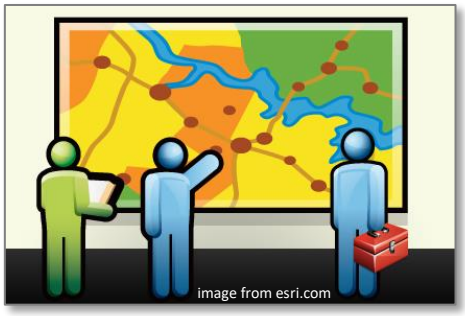
GEOG 350
Intermediate GIS: Vector-Based Analysis



Fort Lewis College – Spring Semester 2018

Course Information

Time & Location: Lecture - M W 12:20-1:15 pm, Berndt 234; Lab - M or W 1:30-4:30 pm, SFH 2771
Instructor: Scott White, PhD ● office: SFH 2794 ● hours: M and Tu and W 9:00-10:30 am, or by appointment
contact: *white_s@fortlewis.edu* or 970-247-7475 ● class and lab info online at https://courses.fortlewis.edu

Textbook

Introductory Geographic Information Systems, by John R. Jensen and Ryan R. Jensen, ©2013 Pearson Education. The paperback version of the textbook is available at the FLC bookstore, and is also on reserve in Reed Library. A eTextbook version is also available from VitalSource (https://www.vitalsource.com). This was the required textbook for GEOG 310.

Software

Esri's ArcGIS Desktop 10.5.1 will be the primary GIS software used in GEOG 350. You will also work with the new ArcGIS Pro (Version 2.0) in at least one lab assignment, as well as ArcGIS Online. A one-year student version of ArcGIS (including Desktop 10.5.1, ArcGIS Pro 2.0, and the extensions) is available to any Fort Lewis College student currently enrolled in a GIS class or in the GIS Certificate Program. This software runs best on computers running the Windows operating system (Win 10, 8.1, or 7). See http://desktop.arcgis.com/en/system-requirements/latest/arcgis-desktop-system-requirements.htm for the list of system requirements. Contact me via email to receive an installation code.

Course Description and Learning Outcomes

In GEOG 310, the prerequisite for this course, you learned how to acquire, download, process, and use digital map data, and how to effectively communicate through maps. You also studied the principles of map design through the application of Geographic Information Systems (GIS) software. GEOG 350 (Intermediate GIS) expands upon the concepts presented in GEOG 310, with emphasis placed on the analysis of spatial data in the vector format (point, lines, and polygons). Specific topics covered in the lectures and lab assignments include spatial databases and querying, Esri's geodatabase data model, editing land parcel and road features, network analysis and routing, geoprocessing, model building, and site suitability analyses.

Since GEOG 310 is the prerequisite for the course, I assume you are ready to pick up with ArcGIS version 10.5. I expect that the good cartographic techniques that you learned in GEOG 310 will be applied properly in *all* of the GEOG 350 labs this semester.

Your course grade will be based on the following…

1. **4 Exams** – The first three exams will consist of a mix of multiple choice and short answer/essay questions, while the final exam deals specifically with mapping and analytical techniques using ArcMap and ArcCatalog. This will be a hands-on exam using ArcGIS software. Specifics will be discussed prior to each exam. Note the exam dates listed in the course schedule on page 3. The four exams each account for **10%** of your course grade, and the total equals **40%**.
2. **12 ArcGIS Desktop Lab Exercises** – The ArcGIS lab component of this course is very important, and is weighted heavily in the course grading. GIS work will focus on spatial analysis and mapping using vector datasets. Specific lab assignments are described on page 3 of this document. The last lab assignment of the semester (#12) will involve a detailed Site Suitability Analysis using many of the GIS skills that you have acquired in GEOG 310 and 350. Lab assignments account for **60%** of your course grade.

Grades and Assignments

Grading follows the typical A, B, C, D, and F scheme, with + and – counting towards your final course grade:

A = 93-100	B+ = 87-89	C+ = 77-79	D+ = 67-69	F = < 60
A- = 90-92	B = 83-86	C = 73-76	D = 63-66	
	B- = 80-82	C- = 70-72	D- = 60-62	

GEOG 350 and Fort Lewis College – Information and Policies

- ☆ You are responsible for all information presented during class and lab sessions. I will not regularly record your attendance, but it is definitely in your best interests to come to each class since the exam questions will come primarily from the lecture notes. I will post the lecture notes on Canvas, at the end of each week or at the end of a major topic. If you think that you can skip class, get the notes later, and still do well on the exams, you are likely mistaken.

- ☆ The last day to add or drop this course is Tuesday, January 23 (Census Date), 4:00 pm. It is your responsibility as a student to ensure that you are properly enrolled in this course. It is not possible to add courses after the Census Date. Login to WebOPUS (https://webopus.fortlewis.edu) to verify your enrollment status.

- ☆ Students with disabilities have equal access and equal opportunity in this course. If you require reasonable accommodations to fully participate in course activities or meet course requirements, you must register with Disability Services, Noble 280 (phone: 247-7383, https://www.fortlewis.edu/disability). If you qualify for services, bring your letter of accommodation to me as soon as possible.

- ☆ If English is not your primary language, you may use a dictionary during the exams. Let me know in advance.

- ❍ Make-up exams will only be permitted if you have what I consider to be a valid excuse. These exams may be quite different from the ones given to other GEOG 350 students, and may consist totally of short answer and/or essay questions.

- ❍ GEOG 350 GIS labs run from 1:30-4:30 p.m. on Monday or Wednesday. I expect you to be working on your GIS lab assignment during the entire 3-hour period. The only exceptions to this would be illness, personal issues beyond your control, school dismissal, or early completion of the lab assignment. There will be periodic progress checks during some of the lab periods, and points will be deducted from your final lab score if you are missing. If you cannot commit to a full 3 hours of GIS lab work, you should drop this course.

- ❍ Late lab assignments may be turned in for a grade if you have a valid excuse. Discuss this with me ASAP. You will not be penalized if your excuse is valid. If you do not have a valid excuse, then your lab assignment will be docked 50% for a 24-hour time period after the lab due date. After that, the lab will not be graded.

- ❍ A great deal of the lab work can be finished during the 3-hour time period; however, most lab exercises will require you to spend time with GIS outside of the normal lab hours. SFH 2771 hours should be posted outside of the room. The GIS software is installed campus-wide on any Windows-10 computer.

- ❑ Cheating and plagiarism will not be tolerated, and may result in a zero score on the assignment in question, a final course grade of F, and/or referral to the Vice President for Student Affairs. I expect that all students will abide by the FLC Student Conduct Code. You should assume that all lab assignments are independent projects in terms of what you hand to me in for a grade.

- ❑ Finally, I do not want to see or hear any of your personal electronic devices during the class or during the lab. Turn off your cell phone, or set it to vibrate, before the lecture and lab. Obviously, this means no texting during class or lab. Be considerate of your fellow students and your professor. Consistent violations of this may result in confiscation of your personal electronic property, and grade reductions. If you must use your cell phone during the 3-hour lab, do so outside of the computer lab room.

GEOG 350 Lecture and Lab Schedule – Spring 2018

The list below is subject to change.
All chapter numbers listed below are from the *Introductory Geographic Information Systems* textbook.

Dates	Lecture and *Lab* Topics	Text Chapters
Jan. 8 & 10	Into to Spatial Analysis with GIS; Revisiting Table Queries, Vector and Raster Data ***Lab 1: GIS Data Processing, Metadata Viewing, and Querying***	1
Jan. 15 & 17	A Brief History of GIS; GIS Software ***Lab 2: Working with Charts in Excel and ArcMap***	1, 5
Jan. 22 & 24	Database Relationships ***Lab 3: Working with Geodatabases I***	5
Jan. 29 & 31	Esri's Geodatabase; Topology ***Lab 4: Working with Geodatabases II***	5
Feb. 5 & 7	**Exam 1** (Monday, Feb. 5); Data Queries ***Lab 5: Basic Editing Techniques***	5
Feb. 12 & 14	Measurements Using GIS ***Lab 6: Advanced Editing Techniques***	8
Feb. 19 & 21	Geocoding and Address Matching; Network Analysis ***Lab 7: Network Analysis Using the Network Analyst Extension***	7
Feb. 26 & 28	Network Analysis; **Exam 2** (Wednesday, Feb. 28) ***Lab 7: continued from last week***	7
Mar. 5 & 7	✈ ✈ ✈ *SPRING BREAK* ✈ ✈ ✈	
Mar. 12 & 14	Spatial Analysis of Vector Data; Geoprocessing ***Lab 8: Land Cover Geoprocessing***	6
Mar. 19 & 21	Geoprocessing: Buffering and Overlay Analyses ***Lab 9: Geoprocessing I: Buffers and Overlay Tools***	6
Mar. 26 & 28	Geoprocessing: Overlay Analyses ***Lab 10: Geoprocessing II: Model Building in ArcGIS***	6
Apr. 2 & 4	Online GIS and Spatial Analysis ***Lab 11: Working with ArcGIS Pro 2.0 and ArcGIS Online***	
Apr. 9 & 11	Site Suitability Analyses ***Lab 12: Final ArcGIS Assignment – Site Suitability Analysis***	
Apr. 16 & 18	Legal Issues with GIS Data and Analyses; **Exam 3** (Wednesday, Apr. 18) ***Lab 12: continued from last week and Help Session for Final Exam***	12
Finals Week	**ArcGIS Practical Exam** (Monday, Apr. 23, 9:45-11:45 am) - exam location TBA	