Eastern Illinois University
New Course Proposal
BIO 5209, Community Ecology

CGS Agenda Item: 18-09
Effective Fall 2018

Banner/Catalog Information (Coversheet)

1. **X New Course or _____Revision of Existing Course**
2. **Course prefix and number:** BIO 5209
3. **Short title:** Community Ecology
4. **Long title:** Community Ecology
5. **Hours per week:** 3 Class 0 Lab 3 Credit
6. **Terms:** X Fall Spring Summer ___ On demand
7. **Initial term**: _X__ Fall __ Spring ___ Summer Year: 2018
8. **Catalog course description:** Explores the foundational aspects of biological communities, focusing on both the theoretical and practical application of concepts of plant and animal systems.
9. **Course attributes:**

   General education component: N/A

   ___ Cultural diversity ___ Honors ___ Writing centered ___ Writing intensive ___Writing active

10. **Instructional delivery**
    Type of Course:

    X Lecture ___ Lab ___ Lecture/lab combined ___ Independent study/research

    ___ Internship ___ Performance __ Practicum/clinical ___ Other, specify: _____

    Mode(s) of Delivery:

    X Face to Face ___ Online ___ Study Abroad

    ___ Hybrid, specify approximate amount of on-line and face-to-face instruction_____

11. **Course(s) to be deleted from the catalog once this course is approved.** None
12. **Equivalent course(s):** None

    a. Are students allowed to take equivalent course(s) for credit? ___ Yes ___ No

13. **Prerequisite(s):** None

    a. Can prerequisite be taken concurrently? ___ Yes ___ No

    b. Minimum grade required for the prerequisite course(s)?

    c. Use Banner coding to enforce prerequisite course(s)? ___ Yes ___ No

d. Who may waive prerequisite(s)?

___ No one ___Chair ___Instructor ___ Advisor ___ Other (specify)

14. Co-requisite(s): None

15. Enrollment restrictions

a. Degrees, colleges, majors, levels, classes which <u>may</u> take the course: All

b. Degrees, colleges, majors, levels, classes which may <u>not</u> take the course: None

16. Repeat status: X May not be repeated ___ May be repeated once with credit

17. Enter the limit, if any, on hours which may be applied to a major or minor: ___

18. Grading methods: X Standard ___ CR/NC __ Audit ___ ABC/NC

19. Special grading provisions: N/A

___ Grade for course will <u>not</u> count in a student's grade point average.
___ Grade for course will <u>not</u> count in hours toward graduation.
___ Grade for course will be removed from GPA if student already has credit for or is registered in:
___ Credit hours for course will be removed from student's hours toward graduation if student already has credit for or is registered in: _____

20. Additional costs to students:
Supplemental Materials or Software_____

Course Fee X No ___Yes, Explain if yes_____

21. Community college transfer:

___ A community college course may be judged equivalent.

X A community college may <u>not</u> be judged equivalent.

Note: Upper division credit (3000+) will <u>not</u> be granted for a community college course.

<u>Rationale, Justifications, and Assurances (Part I)</u>

1. ___Course is required for the major(s) of _____

___Course is required for the minor(s) of _____

___Course is required for the certificate program(s) of _____

<u>X</u> Course is used as an elective

2. Rationale for proposal: In Community Ecology, students will explore the structure and dynamics of biological communities, including plants, animals and microbes. As a growing population of our students are dealing at least tangentially with community processes, more formal training is needed in this area. The primary goal for this class is to prepare students for graduate studies in ecology or related fields and for ecological or conservation-oriented careers in biology.

Lectures in the class will provide the necessary background to each topic. Weekly class discussions will focus on classic and contemporary papers that reflect each concept. These papers will be summarized by students prior to the discussion (Paper summaries), presented by students in turn (Paper presentation), and discussed by all students (In class discussions). Examinations will be full essay exams to assess the degree of understanding of each topic and the student's ability to synthesize information.

The term paper for this class will take the form of a 10-12 page (plus references) grant proposal where the student outlines a project in community ecology and supports that project with appropriate literature. Focus on the paper will be conceptual, not on specific methodology (limited to two pages) to ensure the student's ability to synthesize and incorporate the information in the class and in their own readings into a complete argument for their project. This project will also allow students to pursue their own interests into a system applicable to their long-term goals, effectively customizing the class experience.

3. Justifications for (answer N/A if not applicable)

Similarity to other courses: Community ecology will necessarily include approximately two weeks of population ecology, for those students who have not taken Population Ecology (BIO 5208; Fall semesters alternate to this class) within the department. For students which take both classes, approximately half will not have had population ecology, approximately half will. The content overlap will develop the necessary concepts of later sections to be developed. Other concepts will be covered in both classes (e.g. competition), one focusing on the implications of competition on populations (population ecology) and the other will focus on the implications of competition in determining the structure and dynamics of communities (Community Ecology).

Prerequisites: None

Co-requisites: N/A

Enrollment restrictions:N/A

Writing active, intensive, centered: N/A

4. General education assurances (answer N/A if not applicable)

General education component: N/A

Curriculum: N/A

Instruction: N/A

Assessment: N/A

5. Online/Hybrid delivery justification & assurances (answer N/A if not applicable)

Online or hybrid delivery justification: N/A

Instruction: N/A

Integrity: N/A

Interaction: N/A

Model Syllabus (Part II)

1. **Course Number, Title, Credit Hours**
   BIO 5209, Community Ecology, 3-0-3

2. **Catalog Description**
   Explores the foundational aspects of biological communities, focusing on both the theoretical and practical application of concepts of plant and animal systems.

3. **Learning Objectives (Goals)**
   a. Integrate structural and dynamic characteristics of biological communities into their ecological function (GLG 1-2).
   b. Apply knowledge of community structure and dynamics to interpret results, formulate hypotheses, and evaluate contemporary and classical ecological literature (GLG 1-2).
   c. Apply acquired knowledge on communities to develop a research proposal that illustrates comprehensive knowledge of a biological system that builds and adequately supports the concepts and methods proposed (GLG 2-4).
   d. Develop skills in presenting and discussing biological concepts and literature in an open setting (GLG 3)

4. **Course Materials**

   Textbook: Mittelbach, G. G. (2012). *Community ecology*. Sinauer Associates.
   ISBN-10: 0878935096

5. **Weekly Outline of Content**

   Week 1: Community Ecology's Roots; what is a community?

   Week 2: Patterns of Biological Diversity.

   Week 3: Biodiversity and Ecosystem Functioning.

   Week 4: Population Growth and Density Dependence.

   Week 5: The Fundamentals of Predator-Prey Interactions.

   Week 6: Selective Predators and Responsive Prey.

   Week 7: Interspecific Competition: Simple Theory.

   Week 8: Competition in Nature: Empirical Patterns and Tests of Theory.

   Week 9: Beneficial Interactions in Communities: Mutualism and Facilitation.

   Week 10: Species Interactions in Ecological Networks.

   Week 11: Food Chains and Food Webs: Controlling Factors and Cascading Effects.

   Week 12: Patchy Environments, Metapopulations, and Fugitive Species.

   Week 13: Metacommunities and the Neutral Theory.

   Week 14: Species Coexistence in Variable Environments.

   Week 15: Evolutionary Community Ecology.

   Week 16: Final Exam.

6. Evaluation

Tests	(midterm and final) 150 points
In Class Discussions	75 (5 points/week)
Paper summaries	150 (10 points/week)
Paper presentation	25 points
Grant Proposal	100 points
Total	**500**

7. Grading Scale

90% or more = A; 80-89% = B; 70-79% = C, 60-69% = D; <60% = F

8. Correlation of learning objectives to assignments and evaluation

Learning Objectives	**Discussions, summaries and presentations (50%)**	**Exams (30%)**	**Grant Proposal (20%)**
Integrate structural and dynamic characteristics of biological communities into their ecological function (GLG 1-2).	X	X	X
Apply knowledge of community structure and dynamics to interpret results, formulate hypotheses, and evaluate contemporary and classical ecological literature (GLG 1-2).	X	X	X
Apply acquired knowledge on communities to develop a research proposal that illustrates comprehensive knowledge of a biological system that builds and adequately supports the concepts and methods proposed (GLG 2-4).			X
Develop skills in presenting and discussing biological concepts and literature in an open setting (GLG 3)	X		X

Date approved by the department or school: January 11, 2018

Date approved by the college curriculum committee: January 19, 2018

Date approved by the Honors Council *(if this is an honors course):*

Date approved by CAA:

Date approved by CGS: