

## Master Syllabus

### BIO 2225 - Ecology

**Division:** Science, Mathematics and Engineering

**Department:** Biology

**Credit Hour Total:** 4.0

**Lecture Hrs:** 3.0 **Lab Hrs:** 3.0

**Date Revised:** September 2015

---

### Course Description:

General concepts in ecology and application to current environmental issues. Focus on evolutionary ecology, populations, communities, ecosystems and global ecology. Field experiences and lab techniques emphasizing data collection, analysis and interpretation. Three classroom, three lab hours per week.

### General Education Outcomes:

- Oral Communication Competency
- Written Communication Competency
- Critical Thinking/Problem Solving Competency
- Values/Citizenship/Community Competency
- Computer Literacy Competency
- Information Literacy Competency

### Course Outcomes:

#### Evolutionary Ecology, Organisms and Populations

Describe and discuss basic concepts of the physical environment; explain natural selection and adaptations of organisms to their environment; analyze and explain interactions within a population affecting size and changes over time.

**Assessment Method:** Locally developed exams

**Performance Criteria:** Score 60% out of 100% on written and lab practical exams

**Assessment Method:** Performance appraisals

**Performance Criteria:** Score 6 out of 10 in all areas of a rubric

#### Global Ecology and Human Impact

Examine the regional exchange of energy and materials influencing the functioning and distribution of organisms across multiple ecosystems and the biosphere; describe and discuss theories and techniques of restoration ecology; examine and evaluate the impact of humans on biodiversity; illustrate and explain sustainable development.

**Assessment Method:** Locally developed exams

**Performance Criteria:** Score 60% out of 100% on written and lab practical exams

**Assessment Method:** Performance appraisals

**Performance Criteria:** Score 6 out of 10 in all areas of a rubric

#### Field Experience and Techniques

Identify and operate equipment to collect data; perform lab and field experiments; use appropriate computer software and analyze data using statistical methods; interpret data and write reports according to accepted scientific format.

**Assessment Method:** Locally developed exams

**Performance Criteria:** Score 60% out of 100% on written and lab practical exams

**Assessment Method:** Performance appraisals

**Performance Criteria:** Score 6 out of 10 in all areas of a rubric

#### Communities and Ecosystems

Differentiate and explain species interactions; evaluate and explain effect of interactions on community organization and structure; describe and discuss energy flow and chemical cycling between organisms and the environment.

**Assessment Method:** Locally developed exams

**Performance Criteria:** Score 60% out of 100% on written and lab practical exams

**Assessment Method:** Performance appraisals

**Performance Criteria:** Score 6 out of 10 in all areas of a rubric

### Outline:

Evolutionary ecology  
Organisms and the environment  
Populations  
Species  
Interactions  
Communities  
Ecosystems  
Large Scale Ecology