

**Geography 2426 (section 253)
Fundamentals of GIS**

Spring 2010

Tuesdays & Thursdays 11:00 – 11:50AM, ELA 311

INSTRUCTOR INFORMATION

Dr. Niem Huynh

ELA 382

Phone: 512-245-1327

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Office hours: Tuesdays 12:00-1:30 PM, Wednesdays 2:00-3:30 PM, and by appointment

LAB INFORMATION

INDEX	SECTION	LAB ASSISTANT	DAY & PLACE	TIME
358528	1251	Neng Wan	MO & WE, ELA 123	9:00 AM – 10:50 AM
358529	1252	Neng Wan	MO & WE, ELA 123	12:30 PM – 2:20 PM
358530	1253	Bernie Fang	TU & TH, ELA 123	12:30 PM – 2:20 PM
358531	1254	Bernie Fang	TU & TH, ELA 123	3:30 PM – 5:20 PM
358532	1255	Matthew Connolly	MO & WE, ELA 123	3:30 PM – 5:20 PM

LAB ASSISTANTS

Name	E-mail	Phone	Office	Office Hours
Matthew Connolly	mc1464@txstate.edu	245.0327	ELA 395	Monday & Wednesday 2:00 PM-3:00 PM
Bernie Fang	tf1091@txstate.edu	245.1937	ELA 391	Tuesday & Thursday 2:30 PM - 3:30 PM
Neng Wan	nw1074@txstate.edu	245.0325	ELA 393	Monday & Wednesday 2:30 PM-3:30 PM

COURSE DESCRIPTION

This course is an introduction to Geographic Information Systems (GIS), a tool for integrating and analyzing spatial data to visualize relationships, seek explanations, and develop solutions to pressing geographic problems. The foundations and theory of GIS will be emphasized.

LEARNING OUTCOMES

Knowledge Outcomes

Students will demonstrate knowledge about the history of GIS; types and structures of spatial data; data quality and data errors; acquisition of data; interpretation, and analysis of data; real-world applications of GIS, GIS modeling, and data visualization.

Students will develop critical thinking skills through weekly readings and associated homework. Through class discussions and hands-on exercises, there are opportunities to apply GIS theory to problem-based scenarios.

Skills Outcomes

In lab, students will perform a variety of problem-solving tasks to demonstrate concepts covered in the lecture. Most skills outcomes are closely related to the laboratory experience and exercises. Other key skills practiced in lecture and/or lab are as follows: connecting hands-on GIS work to GIS theory, written communication, interpersonal communication, oral presentation, teamwork, and planning and organization of data.

The Department of Geography's Student Learning Outcomes for all departmental programs may be viewed at: <http://uweb.txstate.edu/~mc12/LOSIndex.htm>

MATERIALS

Required Text

Lecture: Bolstad, P. V. (2008). GIS Fundamentals: A First Text on Geographic Information Systems, Third Edition, Eider Press, White Bear Lake, Minnesota. ISBN 0971764729.

Lab Manual: Price, Maribeth. (2009). Mastering ArcGIS, 4th Edition, Boston: McGraw Hill. ISBN 978-0-07-352284-5

Recommended References

Additional recommended reading material will be made available at the library, on TRACS or passed out during lecture or lab class periods. Some sources are listed below, others may be added during the semester.

McGrew, J.C. Jr. and C.B. Monroe. (2009). An Introduction to Statistical Problem Solving in Geography (2nd Ed). Waveland Press Inc.

Arc News (ESRI).

Other Materials

Students will also require a 4GB USB Drive (or larger) for storage of their lab project materials.

TX State account

It is essential that you activate your TX State computer account, since we will be using TRACS for communication and assignment purposes.

CLASS POLICIES

General Class Policies

This class will consist primarily of:

- Weekly reading and homework assignments
- Self-initiated study and knowledge development
- Written assignments and class quizzes
 - Written communication is an essential skill. All written assignments are expected to be completed with no grammatical or spelling errors. The assignments should be professionally acceptable.
 - Random class quizzes are not eligible to be made up due to absences. Quizzes will cover the previous session's content.
- Project assignments
- Exams

Plagiarism and Academic Honesty

It is the student's responsibility to know what constitutes plagiarism and academic dishonesty in terms of what is generally acceptable in academia, by law of copyright, and by university policy (see below for more).

Knowledge and Effort

This course requires significant computer file management skills and the ability to work within a Windows computer environment without assistance. You are **expected to spend considerable time developing thoughtful products**, conducting limited research to feed into your written assignments, as well as participate with others in the class and lab. Students must demonstrate a mature, professional, and conscientious effort toward class work and participation.

Attendance

Students are expected to attend class and laboratory section. This course introduces considerable material and requires many hours of work. Please do not fall behind your reading or assignments. Poor attendance will result in a poor final grade. In-class quizzes are unannounced and cannot be "made up".

Additionally, students are expected to arrive on time. Because of the size of this class, students entering the classroom late disturb the class activities. **Be present and be punctual.**

Attendance is also required in the lab. Absences will reduce the final lab grade as follows:

- Two absences are granted if presented with legitimate reason and documentation (e.g., doctors' note and where possible, discussed with T.A. ahead of time) and lowest laboratory grade is dropped;
- Three absences mean that the lowest laboratory grade will not be dropped;
- Four absences or more will constitute a reduction of a letter grade for the lab and the lowest laboratory grade will not be dropped.

Late Work

Late work will only be graded if it is **submitted within 5 working days of the due date**. Please note that each late day, will be subject to a 10% reduction in the final assignment grade. For example, an assignment that is due on Thursday but submitted on Tuesday is 3 days late. Thus, the final mark of the assignment will be reduced by 30%.

If Tracs is not working the day that assignments or labs are due, the due date is extended until Tracs becomes available. To be certain, please contact your instructor or T.A. for further guidance.

Cell Phones

All cell phones need to be turned off during class and during examination periods (i.e., midterm, exam).

Video and/or Audio Recording

Video and/or audio recording and distribution of lecture content is not permitted and require consent of the lecturer.

UNIVERSITY POLICIES

University ADA Statement and Policy

Students with special needs (as documented by the Office of Disability Services) who will require compensatory arrangements must contact the instructor no later than the fourth class period to discuss specific arrangements and logistics. Students who have not already done so will be required to contact the Office of Student Disability Services located at LBJ 5-5.1 (512.245.3451). Texas State is dedicated to providing these students with necessary academic adjustments and auxiliary aids to facilitate their participation and performance in the classroom. The full ADA-compliant policy is available online at: <http://www.ods.txstate.edu/>

University Academic Honesty Policy

Learning and teaching take place best in an atmosphere of intellectual fair-minded openness. All members of the academic community are responsible for supporting freedom and openness through rigorous personal standards of honesty and fairness. Plagiarism and other forms of academic dishonesty undermine the very purpose of the university and diminish the value of an education. Specific sanctions for academic dishonesty are outlined in Texas State Student Handbook (<http://www.dos.txstate.edu/handbook/rules/honorcode.html>) and in the Texas State University Policies and Procedures Statements (<http://www.txstate.edu/effective/upps/upps-07-10-01.html>) which read, in part, that the penalty for academic dishonesty and plagiarism are as follows:

- A requirement to perform additional academic work not required of other students in the course;
- A requirement to withdraw from the course with a grade of "F";
- A reduction to any level of the grade in the course, or on the examination, or other academic work affected by the violation of academic honesty.

Plagiarism means the appropriation of another's work and the unacknowledged incorporation of that work in one's own written work offered for credit. The following web sites are good resources for acquainting yourself with plagiarism and how to avoid it:

- <http://www.indiana.edu/~wts/pamphlets/plagiarism.shtml>
- http://owl.english.purdue.edu/handouts/research/r_plagiar.html

GRADING AND EXAMS

Grades will be based on the following table:

Activity	Percent	Grade Scale
Class Quizzes	5	A ≥ 90%
Project Proposal	5	B ≥ 80%
Progress Report	5	C ≥ 70%
Final Project Presentation	20	D ≥ 60%
Lab Grade	25	F < 60%
Midterm	20	
Final	20	

NOTE: Your final percentage will round to the nearest whole number, e.g., 89.2=89 but 89.6=90.

Mid-Term Exam

Thursday, February 25, 2010

Final Exam

Thursday, May 6, 2010 from 11AM – 1:30PM

Exams policies

Exams are one form of student assessment. This course utilizes multiple methods for assessing student progress and performance to include exams, projects, and written assignments. There will be no make-ups or early assessments, with the exception of extreme personal hardship, which must be discussed with the instructor prior to the assessment date and agreed upon. In these limited, documented cases, the following policies apply: 1) the make-up exam is different from the original exam but no more difficult, 2) the format of the exam may be changed.

READING AND HOMEWORK SCHEDULE

Below is the reading and homework schedule for the lecture and laboratory sections to help you organize your time this semester. If changes occur in the schedule, students will be notified accordingly. Unless specified, the readings and homework are from the course text by Bolstad, P.V. (2008).

Week	Date	Topics	Homework/Readings (Bolstad)	Weekly Labs	Lab Reading (Price)
1	Jan. 19	Introduction	Why GIS is important (posted on TRACS, by Dr. J. Kerski)	No Labs	None
	Jan. 21	H i s t o r y o f G I S	Read: 1-14 H.W.: 1.1, 1.3, 1.6 (p. 23)		
2	Jan. 26	Spatial data	H.W.: pg. 23 (Price-posted on Tracs)	Intro/Course Policies/Lab 1 - Intro to ArcGIS & Working with ArcMap	Preface/Intro Ch. 1
	Jan. 28	Levels of Measurement	Read: 25-35 H.W.: 2.4 (p. 66)		
3	Feb. 2	Geog. coordinates/ Lat and Long	H.W.: 2.5 (p. 66)	Lab 2 - Drawing & Symbolizing	Ch. 2
	Feb. 4	Geodesy and Datums	Read: 69-79, 86-88 H.W.: 3.2, 3.4, 3.7, 3.8 (p. 119)		
4	Feb. 9	Projection	Read: 94-116	Lab 3 - Coordinate Systems & Map Projections	Ch. 11
	Feb. 11	Coordinate systems	H.W.: 3.13, 3.14 (p. 121)		
5	Feb. 16	Vector data model	Read: 37-41	Lab 4 - Geocoding	Ch. 10
	Feb. 18	TIN Attribute tables	Read: 52-54 H.W.: 2.10 (p. 67) Read: 41-42		
6	Feb. 23	Digitizing/Review	Read: 133-143 H.W.: pg. 44 (Price-posted on Tracs)	Lab 5 - Queries & Working with Tables	Ch. 4 & 5
	Feb. 25	MIDTERM			
7	March 2	Errors and metadata/ Review Midterm	Read: 514-519 H.W.: 14.3, 14.6, 14.12 (p.532)	Lab 6 - Basic Editing	Ch. 12 & 13
	March 4	GIS analysis processes	PROJECT PROPOSAL DUE		
8	March 8-11	SPRING BREAK – READING WEEK			
9	March 16	GIS analysis processes (select by location)	Read: 321-332 H.W.: 9.4 (p.373)	Lab 7 - Spatial Joins & Working with Tables	Ch. 4 & 6
	March 18	Joins and classification	Read: 332-340 H.W.: 9.1-9.3, 9.5, 9.6 (p.373-374)		
10	March 23	Overlay, buffer	Read: 340-349, 350, 352-358 H.W.: 9.11, 9.12, 9.14 (p.375-376)	Lab 8 - Geoprocessing (Map Overlay)	Ch. 7 & 14
	March 25	Map making and color choice			
11	March 30	Map making and color choice		Lab 9 - Presenting Data/Review	Ch. 3
	April 1	Raster data model	Read: 42-51 H.W.: 2.3, 2.11 (p.66-67) PROJECT PROGRESS REPORT DUE		
12	April 6	Raster and raster overlay	Read: 57-62, 350-352 H.W.: 2.12 (p.67)	Lab 10 - Raster Analysis	Ch. 15
	April 8	Database model	Read: 291-307		
13	April 12-15	AAG CONFERENCE – NO LECTURE OR LABS – STUDENTS WORK ON FINAL GIS PROJECT			
P14	April 20	Guest speaker – Applications of GIS	Work on Final GIS Projects		
	April 22	Guest speaker – Applications of GIS	Work on Final GIS Projects		
15	April 27	FINAL EXAM REVIEW	Work on Final GIS Projects		
	April 29	FINAL PROJECT PRESENTATIONS			
16	May 6	FINAL EXAM – THURSDAY MAY 6; 11AM– 1:30PM			

