

**Introduction to Geoinformatics: Department of Geology and Geophysics, University of Alaska Fairbanks
Instructor Anupma Prakash (Email: prakash@gi.alaska.edu)**

Class Schedule : GEOS 378 : Spring 2006 (Lecs: M/F 9.15 - 10.15 am at NSF-233; Labs: W 2.15 - 5.15pm at NSF 316)

Date	Day	Lecture/Lab No.	Topic	Comments
Jan-20-06	Friday	Lecture 1	Introduction to Geoinformatics	
Jan-23-06	Monday	Lecture 2	Earth system science and Geoinformatics	
Jan-25-06	Wednesday	Lab 1	Geospatial resources on the web	Start thinking about a project
Jan-27-06	Friday	Lecture 3	Data Types	
Jan-30-06	Monday	Lecture 4	Data Formats	
Feb-01-06	Wednesday	Lab 2	Introduction to Arc GIS	Communicate your project ideas (general)
Feb-03-06	Friday	Lecture 5	Aerial photography	
Feb-06-06	Monday	Lecture 6	Satellite remote sensing	
Feb-08-06	Wednesday	Lab 3	Spreadsheets	guest lecturer, Rudi Gens ASF
Feb-10-06	Friday	Lecture 7	Spreadsheets	Merged with Lab 3
Feb-13-06	Monday	Lecture 8	Digital data - raster	
Feb-15-06	Wednesday	Lab 4	Introduction to Erdas Imagine	In parallel search and download data
Feb-17-06	Friday	Lecture 9	Map projections	
Feb-20-06	Monday	Lecture 10	Introduction to projects + recap	
Feb-22-06	Wednesday	Lab 5	Start-on project work (complete previous labs)	Decide on a project (self / suggested)
Feb-24-06	Friday	Quiz	up to lecture 9 and lab 4	(Quiz - 15% total)
Feb-27-06	Monday	Lecture 11	GIS Concepts	
Mar-01-06	Wednesday	Lab 6	Arc GIS structured lab - part1	Supervision: Bill Witte
Mar-03-06	Friday	Lecture 12	GIS tools	guest lecturer, Rudi Gens ASF
Mar-06-06	Monday	Lecture 13	Data Preparation	
Mar-08-06	Wednesday	Lab 7	ArcGIS structure lab - part2	
Mar-10-06	Friday	Lecture 14	GIS Analysis	
Mar-13-06	Monday	Spring Recess		
Mar-15-06	Wednesday	Spring Recess		
Mar-17-06	Friday	Spring Recess		

Mar-20-06	Monday	Lecture 15	GIS Application	
Mar-22-06	Wednesday	Lab 8	3-D terrain visualization	
Mar-24-06	Friday	Lecture 16	GPS 1	
Mar-27-06	Monday	Lecture 17	GPS 2	
Mar-29-06	Wednesday	Lab 9	GPS Lab	Outdoor: please be prepared
Mar-31-06	Friday	Lecture 18	Meeting a GIS professional	Guest lecturer
Apr-03-06	Monday	Lecture 19	Projects and glitches	
Apr-05-06	Wednesday	Lab 10	GIS in industry + GPS practise	visit to a GIS user industry
Apr-07-06	Friday	Test	Revision and discussion	up to lecture 19 and lab 10 (20%)
Apr-10-06	Monday	Lecture 20	Cartography - Basics	
Apr-12-06	Wednesday	Lab 11	Project work	Supervision available
Apr-14-06	Friday	Lecture 21	Making good maps	
Apr-17-06	Monday	Lecture 22	3D visualization	
Apr-19-06	Wednesday	Lab 12	Immersive technology	Real examples at ARSC
Apr-21-06	Friday	Lecture 22	Compiling GIS report	
Apr-24-06	Monday	Lecture 23	Compiling final presentations	
Apr-26-06	Wednesday	Lab 13	Project work	Supervision available
Apr-28-06	Friday	No class	UAF Spring Recess	No class
May-01-06	Monday	Lecture 24	GIS at UAF	Guest lecture: GINA
May-03-06	Wednesday	Lab 14	Independent work	No supervision available
May-05-06	Friday	Lecture 25	Independent work	No class
May-10-06	Wednesday	Final Exams		40% of total marks
May-11-06	Thursday	Final Exams		involves report and presentation

25% marks are reserved for class participation and homework



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Final Project - Geos 378

This class entails in an independent 'final project' that each student carries out. A project allows you to work on a specific topic of your interest and apply all the knowledge that you gain during the course of the class.

I believe that the best way to learn is by trying to do something that is not 'tailor-made'. Going through the manual of a software package may help you to understand the structure of a particular software package and know where to find some tools, but stumbling into new challenges that come up as you experiment with new data sets, helps you think further, find creative ways to solve the problem and learn a lot more.

The project is an important part of the course. It constitutes 40 percent of the course mark (though it will take more than 40 percent of the time and effort that you put in the course). To ease the work towards the end of the semester, it is good if you start thinking and outlining your final project right in the beginning of the semester.

The requirements from the final project are

1. A five to eight page written report that would include the following
 - a. Title, name, course, department etc.
 - b. Abstract
 - c. Problem definition/Introduction (what is the problem or the issue that you intend to address and why you chose to do this)
 - d. Specific objectives (your objectives should be definite and achievable)
 - e. Brief description of study area and data used
 - f. Method (strategy for analysis)
 - g. Results and interpretation
 - h. Advantages/Limitations/Recommendations
 - i. References
2. The second requirement is presenting your work to your peers in a short 10 minute presentation. The presentation will basically incorporate the information that you have already compiled in your report.

The final project could be an extension of a research work that you are already carrying out or a topic that you've always found wanted to work on. It may or may not relate to geology or earth systems. Some examples are

1. making/updating a geological map of an area
2. vegetation distribution map of a part of Alaska
3. change detection map of an Arctic river
4. making/updating the UAF campus map
5. user interpretation of maps of Alaska displayed in different projections
6. GIS analysis of petty crime in Fairbanks
7. Seasonal distribution of fish and wildlife in Fairbanks and vicinity

Feel free to discuss your project ideas with me anytime!!

Grading criteria for GEOS 378 Final Project (40 points)

Criterion: The student was able to	Professional quality	Above average	Satisfactory	Needs much improvement	No evidence
<u>Problem definition</u> : define an appropriate problem/application where GIS can be put to use	2	1.5	1	0	0
<u>Data acquisition</u> : identify the data needed to address the problem and acquired relevant/available data (personal contacts, library, web, GPS)	4	3	2	1	0
<u>Method outline</u> : outline a feasible data processing and analysis strategy, given the available data	2	1.5	1	0.5	0
<u>Data processing</u> : carry out the processing successfully. If not, the student demonstrated where and why the proposed strategy did not work and adopted an alternate strategy	8	7	5	2	0
<u>Analysis and presentation of results</u> : analyze the results and present the results effectively with the help of appropriate maps (cartographically sound), tables, graphics, and or explanatory text	8	7	5	2	0
<u>Discussion</u> : discuss the advantages, limitation, future directions of the work and techniques. Specific to presentation: satisfactorily respond to the questions from peers and audience.	2	1.5	1	0.5	0
<u>Specific to presentation</u> : deliver a presentation that was well structured, well timed, conveyed important information and conformed to the guidelines provided.	4	3.5	2.5	1	0
<u>Specific to report</u> : prepare a final report that was professionally put together with respect to content, structure, layout, neatness, spelling, grammar, references, etc. (conformed to guidelines provided)	4	3.5	2.5	1	0
<u>Background reference</u> : demonstrate an effort to consult work of other researchers in defining and implementing the project	2	1.5	1	0.5	0
<u>Overall</u> : demonstrate a rigorous approach and systematic work. Presentation, report and digital backup were submitted in a timely manner	4	3.5	2.5	1	0
	40	33.5	23.5	9.5	0

Grading criteria for class participation / home work (25 points)

	Excellent	V. Good	Average	Poor	V. poor
Systematic/timely work on project	6	5	3	2	1
Attendance in lectures and labs	6	5	3	2	1
Revision of what has been taught	3	2.5	2	1	0
Participation in class discussions	4	3	2	1	0
Lab exercises / homework	6	5	3	2	1
	25	20.5	13	8	3

Grading criteria for quiz (15 points)

Closed book 15 questions; 1 point each

Grading criteria for Test 2 (20 points)

Note: GIS involves acquiring, integrating, analyzing, managing and visualizing geospatial data.

Criteria	
Identified key components and concepts of GIS	7
Clarity of thought. How effectively were the concepts conveyed	6
Exercise generated / strategy outline would engage and enthuse	4
Applications/advantages of GIS were explained/revealed	3
	20

Grading Index

85-100	= A
75-84	= B
65-74	= C
50-64	= D
Below 50	= Fail