South Dakota State University

GEOG 372 - S01, 3 Credits
Introduction to Geographic Information Systems
Course Syllabus (Spring 2019)

Instructor: Dapeng Li, Ph.D.

Time: Mon. 9:00 – 9:50 am

Location: Wecota Hall, Room 0100

Office Hours: Mon. & Thu. 2:00 – 4:00 pm (or by appointment)

Office: Wecota Hall 115D

Phone: 605-688-4620

Email: dapeng.li@sdstate.edu (primary contact)

Lab Sections

SECTION	LAB INSTRUCTOR	DAYS	LOCATION	TIME
372L-S01	Herve Kashongwe	Mon & Wed	Wecota 014	10:10 am – 11:55 am
372L-S02	Logan Megard	Tue & Thur	Wecota 014	11:00 am – 12:50 pm
372L-S03	Rakibul Shogib	Mon & Wed	Wecota 014	02:00 pm – 03:50 pm

Lab Instructors

Name	E-mail	Phone	Office
Rakibul Shogib	rakibul.shogib@sdstate.edu	605-688-4511	TBA
Herve Kashongwe	herve.kashongwe@sdstate.edu	605-688-4511	TBA
Logan Megard	Logan.Megard@sdstate.edu	605-688-4511	TBA

Course Description

This course is an introductory level course in Geographic Information Systems (GIS), a tool for managing, integrating, analyzing, and visualizing geospatial data and information. GIS can be used to explore patterns and relationships in geographic data, seek explanations, and develop solutions to pressing problems. The basic concepts of GIS will be introduced in the lecture, and the lab section will help the students develop ArcGIS skills.

Course Prerequisites

Basic computer literacy (CSC 105-Introduction to Computers or equivalent course/experience).

Instructional Methods

Lecture, discussion, demonstrations, lab assignments, final project, quizzes/exams.

Course Schedule

Date	Topic	Readings	Lab
1/7	Course Overview	Syllabus; p.1-8	Lab/Software Introduction
1/14	GIS Data	Ch. 1, p. 9-26	Lab 1: Ch. 1
1/21	**MLK Day Holiday (no class)**	Bolstad Ch. 7	N/A
1/28	Managing GIS Data	Ch. 2, p. 43-58	Lab 2: Ch. 2
2/4	Coordinate Systems	Ch. 3, p. 73-88	Lab 3: Ch. 3
2/11	Mapping GIS Data	Ch. 4, p. 107-122	Lab 4: Ch. 4
2/18	**Presidents' Day Holiday (no class)**	TBA	N/A
2/25	Presenting GIS Data	Ch. 5, p. 139-157	Lab 5: Ch. 5
3/4	**Spring Break (no class)**	Study Guide	N/A
3/11	Attribute Data	Ch. 6, p. 173-188	Lab 6: Ch. 6 (Midterm Exam)
3/18	Basic Editing	Ch. 7, p. 205-213	Lab 7: Ch. 7
3/25	Queries	Ch. 8, p. 231-243	Lab 8: Ch. 8
4/1	Spatial Join	Ch. 9, p. 259-272	Lab 9: Ch. 9
4/8	Map Overlay & Geoprocessing	Ch.10, p. 289-299	Lab 10: Ch. 10
4/15	Raster Analysis	Ch. 11, p. 319-333	Lab 11: Ch. 11 (extra credits)
4/22	Review Study Guide	Study Guide	Final Project (Lab Exam)
5/2	Final Exam	9:15 – 11:15 am, Wecota Hall, Room 0100	

Note: The course schedule is subject to change. Students will be notified of any changes.

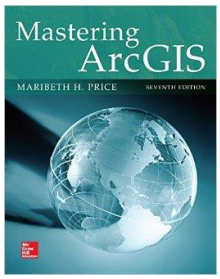
The To-Do List for Each Week

1. Do the readings BEFORE you come to the lecture.
2. Attend the lecture on time and stay focused in class.
3. Review the points covered in the lecture after class (check D2L for the lecture slides).
4. Attend the two labs on time and complete both the tutorials (first lab) and exercises (second lab) in each chapter.
5. Continue to complete unfinished lab assignments and submit them before the deadline. (Exercises should be submitted electronically in D2L.)
6. Feel free to ask the instructor or the TA if you have any questions (during office hours or by appointment).

Lastly, there will be some other assignments or quizzes in D2L from time to time. Please always check D2L and your email for the updates.

*Note that Wecota Hall will be locked on weekends and after 5:00 pm on weekdays. Please schedule your time to use the GIS lab (Wecota Hall 0014) during the daytime on weekdays.

Required Text



Price, M. (2015). ***Mastering ArcGIS*** (7th edition). McGraw-Hill, New York, NY (ISBN: 978- 0078095146)

Other Recommended Readings

Bolstad, P. (2016). *GIS Fundamentals: A first text on geographic information systems* (5th edition). Eider Press, White Bear Lake, MN (ISBN: 978-0-9717647-3-6)

Longley, P. A., Goodchild, M. F., Maguire, D. J., & Rhind, D. W. (2015). *Geographic information science and systems* (4th edition). John Wiley & Sons (ISBN: 978-1118676950)

Burrough, P. A., McDonnell, R., McDonnell, R. A., & Lloyd, C. D. (2015). *Principles of Geographical Information Systems* (3rd edition). New York: Oxford University Press. (ISBN: 978-0198742845)

DeMers, M. N. (2009). *Fundamentals of Geographic Information Systems* (4th edition). New York, N.Y.: John Wiley & Sons. (ISBN: 978-0470129067)

Jensen, J. R., & Jensen, R. R. (2013). *Introductory geographic information system*s. Pearson Higher Ed. (ISBN: 978-0136147763)

Note: Other readings may also be assigned and will be provided on D2L.

Attendance Policy

Attendance and full participation in classes are required. Attendance will be checked periodically. The class participation credit is given based on class attendance and/or in-class/take-home exercises.

Make-up Policy

If a student misses an exam, points can only be made up if the student has an excused absence. To be considered an excused absence, the student must contact the instructor with a legitimate excuse prior to the day of the exam.

Classroom Policies

- All cell phones need to be turned off during the class/lab.
- No recording (photos, audio, etc.) without permission.
- Surfing the web or using computers to work on non-class related tasks is not allowed.

Important Dates:

- Januarys 10, Thursday — First day of class
- January 16, Wednesday — Last day to drop or add and adjust final fees
- January 17, Thursday — "W" grade begins
- March 4-8, Monday – Friday — Spring Break (No Class)
- March 11, Monday — First Half Spring Term ends
- April 1, Monday — Last day to drop a course

- April 19-April 21, Friday – Sunday Easter Recess
- April 29-May 3**, Monday – Friday Final exams
- May 8, Wednesday Grades due on WebAdvisor by midnight

Overall Course Goals

Upon completion of this course, students will be able to:

1. Recall the fundamental concepts and principles in GIS.
2. Understand the basic functionalities of ArcGIS.
3. Use ArcGIS to process, manage, and analyze various spatial data.
4. Apply GIS to solve some simple real-world spatial problems.

Student Learning Outcomes

Knowledge Outcomes

Students will **master fundamental principles and theories as well as factual knowledge** of: the definition of GIS; types of geographic data; basic GIS data structures; coordinate systems and map projections; spatial data compilation, processing, and management; interpretation and analysis of geographic data; geospatial visualization; and real-world applications of GIS.

Skills Outcomes

Students will develop specific skills and competencies in GIS and learn to use GIS to solve real-world problems. Other key skills are as follows: connecting hands-on GIS work to GIS theory, written communication, interpersonal communication, and planning and organization.

Grade Evaluation

Evaluation Components	Points (each)	Points	Percent Value
Participation	TBD	100	10%
Lab Exercises (10)	40	400	40%
Midterm Exam	150	150	15%
Final Exam	200	200	20%
Final Project (Lab Exam)	150	150	15%
Total		1000	100%

Course Grade Scale

Grade	Final weighted points
A	90-100
B	80-89
C	70-79
D	60-69
F	< 60

Weekly Lab Exercises & Assignments: All lab exercises will use ESRI's ArcGIS software to reinforce the concepts covered in the lectures. Although class time has been allocated for lab instruction and assignments, additional work might be necessary for the successful completion of the course. Each Lab Exercise will be available following the demonstration given in the lab

each week. Lab assignments must be submitted electronically through the Dropbox on D2L on time. Points will be deducted for late submissions each day.

Exams: This course has two exams for the lecture section. The exams will include multiple choice questions, matching questions, short answer questions, and comprehensive essay questions. The questions come from the key points covered in the lecture, and a study guide will be given before each exam.

Final Project (Lab Exam): The students are expected to accomplish a mini final project. Students need to work on it individually in the lab during the allocated time period (in the class). Students can look up information on the internet or use your notes, but discussion is NOT allowed. In the project, students will need to answer some questions and make some maps. The students need to submit a final report (Word format) that includes the answers to the questions and the maps in D2L. The TAs will grade the reports.

Class Participation: This course requires a regular attendance in BOTH lectures and labs. Class participation credits are given based on class attendance and in-class/take home quizzes/exercises.

Lab Section

The lab section is designed for students to gain hands-on experience with GIS software. There will be a number of weekly assignments for the students to learn GIS technical skills. After completion of the specially designed learning units, the students will work on a final project to illustrate their competency in using GIS to solve problems. Please note:

- Lab attendance is required.
- The weekly lab assignments need to be completed on time; penalty will be applied for late submissions (please refer to the lab syllabus for more details).
- Memorize all the commands and procedures you used in the lab.
- Always stay in the loop because the labs could be closely related.
- Do ask the instructor or the TA if you have any questions.

ADA Statement:

Any student who feels s/he may need an accommodation based on the impact of a disability should contact Nancy Hartenhoff-Crooks (or successor) Coordinator of Disability Services (605-688-4504 or Fax, 605-688-4987) to privately discuss your specific needs. The Office of Disability Services is located in room 065, the University Student Union.

Freedom in Learning Statement:

Students are responsible for learning the content of any course of study in which they are enrolled. Under Board of Regents and University policy, student academic performance shall be evaluated solely on an academic basis and students should be free to take reasoned exception to the data or views offered in any courses of study. Students who believe that an academic evaluation is unrelated to academic standards but is related instead to judgment of their personal opinion or conduct should first contact the instructor of the course. If the student remains

unsatisfied, the student may contact the Department Head, Dean, or both, of the college which offers the class to initiate a review of the evaluation.

Student Academic Integrity and Appeals:

The university has a clear expectation for academic integrity and does not tolerate academic dishonesty. University Policy 2:4 sets forth the definitions of academic dishonesty, which includes but is not limited to, cheating, plagiarism, fabrication, facilitating academic dishonesty, misrepresentation, and other forms of dishonesty relating to academics. The policy and its procedures also set forth how charges of academic dishonesty are handled at the University. Academic Dishonesty is strictly proscribed and if found may result in student discipline up to and including dismissal from the University. Please refer to the library website for more details (http://libguides.sdstate.edu/copyright/Plagiarism).

TurnItIn

All written assignments in D2L will be automatically submitted to TurnItIn for plagiarism detection. Students should make sure that the assignments are their original work before they submit them in D2L. Students should check the similarity score of their submitted documents to ensure that the assignments pass the test.

Veterans and Active Duty Military Personnel:

Veterans and Active Duty Military Personnel with special circumstances (e.g., upcoming deployments, drill requirements, disabilities, and other qualifying needs) are welcome and encouraged to communicate these, in advance if possible, to the instructor in order to address attendance requirements or other actions in accordance with SDBOR and University policies and procedures.

Late to Class statement:

All members of the class should make every effort to arrive on time. In the event that I am going to be late, due to circumstances beyond my control, I will, if possible, notify the department and ask that someone be sent to apprise you of the situation. If such notification is not possible, please remain in the class for 15 minutes beyond the scheduled start time. If I have not yet arrived, and if no emissary of the department has informed you otherwise, class will be cancelled and you will be free to leave.