GEOG 501: Foundations of GIS

Geography Department
Advanced Diploma and Masters in GIS Applications

Fall Term 2023 – September 6-25, 2023

This course is the first course in the September 2023 cohort of the ADGISA/MGISA program, delivered on the Nanaimo campus.

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To learn more about your instructor, please check my website at www.paulzandbergen.com.

Course Description

This course gives students the opportunity to master standard GIS operations. For those students who need a refresher, this course will help to update your knowledge of GIS to current standards and help to fill in gaps in your basic knowledge of GIS. Students are expected to have some previous experience in GIS at a Post-Secondary Level.

Course Objectives

Upon successful completion of the course material, the student should understand:

1. To provide a good understanding of the methods by which geographic features are referenced on the earth and of the methods by which we can digitally represent such features for mapping and analysis purposes.
2. To familiarize students with the major sources of digital spatial data available in Canada and other countries, and to acquaint them with different data structures and data formats.
3. To provide experience of a major GIS software applications (ArcGIS Pro).
4. To provide a thorough understanding of the relationship between methods of digital spatial data storage and the relationship of such methods to analytical functionality within GIS.
5. To familiarize students with the range of applications of GIS and some of the innovative research areas associated with GIS.

Specific Software Skills

- Be able to reliably use the basic ArcGIS Pro interface
- Creating and editing spatial data
- Working with database tables
- Presenting spatial data using effective cartographic techniques
- Setting layer properties
- Displaying features, creating symbols, placing labels and annotation
- Creating and editing feature-linked annotation
- Performing geospatial analysis using geoprocessing tools
- Have a strong command of the vector editing and analysis tools in ArcGIS Pro
- Being able to troubleshoot and solve your own problems using appropriate outside resources

It is also expected that students will develop improved skills and perspectives for future independent study of GIS and Remote Sensing methods and applications.

Textbook

Required text: Paul Bolstad, GIS Fundamentals, 7th edition published in 2023 by Eider Press.

The book can be acquired here: https://www.gisfundamentals.org order. Shipping a paper copy from the US may take some time, so you are encouraged to get access to a digital copy through Redshelf or VitalSource for US $24.

We will use the text in multiple courses (i.e. 501, 521, 523), so you will get a lot of use out of it.

Course Delivery

Dates:	September 6, 7, 8, 12, 13, 14, 15, 19, 20, 21 and 25 (11 days total)
Lectures/demos:	9:00-10:15 and 13:00-14:15 daily
Labs/questions:	10:30-12:00 and 14:30-16:00 daily

Course Schedule

The course schedule outlines the approach we will take in the course, but please bear in mind that specific details are subject to change with reasonable notice. I will communicate changes via announcements in class and on the course website.

Module	Date	Lectures	Assignments	Due date/time
1	9/6/2023	Introduction to GIS	Esri Training 1	9/7/2023 16:00
			Lab 1	9/7/2023 16:00
2	9/7/2023	Spatial Data Models & Formats	Esri Training 2	9/8/2023 16:00
			Lab 2	9/8/2023 16:00
3	9/8/2023	Coordinate Systems	Esri Training 3	9/12/2023 16:00
			Lab 3	9/12/2023 16:00
4	9/12/2023	Data Visualization & Cartography	Esri Training 4	9/14/2023 16:00
	9/13/2023		Lab 4	9/14/2023 16:00
5	9/14/2023	Creating & Editing Data	Esri Training 5	9/15/2023 16:00
			Lab 5	9/15/2023 16:00
6	9/15/2023	Geocoding	Esri Training 6	9/19/2023 16:00
			Lab 6	9/19/2023 16:00
7	9/19/2023	Tables and Queries	Esri Training 7	9/20/2023 16:00
			Lab 7	9/20/2023 16:00
8	9/20/2023	Vector Analysis	Esri Training 8	9/22/2023 16:00
	9/21/2023		Lab 8	9/22/2023 16:00
	9/25/2023	Final theory exam 9:30 – 11:30		9/25/2021 11:30
	9/25/2023	Final lab exam 13:00 – 15:00		9/25/2021 15:00

Assignments

Students are expected to complete the following assignments:

- Orientation activities 2%
- Esri Training modules (8) 16%
- Lab submissions (8) 42%
- Final theory exam 20%
- Final lab exam 20%

Details on these assignments will be provided in the course website.

Late Policy

Assignments are due at **16:00 Pacific Time**, typically one school day after the lab is assigned. **Assignments received after the due date will not receive any points.** If, due to illness or emergency you cannot submit your assignment on time, please discuss this with the instructor prior to the due date and an individual revised due date may be established.

Grading Scale

Grade	Percentage	Comments
A+ A A-	90-100 85-89 80-84	Outstanding performance and exceptional work. Demonstrates sound critical thinking skills, innovative ideas and shows depth and breadth of understanding. Content, organization and style demonstrate ability to synthesize and apply course material. Detailed reference to existing literature is demonstrated.
B+ B B-	76-79 72-75 68-71	Strong performance and work. Demonstrates the use of critical thinking skills and clear understanding of course material. Clear reference to existing literature is demonstrated.
C+	64-67	Satisfactory performance and adequate work. Content, organization and style demonstrate basic understanding of course material. Adequate use of existing literature is demonstrated.
C C-	60-63 55-59	Marginal performance and work. Content, organization and style demonstrate poor comprehension of course material. Poor use of existing literature.
D	50-54	Marginal performance and work.
F	0-49	Did not successfully complete course requirements.
W		A grade which can be issued only by Registration when a student officially withdraws from a course. This can only be done during the first five weeks of class (students' responsibility to check calendar for deadline). Instructors cannot issue "W" grades.

Important Notes

This syllabus is the definitive description of course policy and supersedes all other course descriptions.

Students are expected to work in a professional manner. This involves respect of the facilities, colleagues, GIS staff, and the educational process.

The GIS staff does not wish to set up an environment that restricts the student's ability to work on the computers. Software that restricts access to the system can slow down operations and cause other problems for lab users. We prefer to simply log operations on the computers, rather than restrict access. However, the changing of any computer settings, defaults, or other components of the hardware, operating system, or application software without the express direction of either the course instructor or the GIS lab technician will not be tolerated. The distribution of pirated software or media is illegal and the use of VIU's facilities for the distribution of such will not be tolerated.

Group work makes it possible for individuals to appear to understand more than they actually know. Fair and effective evaluation requires that a certain portion of the project work be completed during scheduled class lab time.

Participation and performance during these sessions is a component of the evaluation process. The submission of a project as a group does not necessarily mean that all members of the group will get a similar grade for any project.

Performing analysis on your own computers is both a privilege and a responsibility. In return for the flexibility of being able to work on their own laptops, students are solely responsible for the maintenance and upkeep of their machines. This includes regular maintenance tasks, such as cleaning up hard drives, defragmenting hard drives, installing and using an appropriate firewall, and performing backups. In particular, students are expected to make copies of their work on a daily basis.

In this program, you receive large amounts of instructional time, unprecedented access to state-of-the-art software and equipment, a great deal of access to your instructors, and the opportunity to work with some other fantastic students. If you use these resources effectively, you can learn an amazing amount in eight months. In this program, however, as in the real world, you are graded on your results, not on your efforts, so it is important to be efficient at producing quality work.

Handling of Student Work

- Students are responsible for retaining a copy of all submitted work.
- All assignments to be submitted to the instructor during class time or during instructor office hours.
- Every effort will be made to return assignments to students within two weeks.
- Students can make an appointment with their instructor to review and discuss their exams, assignments or course grade.
- Unclaimed assignments will be kept for one month after the grade submission deadline
- Final grades will be posted in a secure location on the Internet.

Student Support

Academic Calendar
Writing Centre
Student Affairs
Disability Access Services

Attendance

Attendance and participation in live classes is expected. While lectures and demos are recorded, and attendance in live classes is not required, students should make every effort to attend when their schedule allows, and actively participate by contributing to polls and ask questions.

Academic Misconduct

Violations of academic integrity, including dishonesty in assignments, examinations, or other academic performances, are prohibited and will be handled in accordance with the Student Academic Code of Conduct Procedures. If you have any concerns about possible plagiarism or other academic misconduct, please contact your instructor before handing in the assignment in question.

Academic misconduct includes, but is not limited to, the following acts:

Cheating: Cheating is an act of deception by which students misrepresent that they or others have mastered information for an academic exercise.

Fabrication: Fabrication is the intentional use of false information or the falsification of research or other findings with the intent to deceive.

Plagiarism: Plagiarism is the intentional unacknowledged use of someone else's words, ideas, or data. When a student submits work for credit that includes the words, ideas or data of others, the source of that information must be acknowledged through complete, accurate, and specific references, in a style appropriate to the area of study, and, if verbatim statements are included, through quotation marks or block format as well. By placing their names on work submitted for credit, students certify the originality of all work not otherwise identified by appropriate acknowledgments.

Facilitation of Academic Misconduct
Helping or attempting to help another to commit act(s) of academic misconduct as outlined above.

Non-attendance

Non-attendance, where attendance is deemed to be mandatory, is not acceptable. Absences due to personal illness, family illness, death of an immediate family member, religious ceremonies, or sports events in which the student represents Vancouver Island University are allowed and must be approved by the appropriate instructor or coordinator. Non-attendance must be for valid reasons and not falsified. Some departments have specific attendance requirements, and details may be obtained from the instructor, department chair, or program coordinator.

Disciplinary Action

Every reasonable effort should be made to deal with student conduct concerns at the instructional and departmental level. Formal discipline is designed for serious intentional academic misconduct.

Acts of academic misconduct may make a student subject to a range of disciplinary action – including failure for a course assignment or a course, or possible suspension by the President.

No student shall be allowed to withdraw from a course, or the University-College, to avoid receiving a failing grade based upon academic misconduct. A withdrawal under such circumstances shall result in an "F" grade being recorded on the student's transcript for the course(s) in question.

Please refer to the Student Academic Code of Conduct Procedures and the Student Conduct Code policy for information on handling breaches of this policy.

End