



Broward Community College

Course Outline

STATUS: A

COMMON COURSE NUMBER: SWS 2243C

COURSE TITLE: Wetlands Management II

CREDIT HOURS: 3

CONTACT HOURS BREAKDOWN:

Lecture/Discussion 32

Lab 32

Other 0

Contact Hours/Week 4

CATALOG COURSE DESCRIPTION:

Prerequisite: SWS 2242C

Corequisite: None

This course provides the background needed to design, implement, monitor and maintain a functional wetland, both fresh water and coastal, in South Florida. Course consists of classroom and extensive field work.

General Education Requirements - Associate of Arts Degree, meets Area(s):

General Education Requirements - Associate in Science Degree, meets Area(s):

UNIT TITLES:

1. Introduction - What is Mitigation?
2. Comparison of Restoration, Enhancement and Preservation Methods in Wetland Ecosystems, Which To Use and Why?
3. Mitigation Design Techniques
4. Mitigation Permitting (Federal, State, Local)
5. Permitting a Successful Project
6. Mitigation Implementation and Contract Coordination
7. Mitigation Monitoring and Permit Compliance
8. Wetlands Maintenance and Management

I. Course Overview:

Upon successful completion of this course, the students should be able to demonstrate the ability to design, implement, monitor and maintain a functional wetland (both fresh water and coastal) in South Florida.

II. Units:

Unit 1. Introduction - What is Mitigation?

General Outcome:

- 1.0 The students should be able to define the processes of mitigation, restoration, enhancement and preservation in the context of wetlands.

Specific Learning Outcomes:

Upon successful completion of this unit, the students should be able to:

- 1.1 List the agencies involved with wetland mitigation.
- 1.2 List and discuss the reasons for "the need or requirements" to mitigate.
- 1.3 Discuss the approach and ingredients for successful mitigation.

Unit 2. Comparison of Restoration, Enhancement and Preservation Methods in Wetland Ecosystems, Which To Use and Why?

General Outcome:

2.0 The students should be able to discern the differences between methods of mitigation and understand the reasoning for utilizing one methodology over another.

Specific Learning Outcomes:

Upon successful completion of this unit, the students should be able to:

- 2.1 Discuss in detail the method(s) of wetland restoration, its benefits and pitfalls.
- 2.2 Discuss in detail the method(s) of wetland enhancement, its benefits and pitfalls.
- 2.3 Discuss in detail the method(s) of wetland presentation, its benefits and pitfalls.

Unit 3. Mitigation Design Techniques

General Outcome:

- 3.0 The students should be able to design a basic wetland mitigation project utilizing an including aspects from restoration enhancement and presentation. This will include designing field elevations and planting schemes.

Specific Learning Outcomes:

Upon successful completion of this unit, the students should be able to:

- 3.1 Be able to generate plan views of a proposed wetland mitigation project.
- 3.2 Be able to generate cross-sectioned views of a proposed wetland mitigation project.
- 3.3 Evaluate the criteria needed to meet all objectives in creating a "functioning" wetland.

Unit 4. Mitigation Permitting (Federal, State, Local)

General Outcome:

- 4.0 The students should be able to understand the different regulations and hence the different requirements of permitting a successful wetland mitigation project.

Specific Learning Outcomes:

Upon successful completion of this unit, the students should be able to:

- 4.1 Discuss the Federal permitting process including the USACOE , EPA, VSFWS.
- 4.2 Discuss the State (Florida) permitting process including FDEP and Water Management Districts jurisdiction.
- 4.3 Discuss the Local (County) permitting process including Dade, Broward, and Palm Beach Counties.
- 4.4 Evaluate the methodology to be used which best addresses all requirements as established by the above mentioned agencies.

Unit 5. Permitting a Successful Project

General Outcome:

- 5.0 The students should be able to permit a successful wetland mitigation project utilizing "Adaptive Management" and "Partnering" skills.

Specific Learning Outcomes:

Upon successful completion of this unit, the students should be able to:

- 5.1 Discuss the process in permitting a successful mitigation project with all agencies.
- 5.2 Discuss the need for early project reviews and pre-application meetings with involved regulatory personnel.
- 5.3 Understand the need for flexibility in permitting wetland mitigation projects utilizing the techniques of "Adaptive Management".
- 5.4 Discuss the need to bring all involved parties (from client to agencies) to a common workable goal. Understand the pitfalls of adversarial relationships.

Unit 6. Mitigation Implementation and Contract Coordination

General Outcome:

6.0 The students should be able to understand the construction aspects of wetland mitigation projects including costing, bid reviews, equipment and personnel needs.

Specific Learning Outcomes:

Upon successful completion of this unit, the students should be able to:

- 6.1 Discuss the operations-side of the wetland mitigation business.
- 6.2 Understand and evaluate the financial aspects of wetland mitigation projects.
- 6.3 Utilize skills to inspect mitigation projects while under construction and evaluate their status.

Unit 7. Mitigation Monitoring and Permit Compliance

General Outcome:

- 7.0 The students should be able to inspect and monitor (both short- and long-term) wetland mitigation projects and evaluate whether these projects are in-compliance with all applicable permits.

Specific Learning Outcomes:

Upon successful completion of this unit, the students should be able to:

- 7.1 Discuss the field techniques used in inspecting a wetland mitigation project while under construction (both earthwork and planting).
- 7.2 Be able to design a monitoring protocol to be used to quantitatively monitor any given success criteria of the permitted wetland mitigation project.
- 7.3 Be able to monitor in-the-field any and all parameters listed in the monitoring protocol to evaluate success and/or failure of permitted wetland.

Unit 8. Wetlands Maintenance and Management

General Outcome:

- 8.0 The students should be able to maintain (through the aid of monitoring protocol as discussed above) the constructed wetland through various methods including but not limited to the removal of exotic (nuisance) vegetation.

Specific Learning Outcomes:

Upon successful completion of this unit, the students should be able to:

- 8.1 Discuss the long-term maintenance problems in wetland projects.
- 8.2 Discuss the need for establishment of a management plan for wetland projects.
- 8.3 Understand the principle and methods of exotic vegetation removal and cleaning.
- 8.4 Develop a checklist outlining the General Conditions and Special Provisions criteria of the permitted wetland in terms of overall project success.
- 8.5 Evaluate whether the constructed wetland is successful (i.e. functional and in-compliance).