major field of study. Supervised by faculty member. Formal report and presentation required. One to four credits depending on problem selected and effort made.

**TH 4952: Undergraduate Research in Theatre**

Offered: On demand

Prerequisite: Departmental approval

Advanced students carry out independent research activity relating to a significant problem in a major field of study. Supervised by faculty member. Formal report and presentation required. One to four credits depending on problem selected and effort made.

**TH 4953: Undergraduate Research in Theatre**

Offered: On demand

Prerequisite: Departmental approval

Advanced students carry out independent research activity relating to a significant problem in a major field of study. Supervised by faculty member. Formal report and presentation required. One to four credits depending on problem selected and effort made.

**TH 4954: Undergraduate Research in Theatre**

Offered: On demand

Prerequisite: Departmental approval

Advanced students carry out independent research activity relating to a significant problem in a major field of study. Supervised by faculty member. Formal report and presentation required. One to four credits depending on problem selected and effort made.

**TH 4983: Theatre Seminar:**

Prerequisites: Twelve credits in theatre and junior standing.

A directed seminar dealing with a selected topic in theatre studies. May be repeated for credit for different topics.

Note: May not be repeated for credit as TH 5983 unless topic is different.

**TH 4991: Special Problems in Theatre**

For majors only. Students are accepted by invitation of the instructor.

**TH 4992: Special Problems in Theatre**

For majors only. Students are accepted by invitation of the instructor.

**TH 4993: Special Problems in Theatre**

For majors only. Students are accepted by invitation of the instructor.

**TH 4994: Special Problems in Theatre**

For majors only. Students are accepted by invitation of the instructor.



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## U. S. HISTORY/GOVERNMENT (USHG)

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### USHG 1XXX: U.S. History and Government

HIST 1903 Survey of American History Survey of American History

HIST 2003 United States History to 1877 United States History to 1877

HIST 2043 Honors United States History to 1877 Honors United States History to 1877

HIST 2013 United States History since 1877 United States History since 1877

POLS 2003 American Government American Government

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## VOCATIONAL BUSINESS EDUCATION (VOBE)

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### VOBE 4023: Methods of Teaching Vocational Business

Prerequisites for 3000 and 4000 level courses are listed in the College of Business section of this catalog.

A methods course designed to prepare the beginning business educator for effective teaching in the contemporary vocational business education classroom. Teaching methodologies for the business education occupational clusters are presented and practiced.

### VOBE 4701: Special Methods in Vocational Business

Prerequisite: Admission to student teaching phase of the teacher education program. Additional prerequisites for 3000 and 4000 level courses are listed in the College of Business section of this catalog.

Co-requisite: SEED 4809 Teaching in the Elementary and Secondary School

Intensive on-campus exploration of the principles of curriculum construction, teaching methods, use of community resources, and evaluation as related to teaching vocational business.

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## WELLNESS SCIENCE (WS)

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### WS 1031: Food, Exercise, and Body Composition

The course provides the student with the opportunity to assess their current lifestyle pertaining to the nutrients consumed in the diet and the amount and type of aerobic exercise participation. Special emphasis is placed on developing an internal locus of control by actively involving the student in self-analysis activities, developing an understanding of nutrient intake and the culminating effects on personal health, and participation in an appropriate aerobic exercise program.

\$25 laboratory fee.

This is an activity course. No more than four hours of activity credit may be counted toward graduation. A student registering for an activities course in excess of these limits receives no credit for the additional course and the grade is not included in the computation of grade point.

### WS 1061: Muscle Fitness for Women

Structured to provide for the development of insights and practices associated with resistive activity as the student accomplishes an individually predicted level of muscle fitness.

\$25 laboratory fee.

This is an activity course. No more than four hours of activity credit may be counted toward graduation. A student registering for an activities course in excess of these limits receives no credit for the additional course and the grade is not included in the computation of grade point.

### WS 1081: Muscle Fitness for Men

Structured to provide for the development of insights and practices associated with resistive activity as the student accomplishes an individually predicted level of muscle fitness.

\$25 laboratory fee.

This is an activity course. No more than four hours of activity credit may be counted toward graduation. A student registering for an activities course in excess of these limits receives no credit for the additional course and the grade is not included in the computation of grade point.

### WS 1091: Fitness Walking/Jogging

The course provides the student with the opportunity to assess his or her personal physical fitness level with trained personnel. Special emphasis is placed on improving the physical fitness level of the student through participation in appropriately designed walking or jogging activity. Students who enroll in the class will submit themselves to the physical fitness protocol administered by the HPE and Wellness faculty members and upper-level majors.

\$25 laboratory fee.

This is an activity course. No more than four hours of activity credit may be counted toward graduation. A student registering for an activities course in excess of these limits receives no credit for the additional course and the grade is not included in the computation of grade point.