CGS Agenda Item: 13-01
Effective: Fall 2013

Eastern Illinois University

NEW COURSE PROPOSAL

(Approved by CAA on 9/29/11 and CGS on 10/18/11, Effective Fall 2011)

This format is to be used for all courses submitted to the Council on Academic Affairs and/or the Council on Graduate Studies.

Please check one: **_X_** New course **___** Revised course

PART I: CATALOG DESCRIPTION

1. **Course prefix and number, *such as ART 1000*:** GIS 5970 A-D
2. **Title (*may not exceed 30 characters, including spaces*):** Special Topics in GIS
3. **Long title, if any (*may not exceed 100 characters, including spaces*):** Special Topics in Geographic Information Sciences
4. **Class hours per week, lab hours per week, and credit [*e.g., (3-0-3)*]:**
5. **Term(s) to be offered:** **_X_** Fall **_X_** Spring **_X_** Summer **___** On demand
6. **Initial term of offering:** **___** Fall **___** Spring **_X_** Summer **Year:** __2013____

Course description: Specific areas within the cohort disciplines will be given intensive study through lectures, readings, reports, papers, and discussion. Topics will be announced in advance by the MS in GIS co-directors.

7. **Registration restrictions:**
   a. **Equivalent Courses**
      - **Identify any equivalent courses** (e.g., cross-listed course, non-honors version of an honors course). Many departments offer graduate level special topics courses. However, this course is designed exclusively for MS in GIS students.
        .
      - Indicate whether coding should be added to Banner to restrict students from registering for the equivalent course(s) of this course. **___** Yes **_X_** No

   b. **Prerequisite(s)**
      - **Identify the prerequisite(s),** including required test scores, courses, grades in courses, and technical skills. Indicate whether any prerequisite course(s) MAY be taken concurrently with the proposed/revised course. **Admission into the Master of Science in GIS program.**

      - Indicate whether coding should be added to Banner to prevent students from registering for this course if they haven't successfully completed the prerequisite course(s). **_X_** Yes **___** No

        If yes, identify the minimum grade requirement and any equivalent courses for each prerequisite course:

   c. **Who can waive the prerequisite(s)?**
      ___ No one **___** Chair **___** Instructor **___** Advisor **_X_** Other (Please specify)
      Co-Directors of the MS in GIS Program

   d. **Co-requisites** (course(s) which MUST be taken concurrently with this one): **None**

   e. **Repeat status:** **___** Course may not be repeated.

_X_ Course may be repeated once with credit.

Please also specify the limit (if any) on hours which may be applied to a major or minor.

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

f. Degree, college, major(s), level, or class to which registration in the course is restricted, if any: **Master of Science in GIS program**

g. Degree, college, major(s), level, or class to be excluded from the course, if any:

8. Special course attributes [cultural diversity, general education (indicate component), honors, remedial, writing centered or writing intensive] **N/A**

9. Grading methods (check all that apply): _X_ Standard letter ___ CR/NC ___ Audit ___ ABC/NC ("Standard letter"—i.e., ABCDF--is assumed to be the default grading method unless the course description indicates otherwise.)

Please check any special grading provision that applies to this course:

___ The grade for this course will not count in a student's grade point average.

___ The credit for this course will not count in hours towards graduation.

If the student already has credit for or is registered in an equivalent or mutually exclusive course, check any that apply:

___ The grade for this course will be removed from the student's grade point average if he/she already has credit for or is registered in _____ (insert course prefix and number).

___ Credit hours for this course will be removed from a student's hours towards graduation if he/she already has credit for or is registered in _____ (insert course prefix and number).

10. Instructional delivery method: (Check all that apply.)

_X_ lecture _X_ lab ___ lecture/lab combined ___ independent study/research

___ internship ___ performance ___ practicum or clinical ___ study abroad

_X_ Internet _X_ hybrid ___ other (Please specify)

PART II: ASSURANCE OF STUDENT LEARNING

1. List the student learning objectives of this course:
Within a specialized topic related to the MS in GIS 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.

a. **If this is a general education course, indicate which objectives are designed to help students achieve one or more of the following goals of general education and university-wide assessment:**
   - **EIU graduates will write and speak effectively.**
   - **EIU graduates will think critically.**
   - **EIU graduates will function as responsible citizens.**

b. **If this is a graduate-level course, indicate which objectives are designed to help students achieve established goals for learning at the graduate level:**
   - **Depth of content knowledge**
   - **Effective critical thinking and problem solving**
   - **Effective oral and written communication**
   - **Advanced scholarship through research or creative activity**

   Here's an example from GIS Modeling:

   1. Describe alternative data models used to represent geographical space, including raster, vector, topological, cost-distance and network models. (depth of content knowledge)
   2. Distinguish between alternative process modeling paradigms such as cellular automata and agent-based modeling. (depth of content knowledge)
   3. Determine when different data models and process modeling paradigms are appropriate (effective critical thinking and problem solving)
   4. Model the structure(s) or process(es) of a real-world landscape and report findings (effective oral & written communication, advanced scholarship through research or creative activity)

2. **Identify the assignments/activities the instructor will use to determine how well students attained the learning objectives:**
   Evaluation of the course will be determined by individual instructors. However, a graduate level term project will be expected.

3. **Explain how the instructor will determine students' grades for the course:**
   The determination of grades will vary by instructor and topic. Here is an example from GIS Modeling: Grading will consist of the following: Two Exams 40%, ten discussions 20%, and Individual Research Project 40%.

4. **For technology-delivered and other nontraditional-delivered courses/sections, address the following:**
   a. **Describe how the format/technology will be used to support and assess students' achievement of the specified learning objectives:**
      Student assessment will be based on weekly discussion board assignments, tests, and term projects as applicable.

   b. **Describe how the integrity of student work will be assured:**
      Quizzes/exams are timed and once started, must be finished immediately. Discussion board assignments and the text from term projects will be submitted through Turnitin.com to ensure integrity of the coursework.

   c. **Describe provisions for and requirements of instructor-student and student-student interaction, including the kinds of technologies that will be used to support the interaction (e.g., e-mail, web-based discussions, computer conferences, etc.):**

Learning Modules, as applicable, will be posted each week. There may be graded weekly discussion boards which provide instructor-student as well as student-student interaction. Weekly hour long live chat sessions using Elluminate or similar synchronous chat software may be utilized to discuss assignments and other course material. Course management software email as well as Panthermail will be available for communications between students and instructor.

5. **For courses numbered 4750-4999, specify additional or more stringent requirements for students enrolling for graduate credit. These include:**
   a. **course objectives;**
   b. **projects that require application and analysis of the course content; and**
   c. **separate methods of evaluation for undergraduate and graduate students.**

6. **If applicable, indicate whether this course is writing-active, writing-intensive, or writing-centered, and describe how the course satisfies the criteria for the type of writing course identified. (See Appendix *.)** N/A

PART III: OUTLINE OF THE COURSE

Provide a week-by-week outline of the course's content. Specify units of time (e.g., for a 3-0-3 course, 45 fifty-minute class periods over 15 weeks) for each major topic in the outline. Provide clear and sufficient details about content and procedures so that possible questions of overlap with other courses can be addressed. For technology-delivered or other nontraditional-delivered courses/sections, explain how the course content "units" are sufficiently equivalent to the traditional on-campus semester hour units of time described above.

Here is an example from GIS Modeling**:**

UNIT	WEEK & THEME	SELECTED TOPICS
Foundations	Week 1: Introduction to Spatial Modeling	Examples of applications from physical & human geography; data & software overview
	Week 2: Model types and building blocks	Data models vs. process models; geometry primitives; distance metrics; topology
	Week 3: Modeling scenarios & frameworks	Problem identification & the PPDAC model; hypothesis testing; Monte Carlo simulation
Representational Models	Week 4: Surface Representation & Terrain Modeling (I)	Grids & digitial elevation models; contours Triangular Irregular Networks (TINs); Warntz Networks
	Week 5: Surface Representation & Terrain Modeling (II)	Surface geometry metrics; visibility analysis; drainage & watershed analysis
	Week 6: Surface Representation & Terrain Modeling (III)	Cost distance functions, accumulated cost surfaces, least cost paths
	Week 7: Network Modeling (I)	Network representation & graph theory; network construction; network distances and shape metrics; linear referencing
	Week 8: Network Modeling (II)	Optimal routing, facility location, traveling salesman problems
	Week 9: Network Modeling (III)	Flow & migration; building setbacks and other

		within-polygon distance problems; medial axis transform & river flow modeling
Process Models	Week 10: Spatial Process Models (I)	Descriptive vs. predictive modeling; model validation & sensitivity analysis; linking, coupling and embedding
	Week 11: Spatial Process Models (II)	Cellular automata
	Week 12: Spatial Process Models (III)	Transportation modeling
	Week 13: Spatial Process Models (IV)	Agent-based models
Wrap-up & Project Guidance	Week 14: Outstanding problems in geographical modeling	Modifiable areal unit problem; scale effects; uncertainty & gradation; ontology
	Week 15: Project Presentations	Project Presentations

PART IV: PURPOSE AND NEED

1. **Explain the department's rationale for developing and proposing the course.**
   There is a need to provide students in the MS in GIS program with knowledge and experiences relating to new and emerging concepts and theories in the cohort disciplines.

   a. **If this is a general education course, you also must indicate the segment of the general education program into which it will be placed, and describe how the course meets the requirements of that segment.**
   b. **If the course or some sections of the course may be technology delivered, explain why.**
   The course will be offered for MS in GIS students only.

2. **Justify the level of the course and any course prerequisites, co-requisites, or registration restrictions.**
   The level of this course is justified because all participants of this course will hold baccalaureate degrees. Many students in the program may be seeking additional education in specific areas or enhance their knowledge related to appropriate topics.

3. **If the course is similar to an existing course or courses, justify its development and offering.**

   a. **If the contents substantially duplicate those of an existing course, the new proposal should be discussed with the appropriate chairpersons, deans, or curriculum committees and their responses noted in the proposal.**
   b. **Cite course(s) to be deleted if the new course is approved. If no deletions are planned, note the exceptional need to be met or the curricular gap to be filled.**
   This course offers the opportunity to present knowledge not found in other courses, so there will be no similarity to existing courses. The MS in GIS is a new and emerging program, so no deletion of existing courses is planned.

4. **Impact on Program(s):**

   a. **For undergraduate programs, specify whether this course will be required for a major or minor or used as an approved elective.**
   b. **For graduate programs, specify whether this course will be a core requirement for all candidates in a degree or certificate program or an approved elective.**

This course is not a requirement, but could serve as an elective in the MS in GIS program. Given the topic of the course, students will work with advisors to determine the appropriate concentration application.

If the proposed course changes a major, minor, or certificate program in or outside of the department, you must submit a separate proposal requesting that change along with the course proposal. Provide a copy of the existing program in the current catalog with the requested changes noted.

PART V: IMPLEMENTATION

1. **Faculty member(s) to whom the course may be assigned:** Member of the Graduate Faculty affiliated with the Master of Science in GIS program.

   If this is a graduate course and the department does not currently offer a graduate program, it must document that it employs faculty qualified to teach graduate courses.

2. **Additional costs to students:** No major extra costs to students unless a special project is involved. Any costs will be explained to students prior to enrollment in the course.

   Include those for supplemental packets, hardware/software, or any other additional instructional, technical, or technological requirements. (Course fees must be approved by the President's Council.)

3. **Text and supplementary materials to be used (Include publication dates):** Textbooks to be selected based on the chosen topic.

PART VI: COMMUNITY COLLEGE TRANSFER

If the proposed course is a 1000- or 2000-level course, state either, "A community college course may be judged equivalent to this course" OR "A community college course will not be judged equivalent to this course." A community college course will not be judged equivalent to a 3000- or 4000-level course but may be accepted as a substitute; however, upper-division credit will not be awarded.

PART VII: APPROVALS

Date approved by the department or school: January 10, 2013

Date approved by the college curriculum committee: January 18, 2013

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

Date approved by CAA: CGS:

*In **writing-active courses**, frequent, brief writing activities and assignments are required. Such activities -- some of which are to be graded – might include five-minute in-class writing assignments, journal keeping, lab reports, essay examinations, short papers, longer papers, or a variety of other writing-to-learn activities of the instructor's invention. Writing assignments and activities in writing-active courses are designed primarily to assist students in mastering course content, secondarily to strengthen students' writing skills. In **writing-intensive courses**, several writing assignments and writing activities are required. These assignments and activities, which are to be spread over the course of the semester, serve the dual purpose of strengthening writing skills and deepening understanding of course content. At least one writing assignment is to be revised by the student after it has been read and commented on by the instructor. In

writing-intensive courses, students' writing should constitute no less than 35% of the final course grade. In **writing-centered courses** (English 1001G, English 1002G, and their honors equivalents), students learn the principles and the process of writing in all of its stages, from inception to completion. The quality of students' writing is the principal determinant of the course grade. The minimum writing requirement is 20 pages (5,000 words).

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