Eastern Oregon University Course Syllabus

Number of Course:
BIOL 440

Name of Course:
Landscape Ecology & Genetics w/ Lab

Catalog description:
This course will introduce students to topics in landscape ecology and landscape genetics. Topics in landscape ecology will include resolution, extent, autocorrelation, spatial statistics, range maps, distribution models, spatial validation, and predictive modeling. Topics in landscape genetics will include isolation by distance, working with fragmented populations, source-sink dynamics of populations, and the use of ecological data in tandem with genetic data. The course will feature information specific to regional ecosystems of the Blue and Wallowa Mountains of NE Oregon. In the first half of the course, the laboratory component will include weekly computer and field exercises that explore different elements of landscape ecology and spatial modeling. In the second half of the course, students will use ecological and genetic data in tandem to address landscape-level topics in genetics.

Credit Hours:
4

Prerequisites:
BIOL 357, BIOL 358 and 342/342L

Required Texts or Suggested Materials:
Link to the EOU Bookstore: Eastern Oregon University Bookstore (opens in new tab)

Objectives:
1. Students will deepen their knowledge of ecology and genetics as they develop greater understanding of the genetic and ecological dynamics of landscapes in the Blue and Wallowa Mountains.
2. Students will gain hands-on skills in techniques of spatial modeling and genetic analysis.
3. Student will analyze information/data gathered in the field and write a report on their observations and conclusions.

Learning Outcomes (LOs):
Upon the completion of this course students will:
1. Be able to read and discuss literature related to topics in landscape ecology and conservation genetics.
2. Gain field experience with techniques used to measure landscape genetics.
3. Practice analytical skills related to data acquisition, analysis, and interpretation.
4. Practice scientific writing.

Course Requirements and Grading Policies:

Assignment Type:	**Learning Outcomes:**
Weekly Quizzes: 50 pts	1, 2
Lab assignments: 100 pts	1, 3, 4
Final report: 50 pts	1, 2, 3, 4
Midterm Exam: 50 pts	1, 2
Final Exam: 50 pts	1, 2

Means of Assessment and Connection to Learning Outcomes (LOs):

WEEKLY QUIZZES (LOs 1, 2)

Students will take weekly quizzes to assess concept assimilation and technical progress.

LAB ASSIGNMENTS (LOs 1, 3, 4, 5)

Students will complete a course journal that documents their attendance and active participation in field trips.

FINAL REPORT (LOs 2, 3, 4)

Students will use the data we acquire on field trips to produce a map and write a scientific report describing and analyzing a landscape genetic based question. Specific requirements for the report will be discussed in class.

MIDTERM EXAM (LOs 1, 2)

Comprehensive exam covering the first half of the course on Landscape Ecology

FINAL EXAM (LOs 1, 2)

Comprehensive exam covering the second half of the course on Landscape Genetics

Grading Scale:

Grades will be determined by the following percentage basis of the 100 possible points:

Letter Grade:	**Percentage:**
A	90-100
B	80-99
C	70-79
D	60-69
F	below 60

Brief Outline of Course Content (subject to change):

Weekly Topics/Field Trips:

- Week 1: Introduction; what is Landscape Ecology?
- Week 2: Grain size, resolution, extent, spatial autocorrelation
- Week 3: Homeranges, range maps, distributions, and validation
- Week 4: Biodiversity patterns and Spatial Statistics
- Week 5: Spatial prediction from point data; Exam 1
- Week 6: Genetics and ecology across small spatial scales
- Week 7: Habitat fragmentation and isolation by distance

- Week 8: Populations as sources and sinks
- Week 9: The genetics of invasion
- Week 10: Practicing conservation genetics with ecological and genetic data

General Education Category and Outcomes:
N/A

University Writing Requirement Outcomes:
N/A

Writing Center Statement:
The EOU Writing Center provides a place — physical or virtual — where every EOU student can find an interested, responsive reader. Writing tutorials are free of charge for EOU undergraduate and graduate students and are available for writing at any course level and for writing resumes, job letters, and graduate applications. For drop-in hours or to schedule in-person, synchronous online, or asynchronous online tutoring, please visit the EOU Writing Center: Writing Center – Eastern Oregon University (opens in new tab).

Classroom Decorum:
[Insert text here]

Academic Misconduct Policy:
Eastern Oregon University places a high value upon the integrity of its student scholars. Any student found responsible for an act of academic misconduct (including but not limited to cheating, unauthorized collaboration, fabrication, facilitation, plagiarism or tampering) may be subject to having his or her grade reduced in the course in question, being placed on probation or suspended from the University, or a combination of these.

Accommodations/Students with Disabilities Policy:
Any student who feels they may need accommodation for any type of disability must contact the Disability Services Office in Loso Hall, Room 233. Phone: 541-962-3081.

Disclaimer:
This standard syllabus provides only general information on the course. For those enrolled in the course a detailed syllabus will be provided by the Instructor at the beginning of the term. Please keep in mind that not all courses are offered every year.

Syllabus Prepared by:
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Date:
18 March 2024