

2008 JANUARY TERM COURSE SYLLABUS

Biology 100: Population Biology

A. Course Identification

Program Code & Course Number: L. BIO 100

Course Title: Population Biology

Meeting Days, Times & Location: MWF 9:00 AM – 1:00 PM; TTh 1:00 – 5:00 PM (SCIE 54)

Dates when students will be off campus: None; course involves day trips only

Prerequisite(s) (courses, permission of instructor, etc.): None

Course Fee: \$40 transportation fee

B. Instructor Information

Name: David Shealer, Associate Professor of Biology

Office Number and Location: SCIE 25

Office Phone Number/Extension: 588-7678

E-mail address: david.shealer@loras.edu

The Best Way to Reach Me Outside of Class Time: (1) voice mail, (2) email

C. Course Materials and Resources

Students will need the following materials:

Notebook and pencil to record field data

Laptop computer with the additional applications

 SPSS 15 (available from the LanDesk software distribution portal)

 MARK (available online from the Patuxent Wildlife Research Center [USGS])

Field guide to the birds of North America (National Geographic, Peterson, Sibley, etc.)

Identification guide to the birds of North America (Pyle)

Packet of readings available for students to photocopy at their own expense

D. Course Objectives

The main objectives of this course are to

- Demonstrate and reinforce scientific methodology through original research.
- Provide an opportunity for students to gain competency with a standard technique in field biology (mark-recapture).
- Promote a deeper understanding of and appreciation for a specific issue in environmental conservation (global songbird declines).

E. Learning Outcomes, Assessment, and Grading

At the completion of this course, students should be able to collect, analyze and interpret scientific data. Specific learning outcomes and assessment methods are as follows:

- Students will demonstrate competency with identifying, handling, marking and measuring wild birds. Students will be expected to demonstrate to the instructor, after a reasonable

training period, their proficiency in setting up mist nets, removing birds quickly and carefully from mist nets, selecting bands of appropriate size, using standard guides to identify species, age, and sex of common birds, and taking careful and repeatable body measurements of birds. These skills will be evaluated periodically by the instructor in the field. The instructor will provide feedback on deficiencies in any of the skill areas and provide an opportunity for students to remedy those deficiencies. A final field practicum will be given to each student on the final day of the banding session; this will be worth 100 points. Students will be required to record data on each bird banded, including band number, species, age, sex, wing length and body mass; these records will be submitted periodically to the instructor for comparison with the master data file. Student data notebooks will be graded for completeness and accuracy (50 points).

- Students will demonstrate an ability to use standard population modeling and statistical software. Students will demonstrate to the instructor their proficiency in using population software (program MARK) to estimate population parameters and to conduct statistical analyses (using SPSS) on data collected in the field. A hypothetical data set will be given to each student to analyze and interpret correctly. Students will submit a report based on their analysis and interpretations, which will be graded by the instructor (50 points).
- Students will learn to communicate effectively the results of their research experience and will extrapolate the findings of their research to a more global perspective on songbird conservation. This learning outcome will be assessed by a PowerPoint presentation (15 min), required of each student or student team, to be presented orally to the class. The presentation will be based on data collected by students during the research investigation and will be supplemented with information obtained by students from the scientific literature. This presentation will be evaluated by the instructor and all members of the class. Students will be required to submit a written critique of each presentation, which will be summarized by the instructor and returned to each presenter (100 points).
- Students will gain an understanding of some of the major threats to bird populations in general and will present a coherent account of the plight of one population or species in particular. Using sources from the primary literature, the ICES Red Book, and the internet, each student will organize and present a PowerPoint lecture in a symposium on rare and endangered birds of the world. This symposium will be convened on a single day during the last week of the J-term period and will be open to the public. Presentations will be evaluated by the audience and the instructor, using a standard form (50 points).
- Final grades will be determined by student performance in each of the preceding categories. A total of 350 points is possible in this course. Grades will be assigned according to the following scale:

$\geq 315/350$ ($\geq 90\%$) = A
 $280-314/350$ (80-89.7%) = B
 $245-279/350$ (70-79.7%) = C
 $210-244/350$ (60-69.7%) = D
 $< 210/350$ ($< 60\%$) = F

Plus (+) and minus (-) grades are possible within each letter grade, except a grade of 'F', and will be awarded at the instructors discretion.

F. Course Policies

Expectations for Class Attendance

The success of this course depends on the attendance and active participation of all students during each scheduled session. Please consult the Loras College Policy on Absences Related to College Recognized Activity. Each unexcused absence from a particular session will lower the final grade by a fraction of a letter (e.g., B to B-)

Expectations for Student Conduct Off Campus

Loras College students participating in January term courses are expected to conduct themselves in accordance with the policies and guidelines put forth in the student handbook.

Academic Dishonesty

Please refer to the Loras College Policy on Academic Honesty.

Learning Disabilities

If you have a documented disability requiring academic adjustments for this class, please contact the Learning Disabilities Center at x7134 and make an appointment with a staff member to review your documentation and to determine appropriate, reasonable accommodations. Following the meeting, please make an appointment with me to discuss your accommodation request in light of the course requirements. You may self-disclose and request an academic adjustment any time during the semester. However, I strongly recommend that you do so as soon as possible because accommodations are not provided retroactively and adequate lead-time is required.

Counseling Center

Having problems with classes, life love or whatever? Call 588-7085 for an appointment or visit <http://inside.loras.edu/sites/counseling/default.aspx> for more information. **When should you seek counseling?** Often students enter the counseling process by saying, "I don't know if I really need to be here, but ..." Here are some of the reasons that people come to counseling:

We work with students who are having problems with school, from specific problems such as difficulty with certain types of classes to lack of motivation; insecurity about what to choose for a career; difficulties with college life, such as conflict with roommates, feeling lonely or having trouble "fitting in"; problems with romantic relationships or questions concerning sexuality; troubles at home that cause stress at school; as well as more common emotional issues like feeling tense, stressed, anxious, irritable, or depressed. We help students who are having current difficulties because of past problems like sexual or physical abuse or incest. We also help with students who are concerned about alcohol or drug use, dealing with eating problems, are experiencing difficulty grieving about a loss or are dealing with a crisis in their lives such as experiencing sexual harassment or other kinds of discrimination.

G. Course Calendar

Jan 03 Overview of course; bird identification; software acquisition

Jan 04 Rationale of using mark-recapture to estimate population parameters; Difference between

closed and open populations; EcoBeaker simulation

Jan 05-06 Students gather library/internet references on bird populations

Jan 07 Practical training session I: setting up a banding station

Jan 08 Practical training session II: netting, identifying, banding and measuring birds

Jan 09 Morning banding session: EB Lyons Nature Center

Jan 10 Afternoon banding session: campus

Jan 11 Morning banding session: EB Lyons Nature Center

Jan 12-13 Students gather library/internet references on endangered birds

Jan 14 Morning banding session: EB Lyons Nature Center

Jan 15 Afternoon banding session: on campus

Jan 16 Morning banding session: EB Lyons Nature Center

Jan 17 Afternoon banding session: on campus; evaluation of field skills

Jan 18 Morning: Introduction to population software (MARK); preliminary analyses

Afternoon: Introduction to statistical analysis (SPSS); analysis of field data

Jan 19-20 Students work on symposium presentation; data analysis

Jan 21 Students compile, analyze, interpret field data; begin organizing PowerPoint presentation

Jan 22 Students present results of research to class; MARK exam

Jan 23 Symposium on endangered and threatened birds of the world.

H. Bibliography or Supplemental Material

The following supplemental resources are available in the Loras College Library. Students should consult these resources when analyzing and interpreting data and when organizing their symposium topic.

- The Birds of North America (A. Poole and F. Gill, Eds.), The Birds of North America, Inc.
- Scientific journals: The Auk, Conservation Biology, Ecology, The Ibis, Wilson Journal of Ornithology (Wilson Bulletin).

I. Disclaimer

The instructor will make every effort to adhere to the policies set forth in this syllabus, but in field-oriented courses of this nature, last-minute changes are sometimes necessary due to unforeseen circumstances. Any changes made by the instructor to this course syllabus will be posted on eLearn as soon as possible, and students will be notified of these changes at the beginning of the next class session.