Geography 373-02
Introduction to Geographic Information System (GIS)
Fall, 2006
Department of Geography
Minnesota State University, Mankato

Class Time & Place: W 4:00 p.m. - 7:45 p.m. at 11 AH (GIS Lab)

Instructor: Sunhee Sang
• Office: 7G Armstrong Hall (AH)
• Phone: 507-389-1324 (office)
• e-mail: sunhee.sang@mnsu.edu
• Office Hours: 9:00 a.m. - 1:00 p.m., 3:00 – 5:00 p.m. on Monday, 12:00 – 1:00 p.m., 3:00 p.m. – 4:00 p.m. on Wednesday, or by appointment

Teaching Assistant: MD Chowdhury
• Office: 11 Armstrong Hall (AH)
• Phone: 507-389-2833 (office)
• e-mail: md.chowdhury@mnsu.edu
• Office Hours: 3:00 p.m. - 8:30 p.m. on Wednesday, 10:00 a.m. - 12:00 p.m. on Friday or by appointment

Geography Department:
• Main Office & Mail Room: 7 Armstrong Hall (AH)
• Phone: 507-389-2617

Course Description & Goal:
Geography 373 is a 4-credit class that introduces main concepts and basic principles of geographic information systems and their use in spatial analysis and information management. The course includes a computer laboratory portion focusing on learning ESRI GIS software packages. Students will use software to learn the skills of GIS through weekly lab exercises and projects that address "real-world" GIS application problems. The course is designed to give students an understanding of geographic information systems, their capabilities, uses, and limitations. Relevant applications for different discipline areas are demonstrated in the computer laboratory portion. At the end of the semester, you should achieve goals of the course as follows: [1] familiarize with GIS environment, [2] understand fundamental GIS concepts, [3] understand spatial data model, [4] manipulate geographic
information with GIS software, and [5] implement GIS skills in real-world application problems.

Class web page: http://www.mnsu.edu/geog/class/kim/geog373-02.html

Textbook:

Course Requirements (Grading):
- Quizzes, Homework (10 at 1): 10% - There are ten quizzes, and homework throughout the semester. Each one will be totally based on the book reading and class lecture. If quizzes and homework are done less than 10, each will be proportionally allocated to the total point.
- Labs (12 at 3): 36% - There are twelve lab assignments. Lab assignment due is before the next class or specified date on lab sheets. There is 10% deduction penalty per day. If labs are done less than 10, each will be proportionally allocated to the total point.
- Project (1 at 14): 14% - The individual project is based on previous labs and is applied to real world situation. The project evaluation includes oral presentation and written paper.
  1) The oral presentation must be prepared with MS Power Point.
     a) Introduction
        i) Problem statement
        ii) Goal
        iii) Background
     b) Methodology
     c) Results
  2) The written paper must include followings with 12 sized Tahoma font in double space
     a) Introduction
        i) Problem statement
        ii) Goal
        iii) Background
     b) Literature Review
     c) Methodology
     d) Results
     e) Conclusions
     f) References
- Midterm Exam (1 at 20): 20% - The midterm exam is objective question formats, such as multiple choice, true/false, matching, fill-in-the-blank and short answer.
- Final Exam (1 at 20): 20% - The final exam is a comprehensive test which covers previous midterm exams. The format is much the same as the midterm exam.
Final Exam: At the same classroom, **6:00 p.m. - 8:00 p.m., Wednesday, December 13th, 2006.**

Lab Policy:
- Turn off the monitor: Turning on the monitor during the lecture without instructor’s permission will result in 2% deduction to the total grade each time.
- Turn off the cellular phone: Failure to turning off the cellular phone will result in 2% deduction to the total grade each time.
- Internet: Checking personal emails and news during the lecture and lab sessions will result in 2% deduction to the total grade each time.
- Noise: Person making the noise in the lab will be forced to leave the lab.

Make-up: No make-ups will be allowed without emergency reasons with written proof.

Graduating Senior: Graduating seniors should notify the instructor no later than the third week of class.

Grading Scale:
- A = 90-100%
- B = 80-89.99%
- C = 70-79.99%
- D = 60-69.99%
- F = 0-59.99% or Failure for non-attendance

Comments:
Cheating on exams, quizzes, or lab exercises will result in a zero.
Students are expected to attend each class, and are responsible for their own notes.
If you are having trouble in class, please come and see me.
I truly believe that this course is two-way interactive class where we can ask and discuss each other.

Disability Statement:
Any student who feels he or she may need an accommodation based on the impact of a disability should contact me privately to discuss his or her specific needs. Every attempt will be made to accommodate students with documented disabilities. If you are a student with documented disability, please see me as early in the semester as possible to discuss necessary accommodations. Please also contact the Office of Disabilities Services, 117 Armstrong Hall (507-389-2825).
Geography 373-02 Class Schedule*: Fall, 2006

Week 1
Lecture1 W (8/30/06): Introduction to Course, What is GIS? (Chapter 1)
Lab1 W (8/30/06): Introducing ArcView GIS

Week 2
Lab2 M (9/6/06): Basics of ArcView
Lecture2 W (9/6/06): GIS Applications
HW1 W (9/6/06): GIS Applications

Week 3
Lecture3 W (9/13/06): Coordinate Systems (Chapter 2)
HW2 W (9/13/06): Chapter 6 Summary
Lab3 W (9/13/06): Vector Data Operations

Week 4
Quiz1 W (9/20/06): Lecture 3
Lecture4 W (9/20/06): Representing Geography (Chapter 19)
Lab4 W (9/20/06): Introduction to Raster Data

Week 5
Lecture5 W (9/27/06): Representing Geography (Chapter 19)
HW3 W (9/27/06): Chapter 9 Summary
Lab5 W (9/27/06): Land Use Change

Week 6
Lecture6 W (10/4/06): Geographic Data Modeling: Vector (Chapter 3, 4)
Lab6 W (10/4/06): 2D & 3D Surface Modeling

Week 7
Quiz2 W (10/11/06): Lecture 6
Lecture7 W (10/11/06): Geographic Data Modeling: Raster (Chapter 5)
Lab7 W (10/11/06): Midterm Exam Study Guide Handout
Lab7 W (10/11/06): Spatial Interpolation

Week 8
MIDTERM W (10/18/06): Midterm Exam for Chapters 1, 2, 3, 4, 5, 6, 9, 19

Week 9
Lecture 8 W (10/25/06): Spatial Interpolation (Chapter 16)
Lab8 W (10/25/06): Geocoding Address

Week 10
Lecture9 W (11/1/06): Vector Data Analysis (Chapter 12)
HW4 W (11/1/06): Chapter 10 Summary
Lab9 W (11/1/06): Suitability Analysis

**Week 11**
Quiz3 W (11/8/06): Lecture 9
Lecture10 W (11/8/06): Raster Data Analysis (Chapter 13)
Lab10 W (11/8/06): Network Analyst

**Week 12**
Quiz4 W (11/15/06): Lecture 10
Lecture11 W (11/15/06): Network Analysis (Chapter 18), Geocoding (Chapter 17)
HW5 W (11/15/06): Chapter 11 Summary
Lab11 W (11/15/06): Introduction to ArcGIS 9.X

**Week 13**
**NO CLASS** W (11/22/06): Thanksgiving Day

**Week 14**
Quiz5 W (11/29/06): Lecture 11
Lecture12 W (11/29/06): Map Algebra (Chapter 13)
Final Exam Study Guide Handout

**Week 15**
Presentation W (12/6/06): Individual GIS Project Presentation

**Week 16**
**FINAL** W (12/13/06): Final Exam for Chapters 10, 11, 12, 13, 16, 17, 18

# Class contents can be changed according to the instructor during the semester.
(M: Monday, W: Wednesday, R: Thursday)