This course is available for student registration only after the approval process has been completed.

SUBJECT: BIO  
COURSE NO.: 4411  
CREDIT HOURS: 4  
TERM TO BE ADDED TO THE FILE: Fall 2009

CLASS HOURS  
LECTURE HOURS: 45  
LAB HOURS: 45

DEPARTMENT: Biological Sciences  
SCHEDULE TYPE: Lecture/Lab

COLLEGE OF AERONAUTICS-23  
COLLEGE OF BUSINESS-24  
COLLEGE OF ENGINEERING-01  
COLLEGE OF SCIENCE-26  
UNIVERSITY COLLEGE EXTENDED STUDIES-27

COMPUTER TITLE: Restricted to 25 characters, including spaces.  
Conservation Genetics  
CATALOG TITLE: Conservation Genetics

CATALOG DESCRIPTION OF COURSE: Limited to 350 characters, including spaces.  
Introduces conservation genetics. Focuses on population genetic theory and emphasizes molecular methods for examining population differentiation, genetic diversity, the evolution of small populations, and the management of threatened populations. Lab includes experimental design, data collection and analysis.

In addition, you may attach a course syllabus and/or more detailed description.

RESTRICTIONS:  
 Prerequisite  BIO 2110  
 Corequisite

PREREQUISITE:

Course Number

GRADES TO BE ISSUED:

A, B, C, D, F

A, B, C, D, E, F, CEU

CEU

S, U

P/F

Other

ADDITIONAL RESTRICTION:  
(e.g., Major, Class Level, Department Head Approval)

If this course replaces a course currently offered in BANNER, please indicate old course information

SUBJECT: Alpha Prefix (e.g., CSE)  
COURSE NO. (e.g., 1301)

APPROVALS: Upon completion of appropriate department approvals, submit form to Chair, Graduate Council, or Chair, Undergraduate Curriculum Committee for approval below and forward to Catalog Director.

Chair, Graduate Council  
Date  
Chair, Undergraduate Curriculum Committee  
Date

Dean or Associate Dean  
Date

CATALOG DIRECTOR  
Date

These changes/additions have been made for the University/Extended Studies Catalog and entered into the BANNER term named above.

Catalog Director

REGISTRAR'S USE ONLY

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Operator Init  
Date

Florida Institute of Technology " Office of the Registrar  
180 West University Boulevard, Melbourne, FL 32901-6975 • (321) 674-8114 • Fax (321) 674-7827  
RG-271-5016
Conservation Genetics
The primary aim of this course is to provide an introduction to the field of conservation genetics and to learn how molecular tools are used to manage and conserve populations.

SUMMARY: Application of population genetic theory and techniques to conservation biology, focusing on the use of molecular genetic methods to identify conservable units, determine genetic diversity, understand the evolution of small populations, and manage threatened populations.

Prerequisite is BIO-2110 (General Genetics)

Course details (lecture):
Week 1. Introduction to conservation genetics, genetics and extinction

Week 2. Population genetic theory: Hardy-Weinberg, linkage disequilibrium

Week 3. Quantitative genetics and diversity: heritability, QTLs

Week 4. Evolution in large populations: selection, mutation, migration

Week 5. Evolution in small populations: genetic drift, selection

Week 6. Effective population size and inbreeding

Week 7. Inbreeding depression

Week 8. Population fragmentation, population structure

Week 9. Genetically viable populations

Week 10. Taxonomy and conservation units

Week 11. Genetics and management of wild populations

Week 12. Genetics and management of captive populations

Week 13. Genetics and management for reintroductions

Week 14. Population viability analysis (PVA)
**Required reading:**

Other readings as assigned.

**Laboratory:**
Students will participate in a class research project. Students will sample tissues, extract DNA, amplify DNA, sequence DNA, and genotype individuals from several populations using microsatellite loci. Students will then analyze the data and write a collaborative scientific paper suitable for publication.

**Requirements:**
Attend all lectures and laboratories.

**Grading:**
60% Lecture
- Midterm and Final Exam (30%)
- Discussion of primary literature (10%)
- Data analysis modules (20%)

40% Laboratory
- Laboratory notebook (20%)
- Scientific manuscript (20%)

We will adopt the University grading system.