

# Course Syllabus

**Department:** Environmental Conservation and Horticulture

**Date:** February 2012

## I. Course Prefix and Number: CON 229

**Course Name:** Stream Ecology and Monitoring

**Credit Hours and Contact Hours:** 3 credit hours – 3 contact hours

### **Catalog Description including pre- and co-requisites:**

This course provides students with an introduction to hydrology, stream ecology and sampling design. Students will intensively study aquatic macro-invertebrate identification. The students will learn through field and laboratory experiences with data collected, analysis, and production of a final professional report. Prerequisites: MAT 121, CSC 134 CSC 135.

## II. Course Outcomes and Objectives

### **Student Learning Outcomes:**

The students will:

- Demonstrate knowledge of hydrology and stream ecology (professional competency).
- Design and implement a sampling plan (professional competency).
- Identify aquatic organisms (professional competency).
- Demonstrate proper use of stream sampling equipment (professional competency).
- Analyze and interpret data (mathematics, critical thinking).
- Write a professional report (writing, reading, information resources, computer literacy).
- Comprehend, interpret, analyze and evaluate college level materials (reading).

### **Relationship to Academic Programs and Curriculum:**

Stream monitoring is a required course for students matriculated in the AAS Fisheries Science degree program. This course is designed for students in their second year. It builds upon concepts and skills acquired in required courses taken during the first three semesters.

### **College Learning Outcomes Addressed by the Course:**

- |                        |                         |
|------------------------|-------------------------|
| X writing              | X computer literacy     |
| __ oral communications | __ethics/values         |
| X reading              | __citizenship           |
| X mathematics          | __ global concerns      |
| X critical thinking    | X information resources |

### **III. Instructional Materials and Methods**

#### **Types of Course Materials:**

**Texts:** Needham JG, Needham PR. 1962. A Guide to the Study of Fresh- water Biology. McGraw Hill, NY. 108 p.

Voshel JR.2002. A Guide to Common Freshwater Invertebrates of North America. McDonald & Woodard Pub. Co. VA. 442 p.

**Equipment:** Microscopes and stream sampling equipment.

#### **Methods of Instruction (e.g. Lecture, Lab, Seminar ...):**

Discussion - Lecture  
Reading assignments  
Audio-visual materials  
Quizzes  
Field and laboratory exercises  
Several revisions of a technical report

### **IV. Assessment Measures (Summarize how the college and student learning outcomes will be assessed):**

Student understanding of hydrology and stream ecology concepts will be assessed using written quizzes and exams. Professional competency regarding equipment use and aquatic organism identification will be assessed using final practical exam.

Writing, reading, mathematics, critical thinking, computer literacy and information resources competencies will be assessed using a stream monitoring project and technical report.

### **V. General Outline of Topics Covered:**

Introduction: Objectives and expectations  
Hydrology  
Stream ecology  
Sampling Design Protocol  
Use of Sampling Equipment  
Collecting and preserving specimens  
Aquatic invertebrate identification  
Data analyses/interpretation  
Writing reports in accordance with governmental agency guidelines