# Syllabus

# EES 216 – GIS Practicum
**Advanced Certificate in GIS**
**Earth and Environmental Sciences**
**College of Science and Mathematics**
**Spring 2012 – 3 Units**

**Instructor**: Kathleen Moffitt

**Office Hours:** TBA – office hours will be held through discussion board, chat and Elluminate *Live!* Face-to-face office hours by appointment.

**Phone:** 559-278-2482

**Blackboard**: To access the course on login to Blackboard at (http://blackboard.csufresno.edu) using your Fresno State username and password.

**For help** with Blackboard, contact Technology Innovations for Learning and Teaching (TILT) at 278-7373 or send an email to dcfeedback@csufresno.edu

**Office**: Peters Bldg, Dean's Office PB 282

**E-Mail**: kathym@csufresno.edu

See "Response Times and Location of Information" for information on response times

**Course delivery:** is primarily asynchronous. There will be one face-2-face meeting near the end of the semester to present projects. Those who cannot attend in person will be required to attend through Elluminate *Live*!

**Location** of single face-2-face meeting location TBA

**Subject to Change:** This syllabus and schedule are subject to change. Adequate notice will be given to students. It is your responsibility to check Blackboard announcements to obtain this information.

## Catalog Description:
**EES 216. GIS Practicum (3)**
**Prerequisites: EES 211, EES 212; EES 214 co-requisite**. Culminating experience for Advanced Certificate in GIS designed to demonstrate advanced working knowledge of GIS. Proposal; data privacy and management; GIS project; documentation; write-up; and presentation. Primarily asynchronous online.

## Required Textbooks and Materials:
No new textbooks, software, supplies or equipment, beyond those required of the initial three-course sequence in the Advanced Certificate in GIS curriculum, are required. It is required that you have all earlier course textbooks and materials in your possession for use as reference material during this course.

- Operating system: Windows 2000 professional or higher
- CPU Speed: 1.6 GHz or higher
- Memory (RAM): 1 GB
- Free Disk Space: 5 GB
- Broadband Internet access
- ArcGIS Desktop software, including the Spatial Analyst, 3D Analyst, Network Analyst, and Geostatistical Analyst extensions, will be provided at no cost to students.

## Course Expectations:

- Students are expected to develop a thoughtful, creative question that engages them in a challenging project.  A proposal documenting the proposed project is to be written.
- Students are expected to obtain information gathered from a variety of quality sources.  Data is to be obtained and used in a legal and ethical manner.  The manner of use shall protect the privacy of individuals whose personal and/or other confidential data is obtained for or used in the project.
- Students are expected to apply, and appropriately document, the methods and techniques learned in their prior courses and utilized in the project.
- Students are expected to write a well written, concise and appropriately referenced paper describing the project's subject, analytical methods and outcome. This paper shall be essentially error free in terms of mechanics. The paper shall convey conclusions and demonstrate clear and appropriate connections among project identification, evidence, analyses and conclusions.

## Student Learning Outcomes:

- Students will be able to identify and then appraise, evaluate and defend the application of GIS technology to the solution of problems and realization of opportunities in an organization.
- Students will be able to select, evaluate, integrate, and creatively apply the methods and techniques, learned in earlier courses, to real-world problems and opportunities
- Students will be able to create accurate budgets for the project, including the time and effort involved in finding, obtaining, cleaning and protecting data; designing a defendable solution; and documenting the conduct and results of the project
- Students will be able to develop and maintain managerial buy-in and support for implementing their GIS project and will provide a means of sharing project progress, outcomes and benefits with stakeholders.

## Major Assignments:

There are no examinations.  Assessment will be based upon the project proposal, your evaluation of the work(s) of your teammate(s), quality (emphasis) and quantity of

discussions, and the final project and its presentation. There is no make-up work. All work is expected to be completed on time and to a high level of quality.

**Submission of assignments:** all assignments will be submitted through Blackboard using the upload feature associated with the Assignment Description. Assignments are to be named according to the instructions given with the assignment at Blackboard.

**Discussion Board:** the primary Discussion Board assignment will be on the topic of privacy and how this relates to GIS in general and your project in particular. Students will be expected to share the privacy policies of their place of work (or for those who do not work, a search of appropriate privacy policies found with a Web search) and the discussion will flow from this. The outcome of this discussion will be a Project Privacy Policy that will be applied to all projects developed for this course. The final Privacy Policy will be developed within the Wiki feature of Blackboard.

**Proposal:** Identify a problem that can be solved or an opportunity that can be realized through the application of GIS technology at your place of business. **The topic must be original and not currently in use or development at your place of business or elsewhere.** If you are not employed, please see instructor for project ideas. Develop a proposal (maximum 7 pages 1.5 or double spaced, 12 point font, 1" margins**)** that will be, in its instructor approved form,  given to appropriate management at your place of business. **Note:**  it needs to be written as a proposal. The proposal should:

1) Include a cover sheet with the following statement: "The ideas contained in this report are my own, are original and are not taken from an existing or planned implementation of GIS" followed by your signature and typed name (submission will be accepted as your signature).  Please take this very seriously.

2) Describe the problem/opportunity,

3) Discuss why GIS is a viable and preferred means of addressing the problem/opportunity,

4) Discuss the types of data that will be needed, including what is available inside your organization and what will need to be obtained from outside sources,

5) Address how private and/or confidential data will be handled in order to maintain privacy and meet legal, regulatory and policy requirements.

6) Discuss the broad analytical approach that will be taken.

7) Finally, discuss the value of the geographic analysis to the organization including any competitive advantage that might accrue.

**Note:** The proposal will be approved by the instructor and then will be presented to the appropriate manager at your place of business for their approval.  An approval sheet will be provided.

**GIS Project:** This will be the project that is implemented to address the approved proposal.  The project shall be done using ESRI software.  Students are expected to obtain information gathered from a variety of quality sources.  Data is to be obtained

and used in a legal and ethical manner.  The manner of use shall protect the privacy of individuals whose personal and/or other confidential data is obtained for or used in the project.  All project work shall be saved using the relative path map property method and in a well-controlled and consistent manner where the folder structure is established for easy zipping and transfer of the entire project (map document, surfaces, data, etc.) for evaluation on a different computer.  Data used in or created for the project shall have metadata present or entered for it.  Project outcome shall be presented as a map(s) created using the Layout feature of ArcGIS.

**Documentation**: Data acquired for and/or created for the project shall be documented as per source, metadata and techniques used to create the data.  File naming standards and storage location structure shall be documented. The methods employed to protect private and/or confidential data in order to maintain privacy and meet legal, regulatory and policy requirements shall be documented.

**Project Write-Up:** Students are expected to write a well written, concise and appropriately referenced paper describing the project's subject, analytical methods and outcome. This paper shall be essentially error free in terms of mechanics.  The paper shall convey conclusions and demonstrate clear and appropriate connections among project identification, evidence, analyses and conclusions.  Maximum 7 pages, 1.5 or double spaced, 12 point font, 1 inch margins.  The title page is to include your project title, your name, company sponsor information and the following *statement "I have done my own work and have neither given nor received unauthorized assistance on this work."*  This statement on the submitted paper is construed to act as your signature.

## Participation Standards:

Students will be placed into small groups that will have specific duties assigned during the semester.  Students will self-select into these groups.  Group size will be determined by the instructor on the basis of the overall class size.  Students within a group are expected to review and comment on the work of each other and otherwise help each other during the progress of the class.  A specific rotation of review duties/assignments will be made once the group size and membership is established.

Discussion Board/Wiki participation will be assessed on the basis of quality (major emphasis) and quantity of contributions.

Technical Support and consultation: The "Buddy System" will be used in this class. Students, especially those in your group, are expected to help each other with technical and conceptual problems.  The instructor is also available but students are expected to make a serious effort in both giving and obtaining help to/from each other. There will be a discussion board set up for just this but use of Elluminate *Live!* may be needed in order to solve some problems. In addition, Dr. Xiaoming Yang and Dr. Luke Wang will be available technical assistance during the project in cases where a resolution **cannot** be arrived at within the regular course structure.  Please contact Dr. Moffitt prior to requesting help from Drs. Wang or Yang.

## Grading: Basis of Grade

| Assignment | Points |
|---|---|
| Proposal | 125 |
| Project - GIS | 275 |
| Project - Write-up and Documentation | 200 |
| Discussion Board/Wiki – primarily Privacy Policy | 100 |
| Group review | 100 |
| Presentation | 100 |
| **Total** | **900** |

| Letter Grade | Points |
|---|---|
| A | >= 810 |
| B | >= 720 and < 810 |
| C | >= 630 and < 720 |
| D | >= 540 and < 630 |
| F | < 540 |

# Practicum in GIS Project Rubrics

|  | PROJECT IDENTIFICATION: | INFORMATION EVALUATION: | PROJECT TRANSLATION: | INFORMATION INCORPORATION: | PROJECT ANALYSIS: | PROJECT INTERPRETATION: |
|---|---|---|---|---|---|---|
|  | **Appropriately determines the nature and scope of the project to be addressed** | **Critically evaluates information and sources** | **Selects appropriate technology and effectively translates the project into a suitable model** | **Effectively incorporates selected information** | **Executes the application of technology effectively and correctly to analyze the problem** | **Critically and competently evaluates and interprets the results obtained** |
| **4** | Students develop focused requirements of the project, identifying all major concepts and related terms critical to describing the information needed. | Students assess the range of information both needed and available, and access the most relevant and appropriate information from a variety of quality sources | Students develop an appropriate model that captures the essence of the project to be addressed in a manner that can be analyzed with technology purposively selected for use. | Students integrate accurate, relevant, and comprehensive information from a variety of sources | Students efficiently and correctly conduct the application. | - Students effectively convey their conclusions and demonstrate clear and appropriate connections between their project identification, their evidence, their analyses and conclusions.<br>- Students' perspectives are evident in their conclusions, recommendations and implications. |
| **3** | Students pose focused requirements of the project, identifying key concepts and related terms that describe the information needed. | Students analyze information from a variety of sources to determine its applicability to the project identified. | Students design the application of technology to achieve the project goals, identify most key components of the project, and appropriately analyze relationships between them. | Students organize information from a variety of sources to determine applicability to the project identified. | Students execute the application to recognize planned solutions, but may make minor errors in the application of technology. | - Students effectively communicate their results but the work lacks fully articulated connections between the stated problem, their evidence, their analyses and conclusions.<br>- Recommendations and implications are impartially developed and/or incompletely connected to the conclusions of the project. |
| **2** | Students construct requirements of a project that lend themselves to readily available answers. | Students recognize information that is applicable to the project identified. | Students identify limited or inappropriate use of the technology, enumerate some key components of the project but misrepresent relationships between the components identified. | Students accrue information that meets a particular information and project need. | Students employ technology to achieve some of the key project goals but make some errors in the application of technology. | - Students need to work on communicating their results more effectively.<br>- The work lacks appropriate transitions between the body of the project and the conclusions. |
| **1** | Students develop requirements of the project that require little creative thought or rely primarily on instructor-generated questions and details. | Students use information that is insufficient, inaccurate, or misleading to mount a solution to the project identified. | Students plan inappropriate uses of technology and fail to identify essential key components of the project. | Students present insufficient information in a variety of different formats that do not facilitate use of technology. | Students fail to execute the application of technology or are dependent on instructor assistance to apply technology. | - The project does not present appropriate or adequate bases for conclusions of the work. |

# Course Policies:

## Confidentiality:
In this class, we will discuss matters relating to students' business situations and employers. Every student has an obligation to keep such information confidential, within the confines of this course, and not disclose it outside this course. Thus, by remaining in the class, each student has agreed to keep such information confidential, unless the person who posted/provided the information consents <u>in writing</u> to disclosure of the information.  The Privacy Policy developed for the course will be applied to all project work.

## Email Policy and Blackboard Posting Policy:
- The instructor will answer only email that is of a personal nature and that should not or cannot be shared with the remainder of the class.  Examples might be, setting up an appointment, emailing that you cannot get into Blackboard, etc.
- Before sending me an email, please ask yourself if anyone else in the class could use the requested information.  If the answer is "yes", please post it to Blackboard. This will provide an opportunity for students to answer each other's questions and for the instructor's answers to be of benefit to other students.
- The instructor will be subscribed to the Blackboard discussion forums.  It is suggested that you also subscribe.
- Students are encouraged to respond to each other's postings.
- Formatting emails:
    - All emails must include your first and last name.
    - All email is to start with "EES 216" in the subject line or it will not be read. This is a requirement to help manage information overload.
    - You must set your email account preferences to list your actual name in the sender field (rather than a cute nickname).
- **DO NOT** email homework to the instructor – the only acceptable means of electronic submission is through the Blackboard assignment feature.

## Response Times and Location of Information:
Instructor will respond to email and Discussion Board postings at least four days a week.  Information for the entire class will be posted in Blackboard announcements. Students are expected to check announcements and the discussion board at least four days per week.

# University Policies:

## Students with Disabilities:
Upon identifying themselves to the instructor and the university, students with disabilities will receive reasonable accommodation for learning and evaluation. For more information, contact Services to Students with Disabilities in the Henry Madden Library, Room 1202 (278-2811).

## Honor Code:
"Members of the CSU Fresno academic community adhere to principles of academic integrity and mutual respect while engaged in university work and related activities." You should:
   a) understand or seek clarification about expectations for academic integrity in this course (including no cheating, plagiarism and inappropriate collaboration)
   b) neither give nor receive unauthorized aid on examinations or other course work that is used by the instructor as the basis of grading.
   c) take responsibility to monitor academic dishonesty in any form and to report it to the instructor or other appropriate official for action.
Instructors may require students to sign a statement at the end of all exams and assignments that "I have done my own work and have neither given nor received unauthorized assistance on this work." If you are going to use this statement, include it here.

## Cheating and Plagiarism:
"Cheating is the actual or attempted practice of fraudulent or deceptive acts for the purpose of improving one's grade or obtaining course credit; such acts also include assisting another student to do so. Typically, such acts occur in relation to examinations. However, it is the intent of this definition that the term 'cheating' not be limited to examination situations only, but that it include any and all actions by a student that are intended to gain an unearned academic advantage by fraudulent or deceptive means. Plagiarism is a specific form of cheating which consists of the misuse of the published and/or unpublished works of others by misrepresenting the material (i.e., their intellectual property) so used as one's own work." Penalties for cheating and plagiarism range from a 0 or F on a particular assignment, through an F for the course, to expulsion from the university. For more information on the University's policy regarding cheating and plagiarism, refer to the Class Schedule (Legal Notices on Cheating and Plagiarism) or the University Catalog (Policies and Regulations).

## Computers:
"At California State University, Fresno, computers and communications links to remote resources are recognized as being integral to the education and research experience. Every student is required to have his/her own computer or have other personal access to a workstation (including a modem and a printer) with all the recommended software. The minimum and recommended standards for the workstations and software, which may vary by academic major, are updated periodically and are available from Information Technology Services (http://www.csufresno.edu/ITS/) or the University Bookstore. In the curriculum and class assignments, students are presumed to have 24-hour access to a computer workstation and the necessary communication links to the University's information resources."

## Disruptive Classroom Behavior:
"The classroom is a special environment in which students and faculty come together to promote learning and growth. It is essential to this learning environment that respect for the rights of others seeking to learn, respect for the professionalism of the instructor, and the general goals of academic freedom are maintained. ... Differences of viewpoint or concerns

should be expressed in terms which are supportive of the learning process, creating an environment in which students and faculty may learn to reason with clarity and compassion, to share of themselves without losing their identities, and to develop and understanding of the community in which they live. Student conduct which disrupts the learning process shall not be tolerated and may lead to disciplinary action and/or removal from class."

## Copyright policy:

Copyright laws and fair use policies protect the rights of those who have produced the material. The copy in this course has been provided for private study, scholarship, or research.  Other uses may require permission from the copyright holder.  The user of this work is responsible for adhering to copyright law of the U.S. (Title 17, U.S. Code).  To help you familiarize yourself with copyright and fair use policies, the University encourages you to visit its Copyright Web Page (http://csufresno.edu/library/information/copyright/).

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## Tentative Course Schedule

| Week | Date | Topic | Due |
|------|------|-------|-----|
| Week 1 | Date ?? | First Day of Instruction; Discuss project proposal | |
| Week 2 | Date ?? | Privacy Policy Discussion; Discuss proposal and project | |
| Week 3 | Date ?? | Privacy Policy Discussion (cont); discuss proposal and project | Proposal to group for evaluation |
| Week 4 | Date ?? | Develop Privacy Policy for Course | Proposal back to author for rework |
| Week 5 | Date ?? | | Proposal to instructor for approval |
| Week 6 | Date ?? | Begin project – discussion and help | Employer approved proposal |
| Week 7 | Date ?? | Discuss what constitutes good documentation | |
| Week 8 | Date ?? | Asynchronous discussion of project issues; discussion of project write up | |
| Week 9 | Date ?? | Asynchronous discussion of project issues | |
| Week 10 | Date ?? | Asynchronous discussion of project issues and preparation for project presentation; practice run on Elluminate *Live!* | |
| Week 11 | Date ?? | Project Presentations in face-2-face setting or through Elluminate *Live!* | |
| Week 12 | Date ?? | Help finalizing all project deliverables | Final Project Package due |