Draft of Preliminary Syllabus

Applying Geospatial Analysis- Project Based Learning

Listed as:	*Recommended as a 400 level undergraduate course*
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Class Description

This newly offered class is designed for students interested in applying geospatial technologies, such as Geographical Information Systems (GIS), remote sensing, and Global Positioning Systems (GPS) to research in the social sciences. The class will be held in a computer laboratory setting in which students will be able to focus on learning geospatial concepts, techniques, and analysis by conducting research projects. Short lectures will be given to cover basic concepts and to provide more in-depth information on student-related research issues. In addition, seminar-like discussions to critically evaluate articles, geospatial methods, etc. will be conducted in class. Students will be required to obtain data for use in their projects. These data are available from a variety of sources including field data, internet, state agencies, museums, etc. Students who already have data are encouraged to use these data. Students will be using ArcGIS 9.0 and other relevant spatial analytical software packages.

Grading

Grading for this course will be based on class participation, your project, and a presentation/poster of your final project.

Participation	25%
Project	50%
Presentation/Poster	25%

Project

The objectives of project-based learning are several:

(1) familiarize students with spatial concepts, methods, and analysis
(2) formulate and evaluate research questions relating to geospatial approaches
(3) learn geospatial techniques
(4) learn data management, data conversion, and data analysis
(5) apply geospatial concepts and techniques to real-world applications

Students will undertake a project comprised of a specific research questions(s) to be analyzed within a particular theoretical framework. In addition, students will provide a description of the data and geospatial methods used in the research, along with their final results. Including figures, diagrams, maps, etc. will serve to enrich your proposal or project. The goal is to provide sufficient information on each of the sections listed below.

Project Outline

I. Introduction
- a. Introduce research question(s)

II. Background
- a. Culture History, i.e. description of cultural group(s)
- b. Description of Environment
- c. Any other relevant background information

III. Theoretical Considerations
- a. Archaeological Theory
- b. Spatial Theory

IV. Data Collection
- a. Data collection techniques
- b. Data types
- c. Data sources

V. Methods
- a. Geospatial Analysis required to answer research questions(s)
- b. Geospatial Methods required to undertake geospatial analysis
- a. Explanation of how data will answer research question(s)

VI. Analysis
- a. Application of geospatial techniques to answer research question(s)

VII. Conclusions
- a. Results of research

VIII. Significance
- a. Explain significance of research

WebCT

Additional resources and optional lab exercises will be made available on WebCT. These resources will provide students with additional information on geospatial concepts and methods that are more specifically tailored to individual student projects. You will be required to obtain a UNM login in order to access WebCT.

At the end of the course you will be required to turn in your project in a digital format.

*Students will be required to purchase 1 CD-R and 1 CD-RW to download data and save lab assignments.

Geospatial Clinic

Weekly clinic hours will be held to assist students with technical and methodological issues, as they relate to student projects.

Reading

Required Text will be chosen from the following:

Required Readings need to be done before class. Optional Readings are for your information and can broaden your understanding of a specific topic and give you ideas for your proposal. Readings other than the required textbook will be made available online via *ereserves*. Many of these readings will be required, indicated by *(req.)* and a weekly listing of additional required readings will be made available on WebCT. We will also accumulate a list of readings based on class research throughout the semester. Students are encouraged to share their work and findings on WebCT. Any resources and/or data uploaded onto WebCT by students will be considered as Participation.

Scheduled Hours

Our class will meet once a week for three hour.

Attendance is mandatory. This class is student-oriented and student discussion is strongly encouraged. Attendance to class is essential to obtaining the varied objectives of this course and obtaining hands-on experience.

Attendance to the geospatial clinic is strongly encouraged.

If guest lectures or field trips are scheduled during regular class hours, you are required to attend.

Guest Lectures

Guest lectures that are scheduled during regular class hours require attendance.

Speakers:

Each student is expected to maintain the highest standards of honesty and integrity in academic and professional matters. The University reserves the right to take disciplinary action, up to and including dismissal, against any student who is found guilty of academic dishonesty or otherwise fails to meet the standards. Any student judged to have engaged in academic dishonesty in course work may receive a reduced or failing grade for the work in question and/or for the course. Academic dishonesty includes, but is not limited to, dishonesty in quizzes, tests, or assignments; claiming credit for work not done or done by others; hindering the academic work of other students; misrepresenting academic or professional qualifications within or without the University; and nondisclosure or misrepresentation in filling out applications or other University records.

Class Schedule:

Week 1 -	**Introduction to Spatial Concepts** Textbook Readings: Ereserve Readings:
Week 2 –	**Introduction to Spatial Technologies & Software** Textbook Readings: Ereserve Readings:
Week 3 -	**Research Design** Textbook Readings: Ereserve Readings: **DUE: Project 'Introduction'**
Week 4 -	**Spatial Data: Acquisition & Integration** Textbook Readings: Ereserve Readings:
Week 5 -	**Theoretical Considerations** Textbook Readings: Ereserve Readings: **DUE: Project 'Background'**
Week 6 –	**Spatial Analysis I** Textbook Readings: Ereserve Readings: **DUE: Project 'Theoretical Considerations'**
Week 7 –	**Spatial Analysis II** Textbook Readings: Ereserve Readings:
Week 8 –	**EDA & Visualization** Textbook Reading: Ereserve Readings: **DUE: Project 'Data Collection'**
Week 9 –	Fall Break

Topics scheduled for the next 5 weeks will be based on student projects and student interests. Some potential topics include:

Location-Allocation Models
Prediction Models
Network Analysis
Visibility Analysis
Accessibility Analysis

Week 10 -
Textbook Readings:
Ereserve Readings:
DUE: Project 'Methods'

Week 11 –
Textbook Readings:
Ereserve Readings:

Week 12–
Textbook Readings:
Ereserve Readings

Week 13 –
Textbook Readings:
Ereserve Readings
DUE: Project 'Analysis'

Week 14 –
Textbook Readings:
Ereserve Readings

Week 15 - **Student Presentations**
Textbook Readings:
Ereserve Readings

Week 16 – **Student Presentations**