USF St. Petersburg
NEW Undergraduate Course Proposal Form
(non-Gen Ed)

Date Submitted | Date/Term Change is Requested to Become Effective
---|---
2/17/2012 | Fall 2013

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<tr>
<th>Contact Person</th>
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<th>Email</th>
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<tbody>
<tr>
<td>Melanie Whitmore</td>
<td>(727) 873-4834</td>
<td><a href="mailto:mariedin@mail.usf.edu">mariedin@mail.usf.edu</a></td>
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Do the attached changes mirror changes to USF Tampa Curriculum? No Yes

Comments: Changes are independent of USF Tampa

Description of Change (attach supporting documents if necessary):
The Biology degree program will offer BSC 4XXEcology of Aquatic Vascular Plants as an elective.

Estimated Impact on University Resources:

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<tr>
<td>Equipment</td>
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<td>Faculty/Staff</td>
<td>Thomas J. Whitmore will teach this course as a part-time faculty member.</td>
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<td>Other</td>
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APPROVALS (if Disapprove, Note and attach Comments)

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<tr>
<th>Title (print name)</th>
<th>Signature</th>
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<th>Date</th>
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<tr>
<td>Chair, College Academic Programs Comm.</td>
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<tr>
<td>College Dean</td>
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<tr>
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<tr>
<td>Chair, USFSP UGC Committee</td>
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<td>Affairs</td>
<td>Norine E. Noonan</td>
<td>7/13/12</td>
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USFSP NEW Undergraduate Course Proposal Form (non-Gen Ed)

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2. Course Information

<table>
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<th>Prefix</th>
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<tr>
<td>BSC</td>
<td>4333</td>
<td>Ecology of Aquatic Vascular Plants</td>
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Is the course title variable? No
Is a permit required for registration? No
Are the credit hours variable? No
Is this course repeatable for credit? No
If yes, Maximum Number of Times? Maximum Number of Credits?

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Total Clock Hours: 45
Abbreviated Title: Ecology-Aquatic Vascular Plant

3. Prerequisites

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6. **Course Description** (255 character maximum for state submission)

This course is a study about aquatic vascular plants, their biological adaptations to aquatic environments, factors influencing community composition, and how aquatic plants influence and are influenced by their habitats. The course includes a survey of key vascular plant taxa in a wide range of aquatic communities.

255 Characters:

*A study of aquatic vascular plants, biological adaptations to aquatic environments, factors influencing community composition, how they influence and are influenced by their habitats; includes a survey of key vascular plant taxa in a wide range of communities.*

7. **Gordon Rule**

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<td>If you indicated &quot;yes&quot; above, specify how the 6,000 words will be covered (exams, papers).</td>
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<table>
<thead>
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<th>Does this course meet the <strong>computation</strong> portion of the Gordon Rule?</th>
<th>Yes</th>
<th>No</th>
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8. **Justification**

a. Indicate how this course will strengthen the Undergraduate Program. Is this course necessary for accreditation or certification?

   This course is an elective for Biology majors. It is not necessary for accreditation or certification.

b. What specific area of knowledge is covered by this course which is not covered by courses currently listed?

   The ecology of aquatic vascular plants. This course provides an introduction to aquatic plant community composition, adaptations, and diversity.

c. What is the need or demand for this course? (Indicate if this course is part of a required sequence in the major.) What other programs would this course service?

   This course introduces students the ecology of aquatic vascular plants, a dominant plant group within Florida. It will be of broad interest to students interested in plant biology and ecology, and in aquatic biology.

   This course may be of interest to undergraduate students in other programs within the College of Arts and Sciences.

d. Has this course been offered as Selected Topics/Experimental Topics course? If yes, what was the enrollment?

   No.

e. How frequently will the course be offered? What is the anticipated enrollment?

   Once every other year in the spring semester until demand requires each year; 24

f. What effect will this new course have on the program (major, minor, cognate, etc.)?

   This course is an elective for Biology majors, and will enhance the choice of electives
available to students. It serves as a bridge between botany and aquatic biology topics.

g. What effect will this new course have on the students currently in the program?

The biology program is scheduled to begin Fall 2012, so there are currently no students officially in the program.

h. What qualifications for training and/or experience are necessary to teach this course? (List minimum qualifications for the instructor.)

Graduate degree and 18 hours of graduate course credit in biology, with some course work or research in botany or ecology.

9. Other Course Information

A. Objectives

Students will learn about habitat characteristics of aquatic environments, including the chemical and physical challenges that are faced by aquatic vascular plants, and the ways in which aquatic plants have adapted to cope with these challenges. Students will learn about the structural, physiological, and reproductive adaptations of aquatic vascular plants, and the various life-form groups, including submerged, emergent, floating-leaved, and free-floating aquatic plants. Students will gain understanding about how hydroperiod, salinity, and structural and spatial variation in habitats influence community composition. We will discuss how aquatic plants change their environment, and the implications for habitat management. Students will learn to identify key taxa in aquatic plant communities of various freshwater, estuarine, and saltwater habitats.

B. Learning Outcomes

At the completion of the course, students will be able to describe how differences between terrestrial and aquatic environments have shaped the adaptations that are characteristic of aquatic vascular plants. They will understand and be able to recognize examples of the various life-form groups of aquatic plants, and able to describe the salient adaptations of each group. Students will understand how aquatic plants alter conditions in aquatic environments over time, and the effects of human influence on aquatic plant communities. They will be able to explain why plant management strategies often are deemed necessary for some aquatic environments, whereas plant protection is deemed necessary for other environments. Students will gain understanding about a wide range of freshwater, estuarine, and saltwater habitats and they will be able to describe the important differences in plant communities in each of those habitats. Students will be able to recognize key taxa in a wide range of aquatic plant communities, and they will understand the distinction between taxa that are native to those communities, and taxa that are indicators of environmental disturbance or invasive plant introduction.

a. Major Topics

See Syllabus:

Variability of aquatic environments; Light transmission, dissolved gases and nutrients, water chemistry, substrate, temperature, and turbulence; General adaptations of aquatic plants to aquatic habitats; Sexual and vegetative reproduction in aquatic plants; Life forms and growth forms of aquatic vascular plants; Structure and physiology of submerged, emergent, and floating-leaved plant organs; Habitat zonation and its influence on plant communities; The effects of plant communities on aquatic environments; The relationships
between aquatic plant communities and aquatic fauna; Cypress domes and freshwater swamps; Freshwater marsh communities; Vascular plants of springs, streams and rivers. Plant communities of ponds and lakes; Aquatic plants of ephemeral wetland areas; Invasive aquatic plants, and issues in aquatic plant management; Mangrove communities; Salt marsh communities; Seagrass communities

b. Textbooks


10. Proposed UG Catalog Language

This course is a study about aquatic vascular plants, their biological adaptations to aquatic environments, factors influencing community composition, and how aquatic plants influence and are influenced by their habitats. The course includes a survey of key vascular plant taxa in a wide range of aquatic communities.

11. Syllabus

Note: Information in red has been changed for accuracy or compatibility with SCNS.
BSC 4725, Ecology of Aquatic Vascular Plants, Spring 20XX

Instructor: Thomas J. Whitmore, Ph.D.
Class meets: Tuesday and Thursdays, 2:00 pm – 3:25 pm, STG 115
Office hours: Tuesdays and Thursdays 11:00 am – 12:30 pm or by appointment.
Office: STG 217 Phone: 727-873-4834 E-mail: whitmore@usfsp.edu

Course description: This course is a study about aquatic vascular plants, their biological adaptations to aquatic environments, factors influencing community composition, and how aquatic plants influence and are influenced by their habitats. The course includes a survey of key vascular plant taxa in a wide range of aquatic communities.

Course prerequisites: BSC 2010 and BSC 2011, General Botany, or consent of instructor. Minimum Grade: C.

Required Text:

Course objectives:
This course will help students understand the chemical, physical, and biological nature of aquatic environments, and the adaptations of vascular plants to those conditions. Students will learn about structural, physiological, and reproductive adaptations that are necessary for vascular plants to survive in aquatic environments. The various life-form groups of aquatic plants will be examined, and the biological adaptations that are characteristic of each. The course will examine the influence of seasonal and cyclical hydroperiods, salinity, and habitat zonation on community composition. We will discuss environmental factors that influence plant distribution, and how aquatic plants in turn influence the nature of aquatic environments. The second portion of the course will include a survey of key taxa in springs and streams, freshwater swamps and marshes, lakes and ponds, ephemeral wetlands, mangroves, salt marshes, and seagrass communities. The course also will address issues in aquatic plant management.

Tentative Schedule of Topics

Part I. Biology and Ecology of Aquatic Plant Communities

Week 1. Variability of aquatic environments.
Light transmission, dissolved gases and nutrients, water chemistry, substrate, temperature, and turbulence.

Week 2. General adaptations of aquatic plants to aquatic habitats.


Week 4. Life forms and growth forms of aquatic vascular plants.
Structure and physiology of submerged, emergent, and floating-leaved plant organs

Week 5. Habitat zonation and its influence on plant communities.

Week 6. The effects of plant communities on aquatic environments.

Week 7. The relationships between aquatic plant communities and aquatic fauna. **Exam 2.**

**Part II. Surveys of key plant families and taxa in aquatic communities.**

Week 8. Cypress domes and freshwater swamps.


Week 10. Vascular plants of springs, streams and rivers.

Week 11. Plant communities of ponds and lakes. **Exam 3.**

Week 12. Aquatic plants of ephemeral wetland areas.
Invasive aquatic plants, and issues in aquatic plant management.

Week 13. Mangrove communities.


Week 15. Seagrass communities. **Exam 4.**

**Examinations**
Four examinations will be given. Each exam will be worth **100 points**, and will consist of a mixture of short-answer and short-essay questions. The final exam is not comprehensive.

**Term paper**
About midway in the semester, I will work with students to identify topics that will serve as the basis for student term papers. Students will work individually on their term paper. The topics need to be approved by the instructor by a date that will be announced. Term papers should be based on peer-reviewed literature and textbooks, or in some cases other authoritative sources that are discussed with and approved by the instructor. Term papers will be graded based on 1) overall organization, 2) depth of detail, 3) quality and quantity of content, 4) cohesiveness and clarity, 5) authority of references. Students must be mindful of the academic code of honesty because the term paper must represent original work.

**Optional field trips.**
The class will have three optional weekend field trips, which will include one to a lake, one to a mangrove, and one to a salt marsh. Students will be asked to participate in identifying prominent plant taxa in the community, plant life forms and adaptations, and to describe how factors that
contribute to habitat zonation influence community composition. Each field trip will enable students to add 3% credit to their final grade.

Course Policies

1) **Academic Conduct**
    All work must be your own, original, independent work. Cheating in any form will not be tolerated, and students suspected of cheating will not receive credit for the assignment. Evidence of cheating will be submitted to the Assistant Dean of the College of Arts and Sciences for Academic Misconduct review. Please refer to the Student Handbook for information on the University policy on academic dishonesty and its consequences.

2) **Attendance**
    Attendance is required and expected for all lectures and exams. I understand that circumstances occasionally might result in a student missing a lecture. **If you miss a lecture, you are responsible for obtaining missed notes, handouts, announcements etc. from me or from another student.** It is strongly encouraged that students who must miss significant blocks of material (lectures, exams), or who anticipate that they regularly will not be able to arrive on time or must leave early, should consider withdrawing from the course. Excessive unexcused absences (three or more) may result in lowering of the final grade.

3) **Use of electronic devices in the classroom and note taking.**
    Use of computers, cell phones, and text messaging are not permitted in the classroom because of their tendency to distract students and the instructor, and students who fail to observe this policy will be asked to leave the classroom.

4) **Grading**
    The total course points = **500**. Each of the four examinations will represent 100 points for a total of 400 exam points, i.e., the exams will represent 80% of the final grade. Term papers will represent 75 points, or 15% of the final grade. Attendance and constructive participation in classroom discussions will represent 25 points, or 5% of the final grade. Readings assigned each week will be discussed in the following class.

    The following grading scale will be used in assigning final grades:
    
    A+ = 98-100%
    A   = 94-97%
    A-  = 90-93%
    B+  = 87.5-89%
    B   = 84-87%
    B-  = 80-83%
    C++ = 77.5-79%
    C   = 74-77%
    C-  = 70-73%
    D   = 60-69%
### Base Course Record

**Basic Course Information**

- **Subject:** BSC  [Biological Sciences](#)
- **Course:** 4333 - Ecology - Aquatic Vascular Plant
- **Term:** 201305

**Course Details**

- **From Term:** 201305
- **Copy:**
- **To Term:** 999999
- **Course Title:** Ecology - Aquatic Vascular Plant
- **College:** Arts and Sciences USFSP
- **Division:**
- **Department:** Biology
- **Status:** Active
- **Approval:**
- **CIP:** 260101 - Biology, General
- **Prerequisite Waiver:**
- **Duration:**

**Hours**

- **CEU or Credit:** 3.000
- **Billing:**
- **Lecture:**
- **Lab:**
- **Other:**
- **Contact:**

**Repeat Details**

- **Limit:**
- **Repeat Status:** NR

### Course Level Record

**Course Level SCACRSE 8.5.0.4 (PROD)**

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Course Supplemental Data Record

Subject: BSC Biological Sciences
Course Title: Ecology-Aquatic Vascular Plant

Supplemental Data

From Term: 201305
Maintenance
To Term: 999999

Account Number: USF01STP51120910000000000
Occupational Course: 
Classification: 
Cooperative Education

Course Identifier: 
Credit Category: 

Institutional Reporting
Element 1: F
Element 2: 
Element 3: 050
Element 4: 

Description

Course Description Record

From Term: 201305
Maintenance
To Term: 999999

Description

A study of aquatic vascular plants, biological adaptations to aquatic environments, factors influencing community composition, how they influence and are influenced by their habitats; includes a survey of key vascular plant in a wide range of communities.
Course Pre-requisite Record

Subject: BSC  ▼ Biological Sciences
Course Title: Ecology-Aquatic Vascular Plant

Course Test Score and Prerequisite Restrictions

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