

**Teacher Education Council**  
**Monday, September 16, 2019**  
**4 p.m. Crabaugh 216**

College of Arts and Humanities – Department of Art

1. Delete ART 1001: Introduction to Art, from the course descriptions; and
2. Modify the Curriculum in Art for Teacher Licensure, as follows: (a) add TECH 1001: Orientation to the University; and (b) delete ART 1001: Introduction to Art; and (c) add ART 3153: History of Digital Art, to the list of courses approved to satisfy the Art history electives in footnote 2.

College of Business – Department of Management and Marketing

1. Modify the Curriculum in Business Education for Teacher Licensure, as follows: add ACCT 2000: Accounting Principles I Lab, to the sophomore fall semester.

College of Engineering and Applied Sciences - Department of Computer & Information Science

1. Change the course number for COMS 2700: Networking and Architecture Laboratory, TO: 2701;
2. Change the course number for COMS 4700: Data Communications and Networking Lab, TO: 4701; and
3. Modify the Curriculum in Computer Science for Teacher Licensure, as follows: (a) delete 7 hours of electives; (b) delete COMS 4801: Special Methods in Computer Science Education; (c) change COMS 2700: Networking and Architecture Laboratory, TO: 2701; (d) add CSEC 2113: Introduction to Information Systems; and (e) change COMS 4700: Data Communications and Networking Lab, TO: 4701.

College of Natural and Health Sciences – Department of Mathematics

1. Delete MATH 4772: Mathematics Teaching Practicum, from the course descriptions;
2. Add the following courses to the course descriptions:  
MATH 3703: Mathematics in the Secondary Schools; and  
MATH 3772: Praxis II Mathematics: Content Knowledge Test Preparation; and
3. (a) Modify the prerequisites for MATH 4703: Special Methods in Mathematics, FROM: Prerequisites: SEED 2002: Education as a Profession, and junior standing or permission of the instructor; TO: Admission to Stage II of the teacher education program; (b) add the co-requisites: Co-requisites: SEED 4054: Educating Developing, Diverse, and Exceptional Learners, and SEED 4556: Classroom Application of Educational Psychology; and (c) modify the course description FROM: This course, designed for prospective junior and senior high mathematics teachers, will provide the student 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 used to satisfy the general education mathematics

requirement; TO: 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 used to satisfy the general education mathematics requirement;

4. Modify the Curriculum in Mathematics for Teacher Licensure, as follows: (a) delete TECH 1001: Orientation to the University; (b) add MATH 1001: Orientation to Mathematics; (c) delete 3 hours of electives; (d) add MATH 3703: Mathematics for Secondary Schools; (e) delete MATH 4772: Mathematics Teaching Practicum, (f) add MATH 3772: Praxis II Mathematics: Content Knowledge Test Preparation; (g) move MATH 4703: Special Methods in Mathematics, from the spring term of the junior year to the fall term of the senior year; and (h) move MATH 4971: Mathematics Senior Seminar, to from the fall term of the senior year to the spring term of the senior year.



# ARKANSAS TECH UNIVERSITY


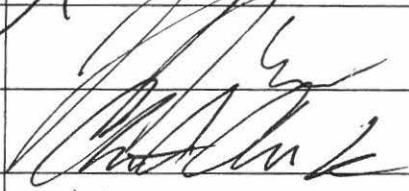
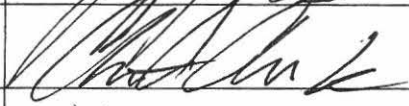

RECEIVED

FEB 08 2019

## REQUEST FOR COURSE DELETION

Registrar's Office

Department Initiating Proposal	Date
Art Department	12/04/2018

Title	Signature	Date
Department Head Summer Bruch		12/04/2018
Dean Jeff Woods		2/7/19
Assessment		3/11/19
Registrar		3/27/19
Graduate Dean (Graduate Proposals Only)		
Vice President for Academic Affairs		

Committee	Approval Date
General Education Committee (Undergraduate Proposals Only)	
Teacher Education Committee (Graduate or Undergraduate Proposals)	
Curriculum Committee (Undergraduate Proposals Only)	
Faculty Senate (Undergraduate Proposals Only)	
Graduate Council (Graduate Proposals Only)	

Course Subject: (e.g., ACCT, ENGL) ART	Course Number: (e.g., 1003) 1001
Official Catalog Title: ART 1001: Introduction to Art	
( This course will be deleted from the degree plans but stay dormant in the Banner system.)	

RECEIVED

MAR 11 2019

Registrar's Office

RECEIVED

FEB 08 2019

Registrar's Office

Is this course cross-listed with another existing course? If so, list course subject and number.

☐ Yes ☒ No

Will the cross-listed course be deleted? ☐ Yes ☒ No

**(NOTE: If major or minor course, you must complete the Request for Program Change form to delete course from program.)**

Answer the following Assessment questions:

- a. If this course is mandated by an accrediting or certifying agency, include the directive. If not, state not applicable.

RECEIVED

MAR 11 2019

**Not Applicable**

- b. If this course was required for the major or minor, complete the following.
1. How will program level learning outcome(s) previously addressed by this course now be addressed?

Registrar's Office

***This course orients students to the university's offices, resources, procedures, and faculty. No program level outcomes are currently assessed through this course.***

- c. What is the rationale for deleting this course? What evidence supports this action?

***ART 1001 has negatively affected retention, made scheduling for freshman inflexible, and is unnecessary burden on the department. The team taught course was originally created to meet the same objectives as TECH 1001 and provide a platform to introduce students to all of the faculty in the department. The rational was the interaction with all of our faculty would increase engagement and help retention. This has not proven to be true. In 2015 the course enrollment was a manageable 46 student. Enrollment has steadily increased in 2016 it was 58 students and 70 in 2017. In 2018 the enrollment was 75 students at the beginning of the semester. The large class size has made it difficult for faculty to engage with the entire class in a significant way. This is evidenced in the large number of students who have withdrawn from the course or were dropped for non- attendance. By the end of the 2018 fall semester there were only 64 students still enrolled. The significant decrease clearly shows ART 1001 is not having a positive impact on student retention. Switching the class back to TECH 1001 will offer more flexibility in students schedules. ART 1001 has only one section while there are many Tech 1001 sections, offering students more flexibility in their schedules. The Art Department is already under staffed with 6 out of 10 faculty teaching overloads, 6 faculty out of 10 teaching one or more sections of special projects for no compensation. In 2019 our projected increase in enrollment will increase 10% in Art and 30% in Game and Interactive Media. It is no longer feasible to continue teach ART 1001. The course will remain dormant in Banner if it becomes feasible in the future.***

If this course will affect other departments, a Departmental Support Form for each affected department must be attached. The form is located on the Curriculum forms web page at [http://www.atu.edu/registrar/curriculum\\_forms.php](http://www.atu.edu/registrar/curriculum_forms.php).

**NOTE: This deletion will be effective at the end of the spring term of the current catalog year.**





# ARKANSAS TECH UNIVERSITY

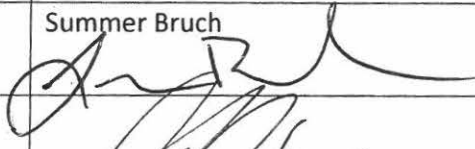
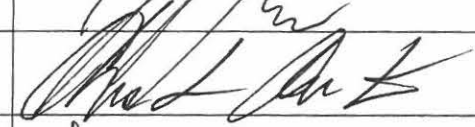
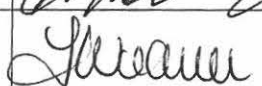
RECEIVED

FEB 08 2019

## REQUEST FOR PROGRAM CHANGE

Registrar's Office

Department Initiating Proposal	Date
Department of Art	12/18/2018

Title	Signature	Date
Department Head	Summer Bruch	12/18/2018
Dean		2/7/19
Assessment		3/11/19
Registrar		3/27/19
Graduate Dean (Graduate Proposals Only)		
Vice President for Academic Affairs		

Committee	Approval Date
General Education Committee (Undergraduate Proposals Only)	
Teacher Education Committee (Graduate or Undergraduate Proposals)	
Curriculum Committee (Undergraduate Proposals Only)	
Faculty Senate (Undergraduate Proposals Only)	
Graduate Council (Graduate Proposals Only)	

Program Title:  
Curriculum in Art for Teacher Licensure

RECEIVED

MAR 11 2019

Registrar's Office

FEB 08 2019

Registrar's Office

Outline change in program: (e.g., list changes in program such as (1) delete three hours of elective and (2) add three hours of approved major electives)

The Department of Art would like to require TECH 1001: Orientation to the University, and delete ART 1001: Introduction to Art, from the curriculum. Include this change in the Curriculum in Art for Teacher Licensure.

*Add ART 3153: History of Digital Art, to footnote 2*

What impact will the change have on staffing, on other programs and space allocation?

TECH 1001 will need added seat for approximately 80 students.

RECEIVED

MAR 11 2019

Registrar's Office

Answer the following Assessment questions:

- a. How does the program change align with the university mission?

TECH 1001 helps orient first generation college students the offices, staff and resources available to them at Tech.

- b. If this change in the program is mandated by an accrediting or certifying agency, include the directive. If not, state not applicable.

Not Applicable

- c. What is the rationale for this program change?

1. How will the program change impact learning for students enrolled in this program?

ART 1001 has negatively affected retention, made scheduling for freshman inflexible, and is unnecessary burden on the department. The team taught course was originally created to meet the same objectives as TECH 1001 and provide a platform to introduce students to all of the faculty in the department.

2. Provide an example or examples of student learning assessment evidence which supports the changes in the program.

In 2015 the course enrollment was a manageable 46 student. Enrollment has steadily increased in 2016 it was 58 students and 70 in 2017. In 2018 the enrollment was 75 students at the beginning of the semester. The large class size has made it difficult for faculty to engage with the entire class in a significant way. This is evidenced in the large number of students who have withdrawn from the course or were dropped for non- attendance. By the end of the 2018 fall semester there were only 64 students still enrolled. The significant decrease clearly shows ART 1001 is not having a positive impact on student retention. Switching the class back to TECH 1001 will offer more flexibility in students schedules. ART 1001 has only one section while there are many Tech 1001 sections, offering students more flexibility in their schedules.

- b. How does this program fit in the current state of the discipline? Include Arkansas institutional comparisons. If Arkansas educational institutions do not have the course or program provide comparative examples from regional educational institutions.

Not Applicable

- c. Attach a detailed assessment plan including three to five specific program student learning outcomes, means or instructional measures to assess each outcome, identify program courses where learning will be assessed, and performance standards or criteria for success which demonstrate student learning for each outcome. (Examples for assessment plans/curriculum mapping can be found at the Office of Assessment and Institutional Effectiveness web page.)

Not Applicable

If this course will affect other departments, a Departmental Support Form for each affected department must be attached. The form is located on the Curriculum forms web page at [http://www.atu.edu/registrar/curriculum\\_forms.php](http://www.atu.edu/registrar/curriculum_forms.php).

RECEIVED  
FEB 08 2019  
Registrar's Office

RECEIVED  
MAR 11 2019  
Registrar's Office

FEB 08 2019

In the attached matrix, include requested changes in the matrix and include course number and title. **Registrar's Office**

Curriculum Matrix for Catalog Curriculum in Art for Teacher Licensure	
<b>Freshman Fall Semester</b>  Add: TECH 1001: Orientation to the University  Delete: ART 1001: Introduction to Art  Total Hours:	<b>Freshman Spring Semester</b>  Add/Change:  Delete:  Total Hours:
<b>Sophomore Fall Semester</b>  Add/Change:  Delete:  Total Hours:	<b>Sophomore Spring Semester</b>  Add/Change:  Delete:  Total Hours:
<b>Junior Fall Semester</b>  Add/Change:  Delete:  Total Hours:	<b>Junior Spring Semester</b>  Add/Change:  Delete:  Total Hours:
<b>Senior Fall Semester</b>  Add/Change:  Delete:  Total Hours:	<b>Senior Spring Semester</b>  Add/Change:  Delete:  Total Hours:

RECEIVED

MAR 11 2019

Registrar's Office



# ARKANSAS TECH UNIVERSITY

## REQUEST FOR PROGRAM CHANGE

Department Initiating Proposal	Date
Accounting, Finance, and Economics	8/29/19

Title	Signature	Date
Department Head <b>Tracy Cole</b>	<i>Tracy Cole</i>	8-29-19
Dean <b>Kevin Mason</b>	<i>Kevin Mason</i>	8-29-19
Assessment <b>Christine Austin</b>	<i>Christine Austin</i>	8-29-19
Registrar <b>Tammy Weaver</b>	<i>Tammy Weaver</i>	8/29/19
Graduate Dean (Graduate Proposals Only)		
Vice President for Academic Affairs <b>Barbara Johnson</b>		

Committee	Approval Date
General Education Committee (Undergraduate Proposals Only)	
Teacher Education Committee (Graduate or Undergraduate Proposals)	
Curriculum Committee (Undergraduate Proposals Only)	
Faculty Senate (Undergraduate Proposals Only)	
Graduate Council (Graduate Proposals Only)	

Program Title:  
**Business Education for Teacher Licensure**

Outline change in program: (e.g., list changes in program such as (1) delete three hours of elective and (2) add three hours of approved major electives)

**Added ACCT 2000: Accounting Principles I Lab to the course matrix; this has been a required co-requisite for ACCT 2003: Accounting Principles I for five years but it had never been added to the catalog matrix.**

What impact will the change have on staffing, on other programs and space allocation?

**No change.....this class has been taught by the existing accounting faculty for the past five years in Rothwell Hall.**

Answer the following Assessment questions:

- a. How does the program change align with the university mission? **N/A**
- b. If this change in the program is mandated by an accrediting or certifying agency, include the directive. If not, state not applicable. **N/A**
- c. What is the rationale for this program change? **This is simply the correction of an error in the catalog.**
  1. How will the program change impact learning for students enrolled in this program?
  2. Provide an example or examples of student learning assessment evidence which supports the changes in the program.
- b. How does this program fit in the current state of the discipline? Include Arkansas institutional comparisons. If Arkansas educational institutions do not have the course or program provide comparative examples from regional educational institutions. **See above**
- c. Attach a detailed assessment plan including three to five specific program student learning outcomes, means or instructional measures to assess each outcome, identify program courses where learning will be assessed, and performance standards or criteria for success which demonstrate student learning for each outcome. (Examples for assessment plans/curriculum mapping can be found at the Office of Assessment and Institutional Effectiveness web page.) **N/A**

If this course will affect other departments, a Departmental Support Form for each affected department must be attached. The form is located on the Curriculum forms web page at [http://www.atu.edu/registrar/curriculum\\_forms.php](http://www.atu.edu/registrar/curriculum_forms.php). **N/A**

In the attached matrix, include requested changes in the matrix and include course number and title.

Curriculum Matrix for Catalog Curriculum in <b><u>Business Education for Teacher Licensure</u></b> (enter title for program changing )	
<b>Freshman Fall Semester</b>  Add/Change:  Delete:  Total Hours:	<b>Freshman Spring Semester</b>  Add/Change:  Delete:  Total Hours:
<b>Sophomore Fall Semester</b>  Add/Change: <b>ACCT 2000: Accounting Principles I Lab</b>  Delete:  Total Hours:	<b>Sophomore Spring Semester</b>  Add/Change:  Delete:  Total Hours:
<b>Junior Fall Semester</b>  Add/Change:  Delete:  Total Hours:	<b>Junior Spring Semester</b>  Add/Change:  Delete:  Total Hours:
<b>Senior Fall Semester</b>  Add/Change:  Delete:  Total Hours:	<b>Senior Spring Semester</b>  Add/Change:  Delete:  Total Hours:



# ARKANSAS TECH UNIVERSITY

RECEIVED

SEP 03 2019

## REQUEST FOR COURSE CHANGE

Registrar's Office

Department Initiating Proposal	Date
Computer and Information Science	8/23/2019

Title	Signature	Date
Department Head	<i>Louise Mahphel</i>	8/23/2019
Dean	<i>WLL</i>	8/30/19
Assessment	<i>Ch An 2</i>	9/3/19
Registrar	<i>Shreenu</i>	9/3/19
Graduate Dean (Graduate Proposals Only)		
Vice President for Academic Affairs		

Committee	Approval Date
General Education Committee (Undergraduate Proposals Only)	
Teacher Education Committee (Graduate or Undergraduate Proposals)	
Curriculum Committee (Undergraduate Proposals Only)	
Faculty Senate (Undergraduate Proposals Only)	
Graduate Council (Graduate Proposals Only)	

Course Subject: (e.g., ACCT, ENGL)	Course Number: (e.g., 1003)
COMS	2700
Official Catalog Title:	
Networking and Architecture Laboratory	

Is this course cross-listed with another existing course? If so, list course subject and number.



☐ Yes ☒ No

Request to change: (check appropriate box):

☒ Course Number

☐ Title

☐ Course Description

☐ Cross-Listing

☐ Prerequisite

☐ Co-requisite

☐ Grading

☐ Fee

☐ Other

RECEIVED

SEP 03 2019

Registrar's Office

**NOTES:** These changes will become effective in the Summer I Term of the new catalog year. If this course is cross-listed, a prerequisite/co-requisite, or included in the course description of other courses, a Course Change must be submitted to address all changes in related courses.

New Course Number: (e.g., 1003)

2701

New Official Catalog Title: (If official title exceeds 30 characters, indicate Banner Title below)

Banner Title: (limited to 30 characters, including spaces, capitalize all letters - this will display on the transcript)

New Course Description:

New Cross List:

☐ Adding Cross-Listing

☐ Changing Cross-Listing

☐ Deleting Cross-Listing

If adding or changing cross-listing, indicate course subject and number

New Prerequisite (list all, as you want them to appear in the catalog):

New Co-requisite (list all, as you want them to appear in the catalog):

☐ Elective

☒ Major

☐ Minor

(If major or minor course, you must complete the Request for Program Change form to add course to program.)

Answer the following Assessment questions:

- a. If this course is mandated by an accrediting or certifying agency, include the directive. If not, state not applicable.

n/a

- b. If this course is required for the major or minor, complete the following.

a. Provide the program level learning outcome(s) it addresses.

b. Provide tool or measure directly linked to each program learning outcome. (How will student learning in this outcome be measured?)

**Assessment is unchanged**

- c. What is the rationale for adding this course? What evidence supports this action?

**This changes gives explicit recognition of the value of hands-on experiential learning, which the ATU president has stressed as an important part of education. This change better captures the present curriculum.**

If this course will affect other departments, a Departmental Support Form for each affected department must be attached. The form is located on the Curriculum forms web page at [http://www.atu.edu/registrar/curriculum\\_forms.php](http://www.atu.edu/registrar/curriculum_forms.php).

**No other departments require this course**

RECEIVED

SEP 03 2019

Registrar's Office



# ARKANSAS TECH UNIVERSITY

RECEIVED

SEP 03 2019

Registrar's Office

## REQUEST FOR COURSE CHANGE

Department Initiating Proposal	Date
Computer and Information Science	8/23/2019

Title	Signature	Date
Department Head	Lina Mahabeh	8/23/2019
Dean	W L L	8/30/19
Assessment	Chen	9/3/19
Registrar	Y. W. W.	9/3/19
Graduate Dean (Graduate Proposals Only)		
Vice President for Academic Affairs		

Committee	Approval Date
General Education Committee (Undergraduate Proposals Only)	
Teacher Education Committee (Graduate or Undergraduate Proposals)	
Curriculum Committee (Undergraduate Proposals Only)	
Faculty Senate (Undergraduate Proposals Only)	
Graduate Council (Graduate Proposals Only)	

Course Subject: (e.g., ACCT, ENGL)	Course Number: (e.g., 1003)
COMS	4700
Official Catalog Title:	
Data Communications and Networking Lab	

Is this course cross-listed with another existing course? If so, list course subject and number.

☐ Yes ☒ No

Request to change: (check appropriate box):

☒ Course Number

☐ Title

☐ Course Description

☐ Cross-Listing

☐ Prerequisite

☐ Co-requisite

☐ Grading

☐ Fee

☐ Other

RECEIVED  
SEP 03 2019  
Registrar's Office

**NOTES:** These changes will become effective in the Summer I Term of the new catalog year. If this course is cross-listed, a prerequisite/co-requisite, or included in the course description of other courses, a Course Change must be submitted to address all changes in related courses.

New Course Number: (e.g., 1003)

4701

New Official Catalog Title: (If official title exceeds 30 characters, indicate Banner Title below)

Banner Title: (limited to 30 characters, including spaces, capitalize all letters - this will display on the transcript)

New Course Description:

New Cross List:

☐ Adding Cross-Listing

☐ Changing Cross-Listing

☐ Deleting Cross-Listing

If adding or changing cross-listing, indicate course subject and number

New Prerequisite (list all, as you want them to appear in the catalog):

New Co-requisite (list all, as you want them to appear in the catalog):

☐ Elective

☒ Major

☐ Minor

(If major or minor course, you must complete the Request for Program Change form to add course to program.)

Answer the following Assessment questions:

- a. If this course is mandated by an accrediting or certifying agency, include the directive. If not, state not applicable.

n/a

- b. If this course is required for the major or minor, complete the following.

a. Provide the program level learning outcome(s) it addresses.

b. Provide tool or measure directly linked to each program learning outcome. (How will student learning in this outcome be measured?)

**Assessment is unchanged**

- c. What is the rationale for adding this course? What evidence supports this action?

**This changes gives explicit recognition of the value of hands-on experiential learning, which the ATU president has stressed as an important part of education. This change better captures the present curriculum.**

If this course will affect other departments, a Departmental Support Form for each affected department must be attached. The form is located on the Curriculum forms web page at [http://www.atu.edu/registrar/curriculum\\_forms.php](http://www.atu.edu/registrar/curriculum_forms.php).

**No other departments require this course**

RECEIVED

SEP 03 2019

Registrar's Office



# ARKANSAS TECH UNIVERSITY

RECEIVED

SEP 03 2019

Registrar's Office

## REQUEST FOR PROGRAM CHANGE

Department Initiating Proposal	Date
Computer and Information Science	8/23/2019

Title	Signature	Date
Department Head	Liana Maheshel	8/23/2019
Dean	W. L. H.	8/30/19
Assessment	Ch. A. L.	9/3/19
Registrar	Y. L. L.	9/3/19
Graduate Dean (Graduate Proposals Only)		
Vice President for Academic Affairs		

Committee	Approval Date
General Education Committee (Undergraduate Proposals Only)	
Teacher Education Committee (Graduate or Undergraduate Proposals)	
Curriculum Committee (Undergraduate Proposals Only)	
Faculty Senate (Undergraduate Proposals Only)	
Graduate Council (Graduate Proposals Only)	

Program Title:  
Computer Science Education (for Teacher Licensure)

Outline change in program: (e.g., list changes in program such as (1) delete three hours of elective and (2) add three hours of approved major electives)

- (1) Delete 7 hours of electives
- (2) Delete COMS 4801 Special Methods in Computer Science Education
- (3) Change COMS 2700 to 2701 (course change form being sent through in conjunction with this)
- (4) Add CSEC 2113 Introduction to Information Systems
- (5) Add COMS 4703 Data Communications and Networks and COMS 4701 Data Communications and Networking Lab

RECEIVED

SEP 03 2019

Registrar's Office

What impact will the change have on staffing, on other programs and space allocation?

No anticipated impact

Answer the following Assessment questions:

- a. How does the program change align with the university mission?  
Future computer science teachers will be more successful in the classroom with the addition of the two content courses.
- b. If this change in the program is mandated by an accrediting or certifying agency, include the directive. If not, state not applicable.  
ADE changed Computer Science teacher competencies; curriculum had to be realigned to match new competencies.
- c. What is the rationale for this program change? ADE directive
  1. How will the program change impact learning for students enrolled in this program?  
As stated above, future computer science teachers will be more successful in the classroom. New teacher competencies and high school curriculum directly address cybersecurity and networking.
  2. Provide an example or examples of student learning assessment evidence which supports the changes in the program.  
n/a
- d. How does this program fit in the current state of the discipline? Include Arkansas institutional comparisons. If Arkansas educational institutions do not have the course or program provide comparative examples from regional educational institutions.  
n/a
- e. Attach a detailed assessment plan including three to five specific program student learning outcomes, means or instructional measures to assess each outcome, identify program courses where learning will be assessed, and performance standards or criteria for success which demonstrate student learning for each outcome. (Examples for assessment plans/curriculum mapping can be found at the Office of Assessment and Institutional Effectiveness web page.)  
See Appendix A

If this course will affect other departments, a Departmental Support Form for each affected department must be attached. The form is located on the Curriculum forms web page at [http://www.atu.edu/registrar/curriculum\\_forms.php](http://www.atu.edu/registrar/curriculum_forms.php).

Changes to this curriculum will not affect other departments.

In the attached matrix, include requested changes in the matrix and include course number and title.

Curriculum Matrix for Catalog Curriculum in Computer Science Education	
<p>Freshman Fall Semester 1</p> <p>Add/Change: Science w/lab*</p> <p>Delete: COMS 1333 Web Publishing I</p> <p>Total Hours: 15</p>	<p>Freshman Spring Semester 2</p> <p>Add/Change: COMS 1333 Web Publishing I</p> <p>Delete: COMS 2703 Computer Architecture and Networks COMS 2700 Networking and Architecture Laboratory</p> <p>Total Hours: 16</p>
<p>Sophomore Fall Semester 3</p> <p>Add/Change: COMS 2703 Computer Architecture and Networks COMS 2701 Networking and Architecture Laboratory (also, course number change from 2700 to 2701) CSEC 2113 Introduction to Information Systems</p> <p>Delete: COMM 2173 Business and Professional Speaking or COMM 2003 Public Speaking Science w/lab*</p> <p>Total Hours: 15</p>	<p>Sophomore Spring Semester 4</p> <p>Add/Change: COMM 2173 Business and Professional Speaking or COMM 2003 Public Speaking</p> <p>Delete: Social Sciences</p> <p>Total Hours: 16</p>
<p>Junior Fall Semester 5</p> <p>Add/Change: Social Sciences</p> <p>Delete: Elective (3 hours)</p> <p>Total Hours: 15</p>	<p>Junior Spring Semester 6</p> <p>Add/Change: COMS 4703 Data Communications and Networks COMS 4701 Data Communications and Networking Lab (also, course number change from 4700 to 4701)</p> <p>Delete: Elective (4 hours)</p> <p>Total Hours: 15</p>
<p>Senior Fall Semester 7 (unchanged)</p> <p>Add/Change:</p> <p>Delete:</p> <p>Total Hours: 16</p>	<p>Senior Spring Semester 8</p> <p>Add/Change:</p> <p>Delete: COMS 4801 Special Methods in Computer Science Education</p> <p>Total Hours: 12</p>

RECEIVED  
SEP 03 2019  
Registrar's Office



RECEIVED  
SEP 03 2019  
Registrar's Office

Appendix A  
Revised Assessment Plan

Changes from original assessment plan (submitted 2015-16) highlighted in yellow.

\* This curriculum change was made in a previous year when SEED 3552 and SEED 4052 were combined into this one course.

Program Objectives/Standards (align with mission)	Learning Objectives/ Outcome Assessment (3-5 unless otherwise specified)	Courses (program core)	Means of Assessment (direct and indirect measures)	Criteria for Success (performance standard)
Standard 1 (InTASC 4-5): Content Knowledge	The prospective teacher displays competency in computational thinking; collaboration; computing practice and programming; and computers and communication devices.	COMS 1333 Web Publishing I COMS 1403 Orientation to Computing, Information, and Technology COMS 1411 Computer and Information Science Lab COMS 2903 Discrete Structures for Technical Majors COMS 2104 Foundations of Computer Programming I COMS 2203 Foundations of Computer Programming II COMS 2703 Computer Networks and Architecture COMS 2701 Networking and Architecture Laboratory COMS 2213 Data Structures COMS 3903 Systems Software and Architecture COMS 3053 Implications of Technology on Society COMS 3233 Database Design and Implementation COMS 3243 Data Mining COMS 3413 App Development COMS 4703 Data Communication COMS 4701 Networking Laboratory COMS 4033 Systems Analysis and Design I CSEC 2113 Introduction to Information Systems	Computer Science Praxis exam results  Student checklist of competencies  Student survey   Supervising teacher survey	80% pass rate  90% of competencies met  90% "prepared" or higher status  90% "prepared" or higher status
Standard 2 (InTASC 1-2): Learner Development and Diversity	The prospective teacher uses understanding of individual differences and diverse cultures and communities, along with an understanding of how learners grow and develop, to ensure inclusive learning environments	SEED 4054 Educating Developing, Diverse and Exceptional Learners (course change/renumber from last assessment plan submitted)	RAP (Research Awareness Project)	Overall passing scores indicating a rating on the rubric as "Exceptional"

RECEIVED  
SEP 03 2019  
Registrar's Office

	that enable each learner to meet high standards.			or "Acceptable"
Standard 3 (InTASC 3): Learning Environment	The prospective teacher works with others to create environments that support individual and collaborative learning and that encourage positive social interaction, active engagement in learning, and self-motivation.	SEED 4556 Classroom Application of Educational Psychology	Second Teach	Overall passing scores indicating a rating on the rubric as "Exceptional" or "Acceptable"
Standard 4 (InTASC 6-8): Instructional Practice	The prospective teacher understands and integrates assessment, planning, and instructional strategies in coordinated and engaging ways.	SEED 4556 Classroom Application of Educational Psychology	Unit Plan	Overall passing scores indicating a rating on the rubric as "Exceptional" or "Acceptable"
Standard 5 (InTASC 9 and 10): Professional Responsibility	The prospective teacher engages in meaningful and intensive professional learning and self-renewal by regularly examining practice through ongoing study, self-reflection, and collaboration.	SEED 4809 Internship	Task 5 Reflection on Student Learning	Overall median ratings of "Acceptable" or "Exceptional" on the task.

RECEIVED  
SEP 03 2019  
Registrar's Office



ARKANSAS  
DEPARTMENT  
OF EDUCATION

RECEIVED  
SEP 03 2019  
Registrar's Office

Professional Education Program Proposal  
COVER SHEET

Institution: Arkansas Tech University Date Submitted: June 5, 2019

Program Contact Person: Becky Cunningham

Position/Title: Assistant Professor Phone: 479.880.4610 Email: rcunningham@atu.edu

Name of program: Computer Science Education CIP Code: 13.1321

Degree or award level (B.S., M.A.T., graduate non-degree, etc.): B.S.

Indicate the title and grade range of the license for which candidates will be prepared:

Title: Computer Science Grade Range: 4-12

Proposal is for:

- ☐ New First-Time Licensure Program (Complete Section A)  
☐ New Educator Licensure Endorsement Program (Complete Section B)  
☐ Major Revision(s) to Approved Licensure Program (Complete Section C)  
☒ Minor Revision(s) to Approved Licensure Program (Complete Section C)  
☐ Deletion of Approved Licensure Program (Complete Section D)

Indicate the portion of the proposed program to be delivered via Distance Learning Technology (online): 0 %

Proposed program starting date: Fall 2020

Will this program be offered at more than one site? ☐ Yes ☒ No

If yes, list the sites where the program will be offered:

*Prior approval by AHECB is required for Arkansas public institutions and institutions certified under Ark. Code Ann. §6-61-301 to offer programs at off-campus sites.*

### C. Revisions to an Existing Program

Proposals for revising existing programs should be prepared with each section clearly identified, appropriately labeled, and paginated. Proposals should be submitted electronically and include the following components:

1. Cover Sheet (Use the front page of this guide or the fillable form coversheet from the website, which contains basic information about the proposed program.)

2. Rationale

- a. Explain the reason for and a description of the proposed revision(s).

ADE released new teacher competencies for Computer Science Education on August 27, 2018. The curriculum for this degree needs to be modified slightly in order to meet those teacher competencies and prepare future teachers to teach the curriculum.

Revisions include replacing two elective courses with a course in forensics/security and a second course in networking. Also, a one-hour special methods course will be deleted.

3. Institutional Approval (Only required for major revisions)

- a. Briefly describe the institution's educator preparation program approval process.
  - b. Provide official documentation, including signatures, showing approval was granted by all appropriate authorizing entities outlined in 3.a. If approval has not be granted, indicate when approval is expected.

n/a

RECEIVED

SEP 03 2019

Registrar's Office

RECEIVED

SEP 03 2019

Registrar's Office

4. Documentation of Revisions

## a. Changes to Curriculum

- i Provide a copy of the current program of study indicating the proposed revisions.

If the program is imbedded in a baccalaureate degree, include the current eight semester degree plan indicating the proposed revisions. Include the number of hours required to complete the program.

## 2019-20 Program of Study

## ⊕ Freshman

Fall		Spring	
ENGL 1013 Composition I <sup>1</sup>	3	ENGL 1023 Composition II <sup>1</sup>	3
MATH 1113 College Algebra or higher level Mathematics	3	Social Sciences <sup>1</sup>	3
TECH 1001 Orientation to the University	1	Fine Arts & Humanities <sup>1</sup>	3
COMS 1333 Web Publishing I	3	COMS 2104 Foundations of Computer Programming I	4
COMS 1403 Orientation to Computing, Information, and Technology	3	COMS 2700 Networking and Architecture Laboratory	0
COMS 1411 Computer and Information Science Lab	1	COMS 2703 Computer Networks and Architecture	3
<b>Total Hours</b>	<b>14</b>	<b>Total Hours</b>	<b>16</b>

## ⊕ Sophomore

Fall		Spring	
SEED 2002 Education as Profession	2	Social Sciences <sup>1</sup>	3
COMM 2173 Business and Professional Speaking or <u>COMM 2003 Professional Speaking</u>	3	U.S. History/Government <sup>1</sup>	3
Science with Lab <sup>1</sup>	4	Science with Lab <sup>1</sup>	4
COMS 2203 Foundations of Computer Programming II	3	COMS 2213 Data Structures	3
COMS 2903 Discrete Structures for Technical Majors	3	STAT 2163 Introduction to Statistical Methods	3
<b>Total Hours</b>	<b>15</b>	<b>Total Hours</b>	<b>16</b>

**⊕ Junior**

Fall		Spring	
COMS 3053 Implications of Technology on Society	3	Fine Arts & Humanities <sup>1</sup>	3
COMS 3233 Database Design and Implementation	3	SEED 3702 Introduction to Educational Technology	2
COMS 3903 Systems Software and Architecture	3	COMS 3243 Data Mining	3
Elective <sup>3</sup>	6	COMS 3413 App Development	3
		Elective <sup>3</sup>	4
<b>Total Hours</b>	<b>15</b>	<b>Total Hours</b>	<b>15</b>

**⊕ Senior**

Fall		Spring	
SEED 4054 Educating Developing, Diverse and Exceptional Learners	4	SEED 4503 Seminar in Secondary Education	3
SEED 4556 Classroom Application of Educational Psychology	6	SEED 4809 Teaching in the Elementary & Secondary School	9
COMS 4033 Systems Analysis and Design I	3	COMS 4801 Special Methods in Computer Science Education	1
COMS 4813 Teaching Methods in Computer Science Education	3		
<b>Total Hours</b>	<b>16</b>	<b>Total Hours</b>	<b>13</b>

Number of hours to complete current program: 120

RECEIVED  
SEP 03 2019  
Registrar's Office

NOTE: Proposed curriculum changes are highlighted in yellow.

## Computer Science Education Degree Plan

Proposed Changes for 2020-2021

<b>Semester 1</b>		<b>Semester 2</b>	
ENGL 1013 Composition I*	3	ENGL 1023 Composition II*	3
MATH 1113 College Algebra or higher level mathematics	3	Social Sciences*	3
TECH 1001 Orientation to the University	1	Fine Arts & Humanities*	3
Science w/lab*	4	COMS 1333 Web Publishing I	3
COMS 1403 Orientation to Computing, Information, and Technology	3	COMS 2104 Foundations of Computer Programming I	4
COMS 1411 Computer and Information Science Lab	1		
<b>Total Hours</b>	<b>15</b>	<b>Total Hours</b>	<b>16</b>
<b>Semester 3</b>		<b>Semester 4</b>	
COMS 2203 Foundations of Computer Programming II	3	Science w/lab*	4
COMS 2703 Computer Architecture and Networks	3	U.S. History/Government*	3
COMS 2701 Networking and Architecture Laboratory (changing from zero credit to one hour credit)	1	COMM 2173 Business and Professional Speaking or COMM 2003 Public Speaking	3
COMS 2903 Discrete Structures for Technical Majors	3	COMS 2213 Data Structures	3
CSEC 2113 Introduction to Information Systems	3	STAT 2163 Introduction to Statistical Methods	3
SEED 2002 Education as a Profession	2		
<b>Total Hours</b>	<b>15</b>	<b>Total Hours</b>	<b>16</b>
<b>Semester 5</b>		<b>Semester 6</b>	
Social Sciences*	3	Fine Arts & Humanities*	3
COMS 3053 Implications of Technology on Society	3	COMS 3243 Data Mining	3
COMS 3233 Database Design and Implementation	3	COMS 3413 App Development	3
COMS 3903 Systems Software and Architecture	3	COMS 4703 Data Communications and Networks	3
Elective	3	COMS 4701 Data Communications and Networking Lab	1
		SEED 3702 Introduction to Educational Technology	2
<b>Total Hours</b>	<b>15</b>	<b>Total Hours</b>	<b>15</b>
<b>Semester 7</b>		<b>Semester 8</b>	
COMS 4033 Systems Analysis and Design I	3	<del>COMS 4801 Special Methods in Computer Science Education</del>	0
COMS 4813 Teaching Methods in Computer Science Education	3	SEED 4503 Seminar in Secondary Education	3
SEED 4054 Educating Developing, Diverse and Exceptional Learners	4	SEED 4809 Teaching in the Elementary & Secondary School	9
SEED 4556 Classroom Application of Educational Psychology	6		
<b>Total Hours</b>	<b>16</b>	<b>Total Hours</b>	<b>12</b>

Total hours for degree program: 120

\* or appropriate alternative/substitution as listed in General Education requirements

RECEIVED  
SEP 03 2019  
Registrar's Office



- ii Provide a revised curriculum matrix that shows course alignment with the **current** corresponding Arkansas Educator Competencies for the content area or category of licensure, if applicable.

Computer Science Grades 4-12		Course Alignment with ADE Content Competencies																		
		Orient	Lab	P1	P2	P3	Web	Arch/ Net	Iniro to IS	Disc math	Ethics	DB	DM	App Dev	SS & Arch	Sys Anal	Netw	Meth		
<b>1. Computing Systems</b>		1403	1411	2104	2203	2213	1333	2703	2113	2903	3053	3233	3243	3413	3903	4033	4703	4813	SEED courses	Gen Ed*
	1.1 Operating systems	x	x					x							x					
	1.2 Embedded systems	x									x			x						
	1.3 Abstraction, layers	x	x			x		x				x					x			
	1.4 Fetch/decode/execute	x	x	x																
	1.5 Computing systems	x												x	x					
	1.6 Emerging technologies	x																		
<b>2. Networks and the Internet</b>		1403	1411	2104	2203	2213	1333	2703	2113	2903	3053	3233	3243	3413	3903	4033	4703	4813	SEED courses	Gen Ed*
	2.1 Types of data storage	x	x					x			x			x			x			
	2.2 Communication/devices	x						x									x			
	2.3 Network components	x						x									x			
	2.4 Network functionality	x						x									x			
	2.5 Internet/Web protocols	x						x									x			
	2.6 Security	x							x		x									
	2.7 Cybersecurity								x		x									
	2.8 Web components	x					x	x						x			x			
	2.9 Emerging technologies	x						x									x			
<b>3. Data and Analysis</b>		1403	1411	2104	2203	2213	1333	2703	2113	2903	3053	3233	3243	3413	3903	4033	4703	4813	SEED courses	Gen Ed*
	3.1 Bits	x	x					x							x		x			
	3.2 Data encryption/decryption	x						x			x									
	3.3 Spreadsheets	x											x							
	3.4 Simulation/modeling	x											x							
	3.5 Databases	x										x			x					
	3.6 Data collection, etc											x	x							
	3.7 Emerging uses/methods data	x											x		x					
<b>4. Algorithms and Programming</b>		1403	1411	2104	2203	2213	1333	2703	2113	2903	3053	3233	3243	3413	3903	4033	4703	4813	SEED courses	Gen Ed*
	4.1 Abstraction	x	x	x	x	x								x						
	4.2 Algorithms	x		x	x	x				x				x						
	4.3 Programming rules, etc	x	x	x	x	x								x						
	4.4 Misc	x		x	x	x						x		x						
	4.5 Emerging procedures/capab			x	x	x								x						

		Orient	Lab	P1	P2	P3	Web	Arch/ Net	Intro to IS	Disc math	Ethics	DB	DM	App Dev	SS & Arch	Sys Anal	Netw	Meth		
																			SEED courses	Gen Ed*
<b>5. Impacts of Computing</b>		1403	1411	2104	2203	2213	1333	2703	2113	2903	3053	3233	3243	3413	3903	4033	4703	4813		
	5.1 Creativity, prob solving, comm	x									x									
	5.2 Equal access										x									
	5.3 Benefits/harm	x									x									
	5.4 Intellectual property	x									x									
	5.5 Ethics & implications	x							x		x									
	5.6 Privacy, security	x							x		x									
	5.7 Emerging impacts of computing	x							x		x									
<b>6. Computational Artifacts</b>		1403	1411	2104	2203	2213	1333	2703	2113	2903	3053	3233	3243	3413	3903	4033	4703	4813	SEED courses	Gen Ed*
	6.1 Planning													x		x		x		
	6.2 Creating			x	x	x	x							x		x		x		
	6.3 Modifying			x	x	x								x		x		x		
	6.4 Testing			x	x	x								x		x		x		
	6.5 Error correction			x	x	x								x		x		x		
	6.6 Evaluating			x	x	x								x		x		x		
	6.7 Bleeding edge technologies					x								x				x		
<b>7. Disciplinary Literacy</b>		1403	1411	2104	2203	2213	1333	2703	2113	2903	3053	3233	3243	3413	3903	4033	4703	4813	SEED courses	Gen Ed*
	7.1																	x	x	x
	7.2													x				x	x	x
	7.3			x	x	x												x	x	x
	7.4																	x	x	x
	7.5																	x	x	x
	7.6										x							x	x	x
	7.7														x			x	x	x
	7.8										x							x	x	x
	7.9															x		x	x	x

RECEIVED  
SEP 03 2019  
Registrar's Office

- iii Provide the appropriate revised standards alignment matrix (Arkansas Teaching Standards for first-time licensure programs and Standards for School Administrators in Arkansas for administration licensure programs) showing alignment of the program's prescribed professional education courses and experiences with the appropriate standards, if applicable.

<b>Arkansas Teaching Standards</b>	SEED 2002	SEED 3072	SEED 4054	SEED 4556	SEED 4503	SEED 4809	COMS 4813
1. Learning Development			x	x	x	x	
2. Learning Differences			x	x	x	x	
3. Learning Environments			x	x	x	x	
4. Content Knowledge							x
5. Application of Content				x	x		x
6. Assessment				x			
7. Planning for Instruction		x	x	x	x	x	x
8. Instructional Strategies				x	x	x	x
9. Professional Learning and Ethical Practice	x	x	x	x	x	x	x
10. Leadership and Collaboration			x	x	x	x	x

RECEIVED  
SEP 03 2019  
Registrar's Office

- iv Provide the appropriate revised evaluation matrix that shows alignment of the program's prescribed professional education courses and experiences with the current corresponding TESS or LEADS standards (TESS for classroom teachers, TESS for Specialty Areas, or LEADS), if applicable.

	Course Alignment with Teacher Excellence and Support System													
<b>Section I: Framework for Teaching</b>	SEED 3702	SEED 4054	SEED 4556	SEED 4503	SEED 4809	COMS 4813								
<b>Domain 1: Planning and Preparation</b>														
1.a			X		X	X								
1.b		X	X	X	X									
1.c		X	X		X									
1.d	X	X	X		X	X								
1.e	X	X	X		X	X								
1.f	X	X	X		X	X								
<b>Domain 2: The Classroom Environment</b>														
2.a			X		X	X								
2.b			X		X	X								
2.c			X		X	X								
2.d			X		X	X								
2.e			X		X									
<b>Domain 3: Instruction</b>														
3.a			X		X	X								
3.b			X		X	X								
3.c	X		X		X	X								
3.d	X		X		X	X								
3.e			X		X	X								
<b>Domain 4: Professional Responsibilities</b>														
4.a		X	X		X	X								
4.b	X	X	X		X									
4.c	X				X									
4.d	X	X	X		X									
4.e	X	X	X		X	X								
4.f	X	X	X		X									

RECEIVED  
SEP 03 2019  
Registrar's Office

	Course Alignment with Teacher Excellence and Support System													
Section I: Framework for Teaching	SEED 3702	SEED 4054	SEED 4556	SEED 4503	SEED 4809	COMS 4813								
Section II: Law and Process														
1: TESS Objectives (Arkansas Code §6-17-2802)														
1.1				X										
1.2				X										
1.3				X										
1.4				X										
1.5				X										
1.6				X										
1.7				X										
2: TESS Teacher Requirements														
2.1				X										
2.2				X										
2.3				X										
3: Framework for Teaching Design														
3.1				X	X									
3.2				X	X									
3.3				X	X									
3.4				X	X									
4: TESS Evidence Collection														
4.1				X										
4.2				X										
4.3				X										
4.4				X										
4.5				X										
4.6				X										
5: TESS Rubric Usage														
5.1				X										
5.2				X										
5.3				X										

	Course Alignment with Teacher Excellence and Support System													
Section I: Framework for Teaching	SEED 3702	SEED 4054	SEED 4556	SEED 4503	SEED 4809	COMS 4813								
6. Professional Growth Plan (PGP)														
6.1				X	X									
6.2				X	X									
6.3				X	X									
7. Novice Teacher Mentor Process														
7.1				X	X									
7.2				X	X									
7.3				X	X									
7.4				X	X									

RECEIVED  
SEP 03 2019  
Registrar's Office

- v Provide syllabi which include course descriptions for all new or revised professional education courses prescribed in the revised program and for new or revised content courses listed on the submitted curriculum matrix.
- Master's level first-time licensure programs (MAT, M.Ed., or MTLL) leading to special education licensure should provide a SPED 101 Academy syllabus that shows objective alignment with the SPED 101 Academy competencies.
  - Syllabi for professional education courses in educator preparation programs for first-time licensure should link each learning objectives to its corresponding Arkansas Teaching Standard and the Teacher Excellence Support System (TESS). This connection between objective and standard should occur directly on the syllabus itself.
  - Syllabi for courses in administrator preparation programs should link each learning objective to its corresponding Standard for School Administrators in Arkansas and the Leaders Excellence and Development System (LEADS). This connection between objective and standard should occur directly on the syllabus itself.
  - Syllabi for professional education courses in the programs leading to licensure in gifted and talented K-12, instructional facilitator, reading specialist, and school guidance and counseling K-12, should link each learning objective to the appropriate TESS for Specialty Areas standards. This connection between objective and standard should occur on the syllabus itself
  - Syllabi should include a description of methods/assessments used to determine whether or not a candidate has successfully met the learning objectives.

See Appendix A for new course syllabi (CSEC 2113 and COMS 4703/4700)

- vi Indicate any changes to common assessments throughout the program, including any changes to when state mandated assessments are required. Provide samples and scoring rubrics for any new or revised common assessments.

n/a

RECEIVED  
SEP 03 2019  
Registrar's Office

- vii Describe any revisions to the field experiences (such as observations, practicums) and supervised clinical practice (student teaching, internships) required for candidates in the program.

Within the new Internship I experience implemented last year, the public school field experience hours tied to the SEED 4556 and SEED 4054 courses are now extended to 90 hours (40 in the first week and 50 in incremental spans for the remainder of the semester). In the past, this experience was a total of 20 hours.

SEED 4556 and SEED 4054 courses require students to complete:

- Specialized observations concerning aspects like management, motivation, assessment, etc.
- Some teaches in the public school
- A case study of a student with an exceptional learning need
- A developmental case study

b. Transition to DLT format

- i Submit a rationale for the transition.
- ii Submit a current program of study identifying the courses in the program that will be delivered totally or partially via distance learning technology.
- iii Describe the methods for instructor-to-student and student-to-student interaction in the distance learning courses/modules, including synchronous (e.g. videoconferencing and chat) and asynchronous (e.g. email and discussion boards) methods.
  - Programs for building-level administrator licensure should include face-to-face interaction with program supervisors throughout the program.
- iv. Describe the assessment processes used in the courses to determine students' achievement of intended outcomes
- v. Submit syllabi for DLT courses that reflect the revised methods for interaction and assessment processes.

**Note: HLC policy requires an institution to seek HLC's prior approval if the institution plans to initiate or expand its distance education offerings. When initiation or expansion is anticipated beyond the terms of its current HLC stipulation, an institution must submit a substantive change request to HLC.**

n/a

c. Changes to Policies Overseeing Candidate Quality

- i Describe any changes to entry requirements, including the process and/or when students are officially considered a candidate in the educator preparation program.
- ii Describe any changes to retention procedures, such as mid-program benchmarks or transition points.
- iii Describe any changes to exit requirements, including the definitions of the following:
  - When a licensure officer will recommend a candidate for Arkansas licensure
  - When a candidate is considered a program completer
  - When a candidate is eligible for graduation

RECEIVED

SEP 03 2019

Registrar's Office

5. Transition Plan

If the revision creates new or additional requirements for current program candidates, indicate how they will be accommodated in the revised program.

There are currently three students in the program and all three are fairly new. They will have time in their degree plan to add the two new classes so that they are prepared to teach the related high school classes.

RECEIVED

SEP 03 2019

Registrar's Office

Appendix A

New course syllabi

RECEIVED  
SEP 03 2019  
Registrar's Office



**CSEC 2113: Introduction to Information Systems  
Department of Computer and Information Science  
Fall 2018**

**Course catalog description**

Prerequisite: None

This course is an 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.

**Required Text**

Title: Essentials of MIS (Thirteenth Edition)

Author: Kenneth C. Laudon; Jane Laudon

Copyright: Pearson Education

ISBN: 978-0-13-480275-6

\*Available: ATU Bookstore or online.

**Supplemental, Required Software**

- Microsoft Office 2013 (Word, Excel, Access, PowerPoint)
- Optional: Microsoft Visio 2013

Note: Access to this software is available through the university computers. In addition, Access and Visio are provided to the student by the Computer Science Department via Microsoft Development Network Academic Alliance program (MSDNAA). You will receive an email the second week of class from MSDNAA ... watch for it. Do not delete this e-mail.

**Supplemental Readings**

No specified books are required for supplemental readings.

Students will use the Internet to research various course topics and evaluate websites.

**Course Justification**

This course is part of a cybersecurity degree program. As such, students must demonstrate an exceptional understanding of computer information systems design and structure.

**Course Objectives**

Students successfully completing this course should be able to:

1. describe the major components and their functionality of a computer system.
2. describe the major components and their function of an information system.
3. describe the major components and their functionality of a network.
4. use university and departmental computing resources.
5. build a simple web site and describe how the web supports e-commerce.
6. identify mechanisms for securing data in a networked environment.
7. identify ethical issues related to privacy and security.
8. define and employ technical terms related to information technology.
9. explain cloud computing and the security vulnerabilities associated.
10. build a simple relational database.

RECEIVED

SEP 03 2019

Registrar's Office

**Course Assessment**

Grades will be calculated on a total point basis. At any point in the course, simply divide your points by the total points possible to determine your grade. Blackboard should provide this average for you. If you have any issues determining your grade at any point, please contact me.

The traditional grading scale will be used to determine final grades:

A 90-100%

B 80-89%

C 70-79%

D 60-69%

F Below 60%

Please monitor your progress throughout the course. If you have any questions or concerns, contact me as soon as possible.

RECEIVED

SEP 03 2019

Registrar's Office

COMS 4703 / 4700 – Computer Networks / Architecture  
ARKANSAS TECH UNIVERSITY  
Department of Computer and Information Science  
Spring 2019

COURSE INSTRUCTOR	Roger Frye Email: rfrye@atu.edu	Office: Corley 244	Phone: 964-3252
TEXT	Business Data Communications and Networking 13 <sup>th</sup> Ed. Wiley Textbooks Fitzgerald, Dennis, Durcikova		
CATALOGUE	Prerequisites: COMS 2703, COMS 2903; COMS 2223 or COMS 3903 Co-requisite: COMS 4700		
DESCRIPTION	Study of the concepts involved in interconnecting computers. Introduction to network topologies, routing, protocols, and security. Survey of network operating systems.		
OBJECTIVES, CONTENT, & RATIONALE	The student will be able to: <ul style="list-style-type: none"><li>• Identify and describe the functions of each of the seven layers of the OSI reference model.</li><li>• Describe data link and network addresses and identify key differences between them.</li><li>• Define and describe the function of a MAC address.</li><li>• List the key internetworking functions of the OSI Network layer.</li><li>• Identify at least three reasons why the industry uses a layered model.</li><li>• Describe the two parts of network addressing, and then identify the parts in specific protocol address examples.</li><li>• Define and explain the conversion steps of data encapsulation.</li><li>• Describe the different classes of IP addresses and subnetting.</li><li>• Identify the functions of the TCP/IP network-layer protocols.</li><li>• Create a subnetted internetwork.</li></ul>		

RECEIVED

SEP 03 2019

Registrar's Office

ASSESSMENT

The final grade will consist of 100 percentage points, with the following breakdown:

Assignments Homework and in-class assignments will be submitted through Blackboard	5%
Completion of Lab Activities Weekly labs will be conducted in your COMS 4700 section.	35%
Exams These will be in class, closed book exams.	45%
Final Exam	15 %
Total	100%

The following percentage table will be used to assign scores:

90-100% - A 80-89% - B 70-79% - C 60-69% - D Below 60% - F

PLEASE NOTE: Because this is a course where work is expected to be completed in class with lab resources, attendance is critical. THERE WILL BE NO MAKEUP LABS! (There will be no way to make up an unexcused absence)

BIBLIOGRAPHY      There is no required supplemental reading list for this course.

RECEIVED  
SEP 03 2013  
Registrar's Office



# ARKANSAS TECH UNIVERSITY

RECEIVED

JUN 27 2019

## REQUEST FOR COURSE DELETION

Registrar's Office

Department Initiating Proposal	Date
Mathematics	06/28/2019

Title	Signature	Date
Department Head	Jeanie L. Myers	6/26/19
Dean	J. W. Rahn	2019 Jun 27
Assessment	Ch. Rahn	6/28/19
Registrar	Gammy Weaver	7/2/19
Graduate Dean (Graduate Proposals Only)		
Vice President for Academic Affairs		

Committee	Approval Date
General Education Committee (Undergraduate Proposals Only)	
Teacher Education Committee (Graduate or Undergraduate Proposals)	
Curriculum Committee (Undergraduate Proposals Only)	
Faculty Senate (Undergraduate Proposals Only)	
Graduate Council (Graduate Proposals Only)	

Course Subject: (e.g., ACCT, ENGL)	Course Number: (e.g., 1003)
MATH	4772
Official Catalog Title:	
Mathematics Teaching Practicum	

Is this course cross-listed with another existing course? If so, list course subject and number.

☐ Yes ☒ No

Will the cross-listed course be deleted? ☐ Yes ☒ No

**(NOTE: If major or minor course, you must complete the Request for Program Change form to delete course from program.)**

Answer the following Assessment questions:

- a. If this course is mandated by an accrediting or certifying agency, include the directive. If not, state not applicable.

**NA**

- b. If this course was required for the major or minor, complete the following.

1. How will program level learning outcome(s) previously addressed by this course now be addressed?

- **Course was found not to be meeting any program level learning outcomes.**

- c. What is the rationale for deleting this course? What evidence supports this action?

- **During our reaccreditation process for our Mathematics for Teacher Licensure program it was found that this course is not meeting any program level learning outcomes. While the course description does read, "a course designed to provide mathematics education majors with experience in teaching mathematics and assessing student performance" it is important to note that this experience occurred at the post-secondary level, which is not recognized as "field experience" by CAEP.**

If this course will affect other departments, a Departmental Support Form for each affected department must be attached. The form is located on the Curriculum forms web page at [http://www.atu.edu/registrar/curriculum\\_forms.php](http://www.atu.edu/registrar/curriculum_forms.php).

**NOTE: This deletion will be effective at the end of the spring term of the current catalog year.**



# ARKANSAS TECH UNIVERSITY

RECEIVED

JUN 27 2019

## REQUEST FOR COURSE ADDITION

Registrar's Office

Department Initiating Proposal	Date
Mathematics	06/28/2019

Title	Signature	Date
Department Head	Jeanie L. Myerz	6/26/19
Dean	Jeff W. Reth	2019 Jun 27
Assessment	M. H. Z.	6/28/19
Registrar	Yammy Weaver	7/2/19
Graduate Dean (Graduate Proposals Only)		
Vice President for Academic Affairs		

Committee	Approval Date
General Education Committee (Undergraduate Proposals Only)	
Teacher Education Committee (Graduate or Undergraduate Proposals)	
Curriculum Committee (Undergraduate Proposals Only)	
Faculty Senate (Undergraduate Proposals Only)	
Graduate Council (Graduate Proposals Only)	

Course Subject: (e.g., ACCT, ENGL)	Course Number: (e.g., 1003)	Effective Term:
MATH	3703	<input type="radio"/> Spring <input checked="" type="radio"/> Summer I
Official Catalog Title: (If official title exceeds 30 characters, indicate Banner Title below)		
Mathematics in the Secondary Schools		
Banner Title: (limited to 30 characters, including spaces, capitalize all letters — this will display on the transcript)		
MATH IN THE SECONDARY SCHOOLS		

Will this course be cross-listed with another existing course? If so, list course subject and number.  
☐ Yes ☒ No \_\_\_\_\_

Will this course be cross-listed with a course currently not in the undergraduate or graduate catalog?  
 If so, list course subject and number. ☐ Yes ☒ No \_\_\_\_\_

Is this course repeatable for additional earned hours? ☐ Yes ☒ No How many total hours? \_\_\_\_\_

Grading: ☒ Standard Letter ☐ P/F ☐ Other \_\_\_\_\_

Mode of Instruction (check appropriate box):

<input checked="" type="radio"/> 01 Lecture	<input type="radio"/> 02 Lecture/Laboratory	<input type="radio"/> 03 Laboratory only
<input type="radio"/> 05 Practice Teaching	<input type="radio"/> 06 Internship/Practicum	<input type="radio"/> 07 Apprenticeship/Externship
<input type="radio"/> 08 Independent Study	<input type="radio"/> 09 Readings	<input type="radio"/> 10 Special Topics
<input type="radio"/> 12 Individual Lessons	<input type="radio"/> 13 Applied Instruction	<input type="radio"/> 16 Studio Course
<input type="radio"/> 17 Dissertation	<input type="radio"/> 18 Activity Course	<input type="radio"/> 19 Seminar <input type="radio"/> 98 Other

Does this course require a fee? ☐ Yes ☒ No How Much? \_\_\_\_\_ Select Fee Type \_\_\_\_\_

If selected other list fee type: \_\_\_\_\_

☐ Elective ☒ Major ☐ Minor

(If major or minor course, you must complete the Request for Program Change form to add course to program.)

If course is required by major/minor, how frequently will course be offered?  
 Every Spring semester.

Will this course require any special resources such as unusual maintenance costs, library resources, special software, distance learning equipment, etc.?  
**No.**

Will this course require a special classroom (computer lab, smart classroom, or laboratory)?  
**- The course will require a classroom with SMART technologies.**

Answer the following Assessment questions:

a. If this course is mandated by an accrediting or certifying agency, include the directive. If not, state not applicable.  
**NA**

b. If this course is required for the major or minor, complete the following.

- Provide the program level learning outcome(s) it addresses.  
 PLO 1 – Content Knowledge  
 PLO 2 – Mathematical Practice  
 PLO 4 – Mathematical Learning Environment  
 PLO 5 – Impact on Student Learning  
 PLO 7 – Secondary Mathematics Field Experiences and Clinical Practice
- Provide tool or measure directly linked to each program learning outcome. (How will student learning in this outcome be measured?)  
 PLO'S 1 & 2 will be assessed throughout the course in the form of mathematic content competency exams.  
 PLO'S 4, 5 and 7 will be assessed through a field component project.



- c. What is the rationale for adding this course? What evidence demonstrates this need?
- The creation and addition of this course is in response to comments we received in our National Recognition Report from NCTM (National Council of Teachers of Mathematics) regarding Standard 7 – Element 7a. Currently we are “Nationally recognized with conditions”. NCTM Standard 7-Element 7a states that preservice teacher candidates are expected to, “engage in a sequence of planned field experiences and clinical practice prior to a full-time student teaching/internship experience that include observing and participating in both middle and high school mathematics classrooms and working with a diverse range of students individually, in small groups, and in large class settings under the supervision of experienced and highly qualified mathematics teachers in varied settings that reflect cultural, ethnic, linguistic, gender, and learning differences.”

Element 7a is an essential (required) element for our NCTM SPA. It is the only element not currently met under Standard 7. If we can meet Element 7a, then we can meet Standard 7. The comment regarding Element 7a stated, “It is not clear that prior to student teaching the candidates have field experience in both the middle school and high school. While SEED 4052 gives the candidates experience with a special need student, it is not specified they work with a diverse range of students individually, in small groups or in a large classroom setting. Nor is it clear they work in varied settings that reflect cultural, ethnic, linguistic, gender and learning differences. Field experiences prior to student teaching are limited to 35 hours.”

This course is designed to provide the second field experience in our “sequence of planned field experiences and clinical practice prior to a full-time student/teaching internship experience.” With the addition of this new course MATH 3703 our Mathematics for Teacher Licensure program would then contain a sequence of planned field experiences spanning 1) SEED 2002, 2) MATH 3703 (new course addition), and 3) MATH 4703 in conjunction with Internship I (SEED 4054 and SEED 4556). This would ensure that our preservice teacher candidates are receiving a minimum of 105 hours of field experience prior to their full-time internship experience. The course will require our program’s preservice teacher candidates to observe and participate in either a middle school Algebra classroom or high school Geometry classroom. The preservice teacher candidates will be required to work with a diverse range of students individually and/or in small groups for the duration of the course.

For the proposed course, attach a syllabus in Word format that includes: **(Items a. through d. should be entered as they should appear in the catalog)**

- a. Course subject
- b. Course number
- c. Catalog course title
- d. Catalog description
  - 1. Arkansas Course Transfer System (ACTS) course number, if applicable
  - 2. Cross-listing
  - 3. Offered (e.g., Fall only, Spring only. Do not enter if offer course fall and spring)
  - 4. Prerequisites
  - 5. Co-requisites
  - 6. Description
  - 7. Notes (e.g., information not in description such as course may be repeated for credit)
  - 8. Contact Hours if different than lecture (e.g., Lecture three hours, laboratory three hours)
  - 9. Fees (e.g., \$36 art fee)
- e. Section for Name of instructor, office hours, contact information (telephone, email)
- f. Text required for course
- g. Bibliography (supplemental reading list)
- h. Justification/rationale for the course
- i. Course objectives
- j. Description of how course meets general education objectives (courses included in the general education component should show how the course meets one or more of the objectives contained in General Education Objectives listed in undergraduate catalog)
- k. Assessment methods (include grading policy with specific equivalents for A, B, C)
- l. Policy on absences, cheating, plagiarism, etc.
- m. Course content (outline of material to be covered in course).

If this course will affect other departments, a Departmental Support Form for each affected department must be attached. The form is located on the Curriculum forms web page at [http://www.atu.edu/registrar/curriculum\\_forms.php](http://www.atu.edu/registrar/curriculum_forms.php).

## Syllabus

- a. Course subject: MATH
- b. Course number: 3703
- c. Catalog course title: Mathematics in the Secondary Schools
- d. Catalog description:  
MATH 3703: Mathematics in the Secondary Schools  
Prerequisites: SEED 2002 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.

- e. Instructor information:

Instructor:

Office:

Office hours:

Telephone:

Email:

- f. Text(s) required:

Andreasen, J. B., Dixon, J. K., Nolan, E. C., & Roy, G.J. (2016). *Making sense of mathematics for teaching grades 6 – 8*. Bloomington, IN: Solution Tree Press.

Dixon, J. K., Haciomeroglu, E. S., Nolan, E. C., & Safi, F. (2016). *Making sense of mathematics for teaching high school*. Bloomington, IN: Solution Tree Press.

- g. Bibliography (supplemental reading list):

Cirillo, M. (2009). Ten things to consider when teaching proof. *Mathematics Teacher*, 103(4), 250–257.

Hung, M. (2015). Talking circles promote equitable discourse: A structured discussion format disrupts patterns of stratified talk and facilitates broader participation. *Mathematics Teacher*, 109(4), 256–260.

Jett, C. C., Stinson, D. W., & Williams, B. A. (2015). Communities for and with Black male students. *Mathematics Teacher*, 109(4), 284–289.

Karp, K. S., Bush, S. B., & Dougherty, B. J. (2015). 12 math rules that expire in the middle grades. *Mathematics Teaching in the Middle School*, 21(4), 208–215.

Larnell, G. V., Bullock, E. C., & Jett, C. C. (2016). Mathematics, social justice, and race: A critical race analysis of teaching mathematics for social justice. *Journal of Education*, 196(1), 19–29.

- Lesser, L. M. (2014). Staring down stereotypes. *Mathematics Teacher*, 107(8), 568–571.
- National Council of Teachers of Mathematics. (2014). *Principles to actions: Ensuring mathematical success for all*. Reston, VA: National Council of Teachers of Mathematics.
- National Council of Teachers of Mathematics. (2018). *Catalyzing change in high school mathematics: Initiating critical conversations*. Reston, VA: National Council of Teachers of Mathematics.
- Oslund, J. A., & Barton, J. (2017). Creating zines: Supporting powerful math identities. *Mathematics Teaching in the Middle School*, 23(1), 20–28.
- Paoletti, T., Stevens, I. E., & Moore, K. (2017). Tricks may inhibit students' reasoning. *Mathematics Teacher*, 110(6), 446–453.
- Perry, A. (2018). 7 features of equitable classroom spaces. *Mathematics Teacher*, 112(3), 186–191.
- Rubel, L. H. (2016). Speaking up and speaking out about gender in mathematics. *Mathematics Teacher*, 109(6), 434–439.
- Wu, H. (2011). The mis-education of mathematics teachers. *Notices of the AMS*, 58(3), 372–384.

h. Justification/rationale for the course:

This mathematics course is designed to address the unique needs of our Mathematics for Teacher Licensure program's preservice teacher candidates. In the course, preservice teacher candidates will engage in explorations, activities and a field component designed to 1) strengthen and expand their knowledge of the topics found in secondary mathematics and their corresponding curricular materials and instructional strategies, 2) illuminate the connections between secondary and college mathematics, 3) illustrate good use of technology in teaching, and 4) illuminate connections between various areas of mathematics.

i. Course objectives:

In revisiting secondary mathematics content, preservice mathematics teacher candidates are expected to:

- Deepen and broaden mathematical content knowledge from Algebra through Calculus by exploring relevant topics in inquiry based learning situations,
- Make connections between college mathematics and secondary school mathematics,
- Make connections between various areas of mathematics,
- Build preliminary knowledge of professional and state mathematics curriculum standards,
- Use reflective and collaborative learning, and develop a stronger sense of professionalism and leadership,
- Create efficient seekers of content knowledge,
- Present mathematical ideas and topics in a knowledgeable and effective manner,
- Explore, learn and demonstrate appropriate uses of technology in the mathematics classroom.

j. Description of how course meets general education objectives:

Students successfully completing this course will be able to:

- Communicate effectively,
- Think critically,
- Apply scientific and quantitative reasoning.

k. Assessment methods:

- Homework (20%): Homework will be assigned in class and will be submitted one week after being assigned. It is designed to assess content knowledge, written communication skills, and the use of professional mathematical terminology. While collaboration with classmates is strongly encouraged, every student is expected to submit their own assignment.
- Exams (40%): Exams (3 in total) will be administered in class and will consist of an assessment of the mathematics concepts covered.
- Field Component Project (20%): You will be required to complete a minimum of 15 hours of field experience. More details, including specific field component assignments, project information and grading rubrics, will be provided in class.
- Final Exam (20%): The final examination will consist of a cumulative assessment of the mathematics concepts covered throughout the entire semester.

Grading Scale: A 100-90%, B 89-80%, C 79-70%, D 69-60%, F < 60%

l. Policies:

**Attendance:** Learning requires a time commitment, beginning with prompt and regular class attendance. As a future teacher, I expect you to behave in a professional manner, beginning with your commitment to attend class. Tardiness will not be tolerated. Excessive absences (more than 2) can result in you being dropped from the class with an FE for non-attendance.

**Late Work:** Late work will not be accepted. The nature of the course is such that we will explore and make connections among many mathematical concepts. Submission of late work would make these connections disjointed and thus fail to meet the objectives of the course.

**Class Behavior:** My goal is to create an atmosphere conducive to learning. As future teachers, I expect you to exhibit a desire to learn and be an active participant in the learning process.

**Academic Dishonesty:** Academic dishonesty refers to the various categories of cheating and plagiarism in the classroom. Punishment, determined by the severity of the offence, will range from receiving a 0 on an assignment or exam to being dropped from class with a grade of F for repeated infractions. For more information on Academic Dishonesty please refer to the Student Handbook.

#### Other Services:

Arkansas Tech University does not discriminate on the basis of color, sex, sexual orientation, gender identity, race, age, national origin, religion, veteran status, genetic information, or disability in any of our practices, policies, or procedures. If you have experienced any form of discrimination or harassment, including sexual misconduct (e.g. sexual assault, sexual harassment, stalking, domestic or dating violence), we encourage you to report this to the institution. If you report such an incident of misconduct to a faculty or staff member, they are required by law to notify Arkansas Tech University's Title IX Coordinator and share the basic fact of your experience with them. The Title IX Coordinator will then be available to assist you in understanding all of your options and connecting you with all possible resources on and off campus. For more information, please visit: <http://www.atu.edu/titleix/index.php>.

Arkansas Tech University adheres to the requirements of the Americans with Disabilities Act in order to prevent barriers to academic accessibility. If you need an accommodation due to a disability, please contact the ATU Office of Disability Services, located in Doc Bryan Student Center, Suite 171, or visit: <http://www.atu.edu/disabilities/index.php>.

Any student who faces challenges securing their food or housing and believes this may affect their performance in the course is urged to notify the instructor, if they are comfortable in doing so. Community resources are available for students and can be found at the following webpage: <https://www.atu.edu/localresources/>

If a student finds they need more support, they are encouraged to contact the Office of the Vice President for Student Services (479-968-0238).

#### m. Course content:

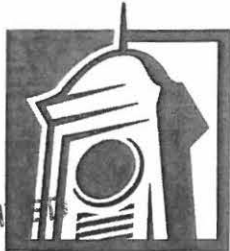
\*Secondary mathematics curriculum to be reviewed will include:

- Functions and Relations
- Sequences/Patterns
- Geometric Concepts
- Data and Regression
- Parametric and Polar Relations
- Differential Equation Models
- Qualitative Graphing
- Mathematical Modeling
- Matrices
- Complex Numbers and Properties

\* Emphasis on content knowledge for teaching

Technology resources to be explored include:

- GeoGebra, Desmos, and TI graphing calculators.



# ARKANSAS TECH UNIVERSITY

RECEIVED  
JUN 27 2019

## REQUEST FOR COURSE ADDITION

Registrar's Office

Department Initiating Proposal	Date
Mathematics	06/28/19

Title	Signature	Date
Department Head	<i>Leanne L. Myer</i>	6/26/19
Dean	<i>Jeff W. Reth</i>	2019 Jun 27
Assessment	<i>Chris L.</i>	6/28/19
Registrar	<i>Sammy W.</i>	7/2/19
Graduate Dean (Graduate Proposals Only)		
Vice President for Academic Affairs		

Committee	Approval Date
General Education Committee (Undergraduate Proposals Only)	
Teacher Education Committee (Graduate or Undergraduate Proposals)	
Curriculum Committee (Undergraduate Proposals Only)	
Faculty Senate (Undergraduate Proposals Only)	
Graduate Council (Graduate Proposals Only)	

Course Subject: (e.g., ACCT, ENGL)	Course Number: (e.g., 1003)	Effective Term:
MATH	3772	<input type="radio"/> Spring <input checked="" type="radio"/> Summer I
Official Catalog Title: (If official title exceeds 30 characters, indicate Banner Title below)		
Praxis II Mathematics: Content Knowledge Test Preparation		
Banner Title: (limited to 30 characters, including spaces, capitalize all letters — this will display on the transcript)		
PRAXIS II TEST PREPARATION		



Will this course be cross-listed with another existing course? If so, list course subject and number.

☐ Yes ☒ No

Will this course be cross-listed with a course currently not in the undergraduate or graduate catalog?

If so, list course subject and number. ☐ Yes ☒ No

Is this course repeatable for additional earned hours?

☐ Yes ☒ No

How many total hours?

Grading: ☒ Standard Letter

☐ P/F

☐ Other

Mode of Instruction (check appropriate box):

☒ 01 Lecture

☐ 02 Lecture/Laboratory

☐ 03 Laboratory only

☐ 05 Practice Teaching

☐ 06 Internship/Practicum

☐ 07 Apprenticeship/Externship

☐ 08 Independent Study

☐ 09 Readings

☐ 10 Special Topics

☐ 12 Individual Lessons

☐ 13 Applied Instruction

☐ 16 Studio Course

☐ 17 Dissertation

☐ 18 Activity Course

☐ 19 Seminar

☐ 98 Other

Does this course require a fee?

☐ Yes

☒ No

How Much?

Select Fee Type

If selected other list fee type:

☐ Elective

☒ Major

☐ Minor

(If major or minor course, you must complete the Request for Program Change form to add course to program.)

If course is required by major/minor, how frequently will course be offered?

Every Spring semester.

Will this course require any special resources such as unusual maintenance costs, library resources, special software, distance learning equipment, etc.?

- No.

Will this course require a special classroom (computer lab, smart classroom, or laboratory)?

- This course will require a classroom with SMART technologies.

Answer the following Assessment questions:

a. If this course is mandated by an accrediting or certifying agency, include the directive. If not, state not applicable. **NA**

b. If this course is required for the major or minor, complete the following.

1. Provide the program level learning outcome(s) it addresses.

PLO 1 – Content Knowledge

PLO 2 – Mathematical Practice

2. Provide tool or measure directly linked to each program learning outcome. (How will student learning in this outcome be measured?)

PLO'S 1 & 2 will be assessed during the course with periodic mathematical knowledge and competency exams as well as using pass rate data from the students who complete the Praxis Mathematics: Content Knowledge test within one semester of finishing the course.

c. What is the rationale for adding this course? What evidence demonstrates this need?

Since the change in the Praxis Mathematics: Content Knowledge test our department has noted a decline in the pass rate of the preservice teacher candidates enrolled in our Mathematics for Teacher



Licensure program. For the 2017 calendar year our program had 10 preservice teacher candidates attempt the Praxis Mathematics: Content Knowledge test. Scores from 14 attempts were received by the university; only 3 attempts returned a passing score. During the 2018 calendar year 24 score reports were received by the university (generated by 10 different preservice candidates); only 2 of which were reflective of a passing score. The proposed MATH 3772 course will provide the preservice teacher candidates in our Mathematics for Teacher Licensure program with a necessary and timely intensive study of the mathematical knowledge and competencies assessed by the Praxis Mathematics: Content Knowledge test.

Our department has also noted a decline in the first-attempt pass rate of our preservice teacher candidates. For the 2015 – 2016 academic year 67% of our candidates who passed the Praxis II Mathematics: Content Knowledge test passed on their first attempt. That percentage has steadily decreased in the academic years that follow (50% for 2016 – 2017 and 33% for 2017 - 2018). By adding this course to our program our department also aims to help our preservice teacher candidates be successful in passing the Praxis II Mathematics: Content Knowledge test on their first attempt. Preservice teacher candidates cannot advance into Internship II without having passed the Praxis Mathematics: Content Knowledge test. Such a delay results in a degree change for the majority of our preservice teacher candidates who struggle to pass the test. It is important to note that each attempt at the test is costing a candidate \$120.

For the proposed course, attach a syllabus in Word format that includes: **(Items a. through d. should be entered as they should appear in the catalog)**

- a. Course subject
- b. Course number
- c. Catalog course title
- d. Catalog description
  1. Arkansas Course Transfer System (ACTS) course number, if applicable
  2. Cross-listing
  3. Offered (e.g., Fall only, Spring only. Do not enter if offer course fall and spring)
  4. Prerequisites
  5. Co-requisites
  6. Description
  7. Notes (e.g., information not in description such as course may be repeated for credit)
  8. Contact Hours if different than lecture (e.g., Lecture three hours, laboratory three hours)
  9. Fees (e.g., \$36 art fee)
- e. Section for Name of instructor, office hours, contact information (telephone, email)
- f. Text required for course
- g. Bibliography (supplemental reading list)
- h. Justification/rationale for the course
- i. Course objectives
- j. Description of how course meets general education objectives (courses included in the general education component should show how the course meets one or more of the objectives contained in General Education Objectives listed in undergraduate catalog)
- k. Assessment methods (include grading policy with specific equivalents for A, B, C)
- l. Policy on absences, cheating, plagiarism, etc.
- m. Course content (outline of material to be covered in course).

If this course will affect other departments, a Departmental Support Form for each affected department must be attached. The form is located on the Curriculum forms web page at [http://www.atu.edu/registrar/curriculum\\_forms.php](http://www.atu.edu/registrar/curriculum_forms.php).

## Syllabus

- a. Course subject: MATH
- b. Course number: 3772
- c. Catalog course title: Praxis Mathematics: Content Knowledge Test Preparation
- d. Catalog description:  
MATH 3772: Praxis Mathematics: Content Knowledge Test Preparation  
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.

- e. Instructor information:  
Instructor:  
Office:  
Office hours:  
Telephone:  
Email:
- f. Text(s) required:  
Mometrix Teacher Certification Test Team (2019). *Praxis II mathematics: Content knowledge (5161) exam secrets study guide*. United States: Mometrix Test Preparation.
- g. Bibliography (supplemental reading list): None.
- h. Justification/rationale for the course:  
Preservice teacher candidates in the Mathematics Teacher Licensure program must pass the Praxis Mathematics: Content Knowledge test before being enrolled in Internship II (full-time student teaching experience). Failure to pass the test will result in a delay in the preservice teacher candidate's completion of the program.
- i. Course objective(s):  
After the successful completion of this course students will be prepared to:
  - Demonstrate mathematical competency in the area of:
    - o Number and Quantity
    - o Algebra and Functions
    - o Calculus
    - o Geometry
    - o Probability and Statistics
    - o Discrete Mathematics

- Undertake the Praxis Mathematics: Content Knowledge test.

j. Description of how course meets general education objectives:

The general education curriculum is designed to provide a foundation for knowledge common to educated people and to develop the capacity for an individual to expand that knowledge over his or her lifetime. Students who have completed the course will be able to:

- Think critically,
- Apply scientific and quantitative reasoning.

k. Assessment methods:

- Homework (20%) Homework will be assigned in class and will be submitted one week after being assigned. Late work will not be accepted unless prior arrangements have been made with the instructor.
- Exams (40%) Exams (2 in total) will be administered in class and will consist of an assessment of the mathematical knowledge and competencies covered.
- Quizzes (20%): Quizzes will be administered in class and cannot be made up.
- Final Exam (20%): The final examination will consist of a cumulative assessment of the mathematical knowledge and competencies presented throughout the semester.

Grading Scale: A 100-90%, B 89-80%, C 79-70%, D 69-60%, F < 60%

l. Policies:

**Attendance:** Learning requires a time commitment, beginning with prompt and regular class attendance. I expect you to behave in a professional manner, beginning with your commitment to attend class. Tardiness will not be tolerated. Excessive absences (more than 2) can result in you being dropped from the class with an FE for non-attendance.

**Class Behavior:** My goal is to create an atmosphere conducive to learning. I expect you to exhibit a desire to learn and be an active participant in the learning process.

**Academic Dishonesty:** Academic dishonesty refers to the various categories of cheating and plagiarism in the classroom. Punishment, determined by the severity of the offence, will range from receiving a 0 on an assignment or exam to being dropped from class with a grade of F for repeated infractions. For more information on Academic Dishonesty please refer to the Student Handbook.

**Other Services:**

Arkansas Tech University does not discriminate on the basis of color, sex, sexual orientation, gender identity, race, age, national origin, religion, veteran status, genetic information, or disability in any of our practices, policies, or procedures. If you have experienced any form of discrimination or harassment, including sexual misconduct (e.g. sexual assault, sexual

harassment, stalking, domestic or dating violence), we encourage you to report this to the institution. If you report such an incident of misconduct to a faculty or staff member, they are required by law to notify Arkansas Tech University's Title IX Coordinator and share the basic fact of your experience with them. The Title IX Coordinator will then be available to assist you in understanding all of your options and connecting you with all possible resources on and off campus. For more information, please visit: <http://www.atu.edu/titleix/index.php>.

Arkansas Tech University adheres to the requirements of the Americans with Disabilities Act in order to prevent barriers to academic accessibility. If you need an accommodation due to a disability, please contact the ATU Office of Disability Services, located in Doc Bryan Student Center, Suite 171, or visit: <http://www.atu.edu/disabilities/index.php>.

Any student who faces challenges securing their food or housing and believes this may affect their performance in the course is urged to notify the instructor, if they are comfortable in doing so. Community resources are available for students and can be found at the following webpage: <https://www.atu.edu/localresources/>

If a student finds they need more support, they are encouraged to contact the Office of the Vice President for Student Services (479-968-0238).

Students are responsible for information announced in class and conveyed by email. Any assignments announced in class or conveyed by email become the responsibility of the student.

m. Course content:

Content Categories

- I. Number and Quantity
- II. Algebra and Functions
- III. Calculus
- IV. Geometry
- V. Probability and Statistics
- VI. Discrete Mathematics

Test Preparation Categories

- I. Information Organization, Time Management and Study Environment
- II. Retention and Modality
- III. Pacing
- IV. Strategies for Test Taking
  - a. Question strategies
  - b. Answer choice strategies
  - c. General strategies
- V. Test Anxiety



# ARKANSAS TECH UNIVERSITY

RECEIVED

JUN 27 2019

## REQUEST FOR COURSE CHANGE

Registrar's Office

Department Initiating Proposal	Date
Mathematics Department	06/28/19

Title	Signature	Date
Department Head	<i>Jeannette Myers</i>	6/26/19
Dean	<i>Jeff W. Rath</i>	2019 Jun 27
Assessment	<i>[Signature]</i>	6/28/19
Registrar	<i>Sammy Weaver</i>	7/2/19
Graduate Dean (Graduate Proposals Only)		
Vice President for Academic Affairs		

Committee	Approval Date
General Education Committee (Undergraduate Proposals Only)	
Teacher Education Committee (Graduate or Undergraduate Proposals)	
Curriculum Committee (Undergraduate Proposals Only)	
Faculty Senate (Undergraduate Proposals Only)	
Graduate Council (Graduate Proposals Only)	

Course Subject: (e.g., ACCT, ENGL)	Course Number: (e.g., 1003)
MATH	4703
Official Catalog Title:	
Special Methods in Mathematics	

Is this course cross-listed with another existing course? If so, list course subject and number.

☐ Yes ☒ No

Request to change: (check appropriate box):

☐ Course Number

☐ Title

☒ Course Description

☐ Cross-Listing

☒ Prerequisite

☒ Co-requisite

☐ Grading

☐ Fee

☐ Other

**NOTES:** These changes will become effective in the Summer I Term of the new catalog year. If this course is cross-listed, a prerequisite/co-requisite, or included in the course description of other courses, a Course Change must be submitted to address all changes in related courses.

New Course Number: (e.g., 1003)

New Official Catalog Title: (If official title exceeds 30 characters, indicate Banner Title below)

Banner Title: (limited to 30 characters, including spaces, capitalize all letters - this will display on the transcript)

New Course Description:

**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.**

New Cross List:

☐ Adding Cross-Listing

☐ Changing Cross-Listing

☐ Deleting Cross-Listing

If adding or changing cross-listing, indicate course subject and number

New Prerequisite (list all, as you want them to appear in the catalog):

**Prerequisite: Admission to Stage II of the teacher education program.**

New Co-requisite (list all, as you want them to appear in the catalog):

Co-requisiteS: SEED 4054 and SEED 4556

☐ Elective

☒ Major

☐ Minor

(If major or minor course, you must complete the Request for Program Change form to add course to program.)

Answer the following Assessment questions:

- a. If this course is mandated by an accrediting or certifying agency, include the directive. If not, state not applicable.

**NA**

b. If this course is required for the major or minor, complete the following.

a. Provide the program level learning outcome(s) it addresses.

**PLO 3 – Content Pedagogy**

**PLO 4 – Mathematical Learning Environment**

**PLO 5 – Impact on Student Learning**

**PLO 6 – Professional Knowledge and Skills**

b. Provide tool or measure directly linked to each program learning outcome. (How will student learning in this outcome be measured?)

**Preservice teacher candidates enrolled in MATH 4703 Special Methods in Mathematics will be completing a Unit Plan [NCTM Assessment #3] project which will assess elements of each of PLO's listed above.**

c. What is the rationale for adding this course? What evidence supports this action?

**The course is not being added to the program – the department is requesting a change to the prerequisite, co-requisites, and description of the course. The requested prerequisite and co-requisite changes are in response to our overall expected program changes. MATH 4703 Special Methods in Mathematics is now proposed to be taken concurrently with SEED 4054 and SEED 4556 (Internship I – hence the need for admission to Stage II of the teacher education program). This will allow our preservice teacher candidates enrolled in the MATH 4703 course a setting (90+ hours of field experience) in which to apply their growing knowledge of current research and practice in mathematics education as well as the opportunity to assess their teaching performance and formulate a plan for improvement. The course description request change is to simply reflect the language of the NCTM CAEP (2012) Standards.**

If this course will affect other departments, a Departmental Support Form for each affected department must be attached. The form is located on the Curriculum forms web page at [http://www.atu.edu/registrar/curriculum\\_forms.php](http://www.atu.edu/registrar/curriculum_forms.php).





# ARKANSAS TECH UNIVERSITY

RECEIVED

JUN 27 2019

## REQUEST FOR PROGRAM CHANGE

Registrar's Office

Department Initiating Proposal	Date
Mathematics	06/28/2019

Title	Signature	Date
Department Head	<i>Deanna L. Meyer</i>	6/26/19
Dean	<i>Jeff W. Roth</i>	2019 Jun 27
Assessment	<i>[Signature]</i>	6/28/19
Registrar	<i>Gammie [Signature]</i>	7/2/19
Graduate Dean (Graduate Proposals Only)		
Vice President for Academic Affairs		

Committee	Approval Date
General Education Committee (Undergraduate Proposals Only)	
Teacher Education Committee (Graduate or Undergraduate Proposals)	
Curriculum Committee (Undergraduate Proposals Only)	
Faculty Senate (Undergraduate Proposals Only)	
Graduate Council (Graduate Proposals Only)	

Program Title:

Mathematics for Teacher Licensure



Outline change in program: (e.g., list changes in program such as (1) delete three hours of elective and (2) add three hours of approved major electives)

- (1) Delete TECH 1001; add MATH 1001 Orientation to Mathematics
- (2) Delete 3 hours of elective; add MATH 3703 Mathematics in the Secondary Schools
- (3) Delete MATH 4772; add MATH 3772 Praxis Mathematics: Content Knowledge Test Preparation
- (4) Change MATH 4703. (Corequisite requirement of SEED 4054 and SEED 4556).
- (5) Relocate MATH 4971 in the degree map.

What impact will the change have on staffing, on other programs and space allocation?

**No expected changes to staffing, other programs or space allocation.**

Answer the following Assessment questions:

- a. How does the program change align with the university mission?

The mission statement for Arkansas Tech states that the university is dedicated to student success, access, and excellence as a responsive campus community providing opportunities for progressive intellectual development and civic engagement. Embracing and expanding upon its technological traditions, Tech inspires and empowers members of the community to achieve their goals while striving for the betterment of Arkansas, the nation, and the world. As part of the "responsive campus community" of the university our mathematics department takes seriously the gaps in our Mathematics for Teacher Licensure program that were brought to our attention by our most recent attempt at attaining national recognition through the NCTM SPA. We believe that the program changes outlined in this form are reflective of our department's dedication to "student success, access and excellence" and will provide further opportunities for "progressive intellectual development" for our program's preservice teacher candidates.

- b. If this change in the program is mandated by an accrediting or certifying agency, include the directive. If not, state not applicable.

NA

- c. What is the rationale for this program change?

1. How will the program change impact learning for students enrolled in this program?

The replacement of TECH 1001 with MATH 1001 will allow for greater and timelier interactions between our faculty and our prospective preservice teacher candidates with the dual aims of 1) improving retention and 2) increasing the 4-year graduation rate in our Mathematics for Teacher Licensure program.

The addition of MATH 3703 will allow the program's preservice teacher candidates to engage in explorations, activities and a field component designed to 1) strengthen and expand their knowledge of the topics found in secondary mathematics and their corresponding curricular materials and instructional strategies, 2) illuminate the connections between secondary and college mathematics, 3) illustrate good use of technology in teaching, and 4) illuminate connections between various areas of mathematics. [NCTM CAEP Standards (2012) – Standard Element 1a, Standard Elements 2d, 2e, and 2f, Standard Elements 3c and 3d, and Standard Element 4e]

The addition of MATH 3772 will allow the program to specifically target the mathematical knowledge and competencies assessed by the Praxis Mathematics: Content Knowledge test in one course with the goal of increasing the pass rate. The greater goal being an increase in our Mathematics for Teacher Licensure program's completion rate. [Preservice teacher candidates cannot advance into Internship II without having passed the Praxis Mathematics: Content Knowledge test. Such a delay results in a degree change for the majority of our preservice teacher candidates who struggle to pass the test.]

The change in the placements of MATH 4703 (to be taken concurrently with SEED 4054 and SEED 4556 i.e. Internship I) and MATH 4971 (to be taken concurrently with SEED 4503 and SEED 4909 i.e. Internship II) in the program's degree map will allow for a greater degree of clinical practice for our program's preservice teacher candidates.

2. Provide an example or examples of student learning assessment evidence which supports the changes in the program.

Our department used the Sankey Diagram generator to track the movement of freshman entering the Mathematics for Teacher Licensure program over the course of 8 terms.

Semester Entered	Freshman Enrolled in Program	Candidates graduating the Program in 8 terms	Number of candidates lost in the 1 <sup>st</sup> semester	Number of candidates lost in the 2 <sup>nd</sup> semester
Fall 2012	16	1	4	5
Fall 2013	5	0	3	2
Fall 2014	12	3	7	2
Fall 2015	4	1	0	0

MATH 1001 Orientation to Mathematics will be structured so as to foster early and meaningful interactions between mathematics education faculty and preservice teacher candidates – providing detailed program guidelines, expectations, and resources. It is our expectation that the early access to our preservice teacher candidates provided by the proposed course will 1) improve retention for the program (the table illustrates that the majority of our program losses are occurring within the candidates' first two terms) and 2) increase our program's 4-year graduation rate (since the Fall of 2012 our program's 4-year graduation rate for has averaged about 14%).

The aims of MATH 3703 were formulated in direct response to the program assessment data we received in our NCTM SPA reviewer's revised report, specifically regarding NCTM CAEP Standards (2012) standard 3 – element 3d, standard 4 – elements 4a and 4e, and standard 7 – element 7a.

The Arkansas Department of Education has set the passing score for the Praxis Mathematics: Content Knowledge test at 160. The national mean score on the test is a 153/154. For the 2016 – 2017 academic year our state pass rate for the Praxis Mathematics: Content Knowledge test was only 43.8%. The state mean score for that academic year was 150.7. While our program pass rates since the 2015 – 2016 academic year have exceeded that percentage it no less presents an issue for our program. For the 2015 – 2016 academic year 67% of our candidates who passed the Praxis II Mathematics: Content Knowledge test passed on their first attempt. That

percentage has steadily decreased in the academic years that follow (50% for 2016 – 2017 and 33% for 2017 - 2018). Failure to pass the test can result in a delay in program completion (as a passing score is required for admission to Internship II) or a failure to complete the program entirely.

The change of placement for MATH 4703: Special Methods in Mathematics in the degree map to the semester of the candidate's Internship I experience was at the suggestion of the Secondary Education Committee.

Prior to this proposed program change the preservice teacher candidate's research capstone projects for MATH 4971: Mathematics Senior Seminar were not reflective of current mathematics education research. With the change in placement in the degree map to the semester of the candidate's Internship II experience the type and level of mathematics education research that the candidates can be involved in is much more collegial and valuable from a post-graduate stand point.

- b. How does this program fit in the current state of the discipline? Include Arkansas institutional comparisons. If Arkansas educational institutions do not have the course or program provide comparative examples from regional educational institutions.

Many departments on campus have their own departmental version of TECH 1001.

The University of Central Arkansas and the University of Arkansas both offer licensure programs in the area of mathematics. They each have a similar course (or courses) to our suggested course of MATH 3703: MATH 4313 Functions and Modeling and MATH 3370 Mathematics in the Secondary Schools (UCA) and MATH 2903 Functions, Foundations and Models (U of A).

No other Arkansas or regional educational institutions have a course similar to our proposed MATH 3772: Praxis Mathematics: Content Knowledge Test Preparation. Most data found on preparation for the Praxis Mathematics: Content Knowledge test indicated that the preparation was occurring inside university testing centers and/or university sponsored Praxis testing labs. It should be noted that these observed measures of test preparation do not seem adequate as the nation mean score for the test is currently 153.6 with a state mean score of 150.7 (both of which are below the Arkansas cut score of 160). Our program has proposed this course as a proactive measure to address the low pass rate of the Praxis Mathematics: Content Knowledge test.

- c. Attach a detailed assessment plan including three to five specific program student learning outcomes, means or instructional measures to assess each outcome, identify program courses where learning will be assessed, and performance standards or criteria for success which demonstrate student learning for each outcome. (Examples for assessment plans/curriculum mapping can be found at the Office of Assessment and Institutional Effectiveness web page.)

The Mathematics for Teacher Licensure program student learning outcomes and assessments are dictated by the Council for the Accreditation of Educator Preparation (CAEP). CAEP requires that our preservice teacher candidates develop competencies outlined by the National Council of Teachers of Mathematics (NCTM).

If this course will affect other departments, a Departmental Support Form for each affected department must be attached. The form is located on the Curriculum forms web page at [http://www.atu.edu/registrar/curriculum\\_forms.php](http://www.atu.edu/registrar/curriculum_forms.php).

In the attached matrix, include requested changes in the matrix and include course number and title.

Curriculum Matrix for Catalog Curriculum in <u>Mathematics for Teacher Licensure</u> (enter title for program changing )	
<p>Freshman Fall Semester</p> <p>Add/Change: <b>MATH 1001 Orientation to Mathematics</b> <b>1</b></p> <p>Delete: <b>TECH 1001 Orientation to the University</b> <b>1</b></p> <p>Total Hours: <b>15</b></p>	<p>Freshman Spring Semester</p> <p>Add/Change:</p> <p>Delete:</p> <p>Total Hours: <b>16</b></p>
<p>Sophomore Fall Semester</p> <p>Add/Change:</p> <p>Delete:</p> <p>Total Hours: <b>16</b></p>	<p>Sophomore Spring Semester</p> <p>Add/Change:</p> <p>Delete:</p> <p>Total Hours: <b>16</b></p>
<p>Junior Fall Semester</p> <p>Add/Change:</p> <p>Delete:</p> <p>Total Hours: <b>15</b></p>	<p>Junior Spring Semester</p> <p>Add/Change: <b>MATH 3703 Mathematics in the Secondary Schools</b> <b>3</b> <b>MATH 3772 Praxis Mathematics: Content Knowledge</b> <b>Test Preparation</b> <b>2</b></p> <p>Delete: <b>MATH 4703 Special Methods in Mathematics</b> <b>3</b> <b>Elective</b> <b>3</b></p> <p>Total Hours: <b>13</b></p>
<p>Senior Fall Semester</p> <p>Add/Change: <b>MATH 4703 Special Methods in Mathematics</b> <b>3</b></p> <p>Delete: <b>MATH 4772 Mathematics Teaching Practicum</b> <b>2</b> <b>MATH 4971 Mathematics Senior Seminar</b> <b>1</b></p> <p>Total Hours: <b>16</b></p>	<p>Senior Spring Semester</p> <p>Add/Change: <b>MATH 4971 Mathematics Senior Seminar</b> <b>1</b></p> <p>Delete:</p> <p>Total Hours: <b>13</b></p>

## PROGRAM LEARNING OUTCOMES

REQUIRED COURSES		PLO 1 Content Knowledge	PLO 2 Mathematical Practice	PLO 3 Content Pedagogy	PLO 4 Mathematical Learning Environment	PLO 5 Impact on Student Learning	PLO 6 Professional Knowledge and Skills	PLO 7 Secondary Mathematical Field Experiences and Clinical Practice
	MATH 1001						I	
	MATH 2703		I/R					
	MATH 2914	I/R						
	MATH 2924	I/R	R					
	MATH 2934	I/R	R					
	MATH 3003	I/R	R					
	MATH 3123	I/R	I/R					
	MATH 3203	I/R	R					
	MATH 3243	I/R	R					
	MATH 3703	R	R		I	I		R
	MATH 3772	R	R					
	MATH 4003	I/R	R					

		PLO 1 Content Knowledge	PLO 2 Mathematical Practice	PLO 3 Content Pedagogy	PLO 4 Mathematical Learning Environment	PLO 5 Impact on Student Learning	PLO 6 Professional Knowledge and Skills	PLO 7 Secondary Mathematical Field Experiences and Clinical Practice
REQUIRED COURSES	MATH 4033	I/R	R					
	MATH 4113		R	I				
	MATH 4123		R					
	MATH 4703			R	R	R	R	
	MATH 4971	M	R	R		R	R	R
	PHYS 2114		R					
	PHYS 2124		R					
	SEED 2002						R	I
	SEED 3702			I	I			
	SEED 4054		R	R	R	R	R	R
	SEED 4556		R	R	R	R	R	R
	SEED 4503		M	M	M	M	M	M
	SEED 4909		M	M	M	M	M	M
	STAT 3153	I/R	R					



	Assessment						
	Assessment #1	Assessment #2	Assessment #3	Assessment #4	Assessment #5	Assessment #6	Assessment #7
	[Praxis 5161 Data]	[Course Grades]	[Unit Learning Plan] (MATH 4703)	[Internship II]	[Exit Portfolio ]	[History Portfolio] (MATH 4113)	[Internship I]
<b>[PLO 1] Standard 1: Content Knowledge</b>							
1a NCTM Mathematics Content	X	X					
<b>[PLO 2] Standard 2: Mathematical Practices</b>							
2a Problem Solving		X		X	X		X
2b Reasoning		X		X			X
2c Mathematical Models		X					
2d Mathematical Thinking		X		X			
2e Interconnectedness		X					
2f Mathematical Intersections		X					
<b>[PLO 3] Standard 3: Content Pedagogy</b>							
3a Apply Curriculum Standards			X	X	X		X
3b Research in Planning			X				
3c Plan Lessons			X	X			X
3d Communication			X	X			
3e Student Engagement				X	X		X
3f Assessment			X	X			
3g Monitor Progress					X		
<b>[PLO 4] Standard 4: Mathematical Learning Environment</b>							
4a Adolescent Learning and Development				X			
4b Plan and Create Learning Opportunities			X	X	X		X
4c Diversity			X		X		

4d Equity and Ethics			X	X	X		X
4e Instructional Tools			X	X			X
<b>[PLO 5] Standard 5: Impact on Student Learning</b>							
5a Conceptual Understanding				X	X		
5b Mathematical Activities			X	X			
5c Assessment				X	X		
<b>[PLO 6] Standard 6: Professional Knowledge and Skills</b>							
6a Professional Development				X	X		
6b Collaborative Learning				X			
6c Professional Resources			X	X	X		
<b>[PLO 7] Standard 7: Secondary Mathematics Field Experiences and Clinical Practice</b>							
7a* Field Experiences and Clinical Practice							
7b** Student Teaching and Internship							
7c Develop Knowledge, Skills, and Professional Behaviors			X	X			

7a\* - Documented in Section I – Context #2 of Program Report for the Preparation of Secondary Mathematics Teachers NCTM 2012 Standards

7b\*\* - Documented in Section I – Context #2 and Context #6 of Program Report for the Preparation of Secondary Mathematics Teachers NCTM 2012 Standards



**Arkansas Tech University**  
**DEPARTMENTAL SUPPORT FORM**

This form must be completed for every department affected by the course change.

<b>Department Affected:</b>  College Student Personnel	<b>This department</b> <input checked="checked" type="checkbox"/> supports the change. <input type="checkbox"/> does not support
<b>Comments:</b>  The mathematics department is deleting TECH 1001 Orientation to the University and replacing it with MATH 1001 Orientation to Mathematics in both our Mathematics and Mathematics for Teacher Licensure programs. This is a similar change to other departments who have moved orientation to their departments for retention purposes.	

Department Head Signature: \_\_\_\_\_

Date: 6/26/19