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#### ATTACHMENT A

app CC 18/22/07 app FS 11/12/07

#### **PROPOSAL FOR COURSE CHANGE**

To: Curriculum Committee

From: Department of Biological Sciences

Date submitted: October 8, 2007

Request for: Course addition

Submitted by: Dr. Elisabeth Brennan, Assistant Professor of Wildlife Science

Approved by: Department Head: Charlis Hay Dean of School MBChoon Reviewed by: Registrar: Jammy flipbly Vice President:

I. Catalog description: (AS IT WILL APPEAR IN THE CATALOG).

Number: FW 4064/5064

Title for Catalog: Wetland Ecology and Management

\*Title for Course Inventory (30 characters): Wetland Ecology & Management

Description: An in-depth coverage of wetlands including occurrence, morphology, hydrology, soils, ecology, and regulation. The types of wetlands and their functions will be discussed, as will local, state and federal regulations pertaining to their use, management and protection. Laboratory will focus on identification of common wetland vegetation, delineation of wetland boundaries, as well as field techniques and management activities commonly used in Arkansas wetlands. Lecture three hours, laboratory two hours.

Prerequisites: BIOL/FW 3114 (Ecology)

Effective date or term: As soon as possible.

\*Course fees: \$10.00 laboratory

II. Justification and feasibility of course:

This course was piloted as Advanced Topics in Biology (FW 4884/5884) during the fall semester 2006. We suggest that this course become a permanent 4-credit offering (FW 4064/5064) within the Fisheries and Wildlife Science (F&W) Program. It is designed for upper-level undergraduate and graduate students. One of the primary purposes of this class is to increase additional course options for students pursuing a Master's degree in the F&W program. Also, during program **assessment** and particularly the exit exam, many undergraduates have suggested the program would benefit from increasing the diversity of course offerings. Wetlands are some of the most important ecosystems on earth, providing critical habitat for a large number of organisms, hydrological stabilization, and retention and transformation of nutrients and pollutants. This class will provide in-depth education on and prepare students in the F&W Program for careers that incorporate wetland ecology and management.

B. How does it relate to other work being offered by your department? Is there an overlap with other courses in the department?

The proposed course will build off of general concepts and ideas presented in Principles of Ecology (FW 3114) but will involve a more in-depth and specialized application of these ideas, particularly as they relate to wetlands. The proposed course will not overlap with other classes offered by the department.

C. Is this course part of any general plan of development within your department? Explain.

Fisheries and Wildlife Program faculty members recognized the need to offer additional graduate-level courses for M.S students. This course helps fulfill that need. Because of this need, the faculty specifically recruited a faculty member with an area of expertise that complimented those of existing faculty members. The proposed course offering fits directly into the developmental plan of the F&W program by increasing course offerings for F&W majors while providing an opportunity for specialized instruction in wetland ecology.

D. How often will the course be offered?

This course will be taught each fall semester.

E. How will the course be staffed?

A faculty member (e.g., Dr. Brennan) from the Fish and Wildlife program will teach this course.

F. How will this course change affect other departments' students and offerings? With what other departments have you specifically consulted?

This new course is not expected to have any impacts on other departments; however, it was considered to be particularly useful for students in the Fisheries and Wildlife Science Program. It may also provide a valuable elective for students in an environmental option as well as RP (Recreation & Park Administration) majors.

A. What is the need for this course? Who will take it?

#### III. Integration with Program Assessment

Faculty members in the F&W Program annually assess student learning by administering an exit exam (Major Field Tests, Educational Testing Service). In addition, the F&W faculty administers a comprehensive final exam to all graduating seniors as a part of program assessment. To integrate the proposed course into assessment procedures, new questions pertaining to wetland ecology and management will be developed and included in the comprehensive final exam. This class also requires student presentations, which F&W faculty will be invited to attend as part of overall measurement of proficiency identified in the assessment plan.

List Department Head/ Program Director Consulted: (Add to list as needed) Indicate Support for Proposal Date:

1. Dr. Joe Stoeckel, Director Fisheries and Wildlife Science Program

(yes/no) Arstochl

10/8/07

### Wetland Ecology and Management (FW 4064/5064)

Instructor: Dr. Lisa Brennan (356-2018) ebrennan@atu.edu

**Course Description:** An introduction to all aspects of wetlands including occurrence, morphology, hydrology, soils, ecology, and regulation. The types of wetlands and their functions will be discussed, as will local, state and federal regulations pertaining to their use, management and protection. Lecture instruction will cover ecological processes and characteristics of wetlands such as primary productivity, hydrology, decomposition and nutrient dynamics, in addition to historical human influence on wetlands and current efforts to create and restore wetlands. Laboratory will focus on identification of common wetland vegetation, delineation of wetland boundaries, as well as field techniques and management activities commonly used in Arkansas wetlands. Lecture 3 hours, Laboratory 2 hours.

Lecture Text: Mitsch, W. J., and J. G. Gosselink. 2006. Wetlands, 3<sup>nd</sup> ed. John Wiley & Sons, Inc., New York, New York. 920 pp.

Laboratory Text: Handouts

**Course Justification:** This course is designed as an upper-level elective for Fisheries and Wildlife Majors. Pre-requisites include successful completion of BIOL/FW 3114 (Ecology) and CHEHEM 1114 (Survey of Chemistry).

#### **Bibliography:**

- Keddy, P. A. 2002. Wetland Ecology: Principles and Conservation. Cambridge University Press, New York, New York. 614 pp.
- Messina, M. G., and W. H. Conner. 1998. Southern Forested Wetlands: Ecology and Management. Lewis Publishers, Boca Raton, Florida. 616 pp.
- Tiner, R. W. 1999. Wetland Indicators: A Guide to Wetland Identification, Delineation, Classification, and Mapping, Lewis Publishers, Boca Raton, Florida. 392 pp.

Course Objectives: Upon successful completion of this course, students will develop:

1. understanding of wetland communities, processes, and functions, and their application toward conservation and management of wetlands and wetland dependent organisms

2. ability to define, describe, and identify the physical, chemical, and biological characteristics of wetlands and how to measure these characteristics

3. knowledge of the variation in different wetland types throughout the US and the world (palustrine, riverine, mangrove, estuary, prairie potholes, salt water marsh, etc.);

4. capability in identifying common wetland plants, soils, and hydrologic indicators in the field, as well as wetland delineation

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5. proficiency in recognizing and classifying local wetland ecosystems using U. S. Army Corps of Engineers (USACE) and U.S. Fish and Wildlife (USFWS) guidelines

6. a basic understanding of State & Federal Laws regulating and protecting wetlands.

Assessment Methods: Grades will be computed based on three lecture exams (including the final exam), a wetland plant collection, complete a wetland delineation report following USACE guidelines, and a written and oral final report on a specific wetland. Graduate students will prepare and deliver a 20 minute presentation on a wetland topic of your choice

Assignment:	Percent of final grade		Due date
-	Undergrads	Grad students	
Wetland Classification Exam	10	10	September 17
Midterm Exam	15	15	October 15
Wetland delineation report	10	10	October 29
Plant collection	20	15	November 19
Lecture (grad students only)		15	November 26
Class Project	25	15	November 29
Final Exam	20	20	To be announced

## Example Lecture Schedule:

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	D	m ·	
Month	Day	lopics	Readings
August 24		Wetland Values	Chapter 16 (571-591)
	27	What is a wetland?	Chapter 2
	31	Wetland classification	Cowardin et al. 1979
September 3		No class (Labor Day)	
	10	Wetland classification	Chapter 21 (737-734)
	14	HGM classification	Smith et al. 1995 (1-35)
	17	Wetland Classification Exam	
	21	Plants – distribution & adaptations	Chapter 7 (205-224);
	24	Production/decomposition	Webster and Benfield 1986
	28	Wetland hydrology	Chapter 5
October	1	Wetland hydrology	Chapter 5
	5	No class (SWS Meeting)	
	8	Hydric soils/Biogeochemistry	Chapter 6 (165-187)
	12	Nutrient cycling	Chapter 6 (187-203)
15 19 22 26 29	15	Mid-term Exam	
	19	Wetland loss/threats/impacts	Dahl 1990
		1	Zedler and Kercher 2004
	22	Wetland legislation/conservation	Haukos and Smith 2003
	26	Waterfowl	Fredrickson and Heitmeyer 1988
	29	Shorebirds	Helmers 1992 (1-26)
November	2	Macroinvertebrates	Smock 1999 (137-165)
	5	Fish & amphibians	Hoover and Kilgore 1998 (237-260)
	9	Moist-soil management	Strader and Stinson 2005: Gray et
			al. 1999
	12	GTR management: bottomland	Fredrickson and Batema 1992
		hardwood wetlands	(Chapters 1,2,5,6 & 8)
	16	Wetland disturbance	Chipps et al. 2006
	19	Wetland restoration	Chapter 19 (653-668)
	23	No class (Thanksgiving)	
	26	Student Presentations	
	30	Managing Private Wetlands	
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