Agenda Item #15-56
Effective: Summer 2016

Eastern Illinois University

New/Revised Course Proposal Format

(Approved by CAA on 4/3/14 and CGS on 4/15/14, Effective Fall 2014)

Banner/Catalog Information (Coversheet)

1. **__x__New Course or _____Revision of Existing Course**
2. **Course prefix and number:** _____BIO 5970 A-Z_____
3. **Short title:** _____Special Topics_____
4. **Long title:** __Special Topics in Biological Sciences_____
5. **Hours per week:** ___ Class ___ Lab _1-4__ Credit
6. **Terms:** _x__ Fall __x_ Spring _x__ Summer _x__ On demand
7. **Initial term**: ___ Fall ___ Spring __x_ Summer Year: _2016_____
8. **Catalog course description:** Specific areas within the cohort disciplines will be given intensive study through lectures, lab, readings, reports, papers, and discussion.
9. **Course attributes:**

   General education component: _____

   ___ Cultural diversity ___ Honors ___ Writing centered ___ Writing intensive ___Writing active
10. **Instructional delivery**
    Type of Course:

    _x__ Lecture ___ Lab __x_ Lecture/lab combined ___ Independent study/research

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

    Mode(s) of Delivery:

    _x__ Face to Face _x__ Online ___ Study Abroad

    __x_ Hybrid, specify approximate amount of on-line and face-to-face instruction. Lectures will be online, additional instruction will be given in face-to-face laboratories/lectures at the discretion of instructor._
11. **Course(s) to be deleted from the catalog once this course is approved**. ____n/a_____
12. **Equivalent course(s):** _____none_____

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

13. Prerequisite(s): Student must be eligible to take graduate courses and permission from instructor.

a. Can prerequisite be taken concurrently? None ___ Yes ___ No

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

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

d. Who may waive prerequisite(s)?

___ No one ___ Chair ___ Instructor ___ Advisor ___ Other (Program Coordinator)

14. Co-requisite(s): _____none_____

15. Enrollment restrictions

a. Degrees, colleges, majors, levels, classes which <u>may</u> take the course: Admission to the Graduate School or a post-Bachelor degree tract and permission of instructor.

b. Degrees, colleges, majors, levels, classes which may <u>not</u> take the course: Not admitted to the Graduate School or a post-Bachelor degree tract and permission of instructor.

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

NOTE: Course may be repeated once per letter (i.e., 5970A) providing each section has a different course title.

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

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.

___ A community college may not be judged equivalent.

Note: Upper division credit (3000+) will not be granted for a community college course, even if the content is judged to be equivalent.

Rationale, Justifications, and Assurances (Part I)

1. **IMPACT**

___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 _____

_x__ Course is used as an elective

2. **Rationale** Within a specialized topic related to the MS in BIO program, students will: compare and contrast current theories of the topic; examine important past, present, and future directions of the topic; apply critical thinking to the topic; effectively communicate understanding of the topic through writing, quantitative reasoning, and application. This course will prepare students for employment/additional schooling in their focal fields.

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

Similarity to other courses: **n/a**

Prerequisites: The special topics is designed for graduate faculty to offer courses that are rare, or to test out a new course before they write a course proposal.

Co-requisites: **n/a**

Enrollment restrictions: Only open to students that have completed a bachelors degree.

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)**

1. Online or hybrid delivery justification: There is a need at the graduate level to offer courses to those students who cannot come to campus or are on campus, but because of the nature of their research cannot come to class at the allotted time. Both online and hybrid courses will fill that need.
2. Instruction: Since this is a special topics course, the instructional materials and assessments in an online or hybrid setting will mirror those of a face-to face course with special attention to timely uploads of lecture videos. Course materials will be the same.

D2L and associated video software will be used to support students' achievement of the specified learning objectives. Only instructors who have completed the university's prerequisites for teaching online (i.e., OCDI) will be assigned to the course. Only instructors with advanced degrees in biological sciences or related specializations will be assigned to the course. Instructors must also have graduate instructor status.

3. Integrity: The integrity of student work will be assured by the instructor in a similar fashion to face-to-face. Since this is a graduate level course, typical multiple choice / short answer testing will be minimal. Instead, courses will be project-based where students will be judged on their critical thinking skills and ability to synthesize the material. The integrity of the course will not be compromised by offering an online mode of delivery. Currently, a variety of activities that utilize the internet are already incorporated into the face-to-face version of potential courses and such activities will promote a proper transition to the online delivery method. Online versions of the courses will utilize the same PowerPoint lectures (with slides regularly complemented by audio/video aids) and exams will include the same content and allotted time (e.g., Respondus Lockdown browser can be enabled). Academic integrity of written work will be preserved and monitored for originality and authenticity with the most current technology available. Face-to-face course sections will have less than 50% of content online.
4. Interaction: For online courses instructor-student and student-student interaction will be promoted through online office-hours. Peer discussion, collaborative learning strategies, video conferencing will be facilitated through D2L. Students will participate in online discussion boards through their own posts and posts in response to their peer students and to the instructor as appropriate. The instructor will monitor discussion board posts to ensure that a respectful, professional, and academic tone is maintained. Students will submit assignments to the designated assignment 'dropboxes' and the instructor will enter numerical grades and narrative feedback can also be provided to the students. Video clips/documentaries and/or supplemental materials beyond the course textbook (e.g., journal articles, current events articles) will be uploaded for students to view/read and students will submit critical reflections in the form of an assigned paper and/or posts to the discussion board for all students to view. The instructor will hold set office hours online to be responsive to students' questions and concerns. Students will also be welcome to talk with the instructor via telephone and meet face to face with the instructor during office hours or appointments.

Model Syllabus

This is an EXAMPLE of a course that could be taught in this format:

Please include the following information:

1. Course number and title – BIO 5970 Special Topics in Biology
2. Catalog description - Specific areas within the cohort disciplines will be given intensive study through lectures, lab, readings, reports, papers, and discussion.

BIO 4820 –Spatial Analysis for Environmental Biology

Course Syllabus

Instructor: Dr. Karen F. Gaines; phone: 217.581.6235; e-mail: kfgaines@eiu.edu

Class: Mon/Wed: 12:00-1:15; Fri: 1:00 – 3:50; Location: LFSB 1130

Office Hours: Friday 10am-noon or by appt.

Course description: An introduction to how spatial data are synthesized and interpreted in environmental biology. The course will focus on interpretation of remotely sensed data, point pattern analysis, and digital elevation models. Students will become familiar using appropriate software such as Geographic Information Systems (GIS), statistical and modeling software. Students will be provided access to a GIS Lab with all associated software. If the course is delivered in an online setting, students must access the GIS Lab through a "Virtual Desktop" (URL will be provided through D2L: https://www.eiu.edu/d2l/).

3. Learning Objectives:

1. Demonstrate proficiency in advanced spatial analysis techniques (**GLG:** Depth of content knowledge)
2. Analyze data and document results in the form of a scientific paper and/or government/industry report (**GLG**: Critical thinking and problem solving, Effective oral and written communication skills).
3. Demonstrate how to make data-driven decisions using current literature in order to design experimental approaches in a variety of software platforms to an identified endpoint (**GLG**: Depth of content knowledge, Evidence of advanced scholarship through research).
4. Engage in professional oral communication and interaction (**GLG:** Effective oral and written communication skills).

4. Course Materials:

1. The ESRI Guide to GIS Analysis, Volume 2: Spatial Measurements & Statistics. By Andy Mitchell. 2005. ESRI Press.

2. An Introduction to R for Spatial Analysis and Mapping. By Brunsdon and Comber. 2015. SAGE Publications Ltd. Web Resources: https://us.sagepub.com/en-us/nam/an-introduction-to-r-for-spatial-analysis-and-mapping/book241031#resources
3. GISTools in R: https://cran.r-project.org/web/packages/GISTools/GISTools.pdf

EIU Online (D2L): You will need to logon to EIU D2L Brightspace at https://www.eiu.edu/d2l/ to get lecture slides / video, URLs for online work, send and receive email, view your grade, download learning objectives, and check for announcements. Please check D2L frequently for potential changes in schedule, announcements for assignments, reminders, etc. Let me know ASAP if you have any problems or questions about using D2L.

Academic integrity: Students are expected to maintain principles of academic integrity and conduct as defined in EIU's Code of Conduct (http://www.eiu.edu/judicial/studentconductcode.php). Violations will be reported to the Office of Student Standards. Please visit the Code of Conduct website and read the Standards of Student Conduct. **Cheating and plagiarism will not be tolerated** and will result in a 0% on the assignment/exam and most likely a failing grade for the course. Unless otherwise instructed, all assignments & assessments are to be completed individually. Make sure ALL submitted work is your own. If you are unsure what constitutes cheating/plagiarism, ask!

Students with disabilities: If you are a student with a documented disability in need of accommodations to fully participate in this class, please contact the Office of Student Disability Services (OSDS). All accommodations must be approved through OSDS. Please stop by Ninth Street Hall, Room 2006, or call 217-581-6583. If you have a documented disability and wish to discuss academic accommodations, please contact me as soon as possible.

The Student Success Center - Students who are having difficulty achieving their academic goals are encouraged to contact the Student Success Center (www.eiu.edu/~success) for assistance with time management, test taking, note taking, avoiding procrastination, setting goals, and other skills to support academic achievement. The Student Success Center provides individualized consultations. To make an appointment, call 217-581-6696, or go to 9th Street Hall, Room 1302.

5. Outline of content:

Environmental modeling research project – Each student will identify a research question, acquire a spatial dataset, analyze the data and report their findings in either a scientific paper or governmental/consulting firm report framework. A detailed instruction document including dates for milestones will be provided to you during the first week of class.

Spatial Analysis for Environmental Biology

Tentative Course Schedule

Description	Tentative Labs / Assignments**	Readings
Weeks 1-2:		
PART I - Introduction to Spatial Analysis		
Using spatial data in electronic form	Brunson/Comber R Code Ch1-2	ESRI: Ch. 1
Introduction to spatial measurements and statistics	Brunson/Comber R Code Ch2-4	ESRI Ch. 2
Weeks 3-4		
PART II - Measuring Geographic Distributions		
Understanding data distributions	Brunson/Comber R Code Ch5	ESRI: Ch. 3
Geographic distribution and measurement	Brunson/Comber R Code Ch6	ESRI: Ch. 3
Weeks 5-7		
PART III – Point Pattern Analysis		
Identifying patterns	Brunson/Comber R Code Ch7	ESRI: Ch.4
Using and choosing statistical methods	QGIS; ArcGIS lab	ESRI: Ch. 4
Weeks 8-11		
PART IV – Spatial Autocorrelation		
Identifying clusters	QGIS; ArcGIS lab	ESRI: Ch. 5
Surface modeling	QGIS; ArcGIS lab	PDF Readings
Weeks 12-15		
PART V – Surface Modeling		

6/7. Assignments, evaluation and grading scale

30% 2 examinations (midterm and final 15% each – do not ask me if it is cumulative– life is cumulative); These exams will be essay. If the course is delivered online, the exams will be accessed through D2L and will be timed – 4hr open window from the time started.

40% Assignments (You will have weekly laboratories as well as other assignments with write-ups);

10% Leading & contributing to discussions of assigned readings;

20% Environmental modeling research project.

Grading Scale: 90-100%=A, 80-89%=B, 70-79%=C, 65-69%=D, <65%= F

8. CORRELATION OF LEARNING OBJECTIVES TO ASSIGNMENTS AND EVALUATION

****Laboratory datasets and assignments will be adjusted based on student focuses and interests**

CORRELATION OF LEARNING OBJECTIVES TO ASSIGNMENTS AND EVALUATION

	Exams	Assignments	Environmental Modeling Research Project	Leading & contributing to discussions of assigned readings
Demonstrate proficiency in advanced spatial analysis techniques.	X	X	X	
Analyze data and document results in the form of a scientific paper and/or government/industry report		X	X	X
Demonstrate how to make data-driven decisions using current literature in order to design experimental approaches in a variety of software platforms to an identified endpoint.	X	X	X	X

Engage in professional oral communication and interaction.		X	X	X

Date approved by the Department of Biological Sciences: October 19. 2015
Date approved by the college curriculum committee: November 13, 2015
Date approved by the Honors Council *(if this is an honors course):*
Date approved by CAA: CGS: