

Fall 2019

Open my eyes to see wonderful things in your Word. I am but a pilgrim here on earth: how I need a map—and your commands are my chart and guide. I long for your instructions more than I can tell. -Psalms 119:18-20 (TLB)

Meeting days: Tues. & Thurs.	Instructor title and name: Dr. Walter Cho
Meeting times: 11:00AM-12:15PM	Phone: 619-849-2398
Meeting location: Main Computer Lab (LW 213)	E-mail: wcho@pointloma.edu
Final Exam: Thurs., 12/19/19, 10:30AM-1PM	Office location and hours: Rohr Science 134; Mon. 11AM-1PM, Thurs. 9-10:30AM, or by appt.

PLNU Mission

To Teach ~ To Shape ~ To Send

Point Loma Nazarene University exists to provide higher education in a vital Christian community where minds are engaged and challenged, character is modeled and formed, and service is an expression of faith. Being of Wesleyan heritage, we strive to be a learning community where grace is foundational, truth is pursued, and holiness is a way of life.

COURSE DESCRIPTION

From the course catalog: Geographic Information Systems (GIS) involves the analysis and management of geographic information. This course is designed to introduce the basic principles and techniques of GIS (including spatial data sources, data structures, projections and coordinate systems), the essential skills of operating a functional GIS (including data creation, data editing and geospatial analysis), and the different applications of GIS technology.

Welcome to BIO4083! In this course we will explore how we gather and use spatial data. We will learn about the concepts and components of a geographic information system (GIS) and practice the use of a functional GIS through the use of the ArcGIS software package. This course will use a combination of lectures and computer lab activities to explore aspects of this growing and important field.

COURSE LEARNING OUTCOMES

Students will learn how to compile, analyze, and present geospatial data while emphasizing the value of visual communication. By the end of this course, the student will be able to:

- Describe what geography and GIS are
- Articulate the importance of scale, projection, and coordinate systems in GIS
- Articulate the differences between vector and raster data structures and demonstrate the appropriate use of each of these data structures
- Articulate and demonstrate the basics of data capture, storage, analysis, and output in a GIS
- Describe typical uses of GIS in multiple fields including science
- Analyze the spatial distribution of phenomena and provide meaningful analysis of spatial attributes
- Demonstrate proficiency in the use of GIS tools to build maps that effectively convey specific information

REQUIRED TEXTS AND RECOMMENDED STUDY RESOURCES

1. Chang, K. (2019) Introduction to Geographic Information Systems. 9th Ed. McGraw-Hill Education, New York: 464 pp. ISBN: 9781259929649
2. We will also use the software ArcGIS available on the computers in the computer lab.
 - a. *A flash USB drive (~2GB)* is recommended for saving your work on the lab computers

ASSESSMENT AND GRADING

Grades will be based upon a straight percentage of the total possible points available in this course and will include the following requirements:

Approximate Grading Scale:

93-100 = A 90-92 = A- 88-89 = B+ 83-87 = B 80-82 = B- 78-79 = C+
73-77 = C 70-72 = C- 68-69 = D+ 63-67 = D 60-62 = D- 00-59 = F

Course Requirements:

% Value of Final Grade:

EXAMS:

Exam #1	15%
Exam #2	15%
FINAL PROJECT	25%
QUIZZES/ASSIGNMENTS	35%
ATTENDANCE/PARTICIPATION	10%
TOTAL	100%

Course Requirements in Detail:

A. Lecture:

The lectures will follow the tentative “tentative course schedule” attached to your syllabus. Due to limitation in time, lectures will cover important key concepts but will not cover all of the information important for this course. You will need to read the appropriate chapters before the lecture to be best prepared for lecture and

to participate in classroom discussions. Keep up with the course material and do not be afraid to ask questions.

B. Exams:

There will be 2 exams (15% of your final grade each). Each exam is objective and can consist of multiple-choice, matching, short answer and true/false type questions. There will also be some application questions including synthesis and analysis of important concepts as well as essay/discussion questions. Each exam will only cover material since the previous exam; however, fundamental concepts introduced early on will need to be remembered to address concepts throughout the course.

All materials in the class are potential test topics. This includes lecture materials from the required textbook (text, illustrations), lab information, any handouts or additional reading assignments you might receive, and in-class discussions on relevant topics or questions of interest.

TENTATIVE dates for the exams are: Exam #1 – October 8, 2019 [T] and Exam #2 – November 12, 2019 [T].

Dates are subject to change depending on progression through required course material.

NOTE: See above for make-up policy for exams.

C. Final Project:

There is a final class project (25% of your final grade) where you will demonstrate your skills in GIS. The project is an opportunity to investigate a particular geographic question and provide a deeper understanding of GIS. You will need to acquire spatial data, perform some type of spatial analysis, and make a suite of maps. You will present your project on the scheduled day of the final.

D. Quizzes/ Assignments:

Quizzes and assignments may be given throughout the course. These will focus on the reading and lecture materials and are worth 35% of your final grade. The assignments will be taken from the “Tasks” as the end of each chapter and will be worked on in class.

E. Class Attendance/Participation:

Class attendance /participation is a very important part of learning and will count for 10% of your final grade. You are responsible for notifying the instructor of any known excused absence at least one week before the date of that absence.

INCOMPLETES AND LATE ASSIGNMENTS

All assignments are to be submitted/turned in by the beginning of the class session when they are due—including assignments posted in Canvas. Incompletes will only be assigned in extremely unusual circumstances.

FINAL EXAMINATION POLICY

Successful completion of this class requires taking the final examination **on its scheduled day, Thursday, 12/19/19, 10:30AM-1PM**. The final examination schedule is posted on the [Class Schedules](#) site. No requests for early examinations or alternative days will be approved.

PLNU COPYRIGHT POLICY

Point Loma Nazarene University, as a non-profit educational institution, is entitled by law to use materials protected by the US Copyright Act for classroom education. Any use of those materials outside the class may violate the law.

PLNU ACADEMIC HONESTY POLICY

Students should demonstrate academic honesty by doing original work and by giving appropriate credit to the ideas of others. Academic dishonesty is the act of presenting information, ideas, and/or concepts as one's own when in reality they are the results of another person's creativity and effort. A faculty member who believes a situation involving academic dishonesty has been detected may assign a failing grade for that assignment or examination, or, depending on the seriousness of the offense, for the course. Faculty should follow and students may appeal using the procedure in the university Catalog. See [Academic Policies](#) for definitions of kinds of academic dishonesty and for further policy information.

PLNU ACADEMIC ACCOMMODATIONS POLICY

While all students are expected to meet the minimum standards for completion of this course as established by the instructor, students with disabilities may require academic adjustments, modifications or auxiliary aids/services. At Point Loma Nazarene University (PLNU), these students are requested to register with the Disability Resource Center (DRC), located in the Bond Academic Center. (DRC@pointloma.edu or 619-849-2486). The DRC's policies and procedures for assisting such students in the development of an appropriate academic adjustment plan (AP) allows PLNU to comply with Section 504 of the Rehabilitation Act and the Americans with Disabilities Act. Section 504 (a) prohibits discrimination against students with special needs and guarantees all qualified students equal access to and benefits of PLNU programs and activities. After the student files the required documentation, the DRC, in conjunction with the student, will develop an AP to meet that student's specific learning needs. The DRC will thereafter email the student's AP to all faculty who teach courses in which the student is enrolled each semester. The AP must be implemented in all such courses.

If students do not wish to avail themselves of some or all of the elements of their AP in a particular course, it is the responsibility of those students to notify their professor in that course. PLNU highly recommends that DRC students speak with their professors during the first two weeks of each semester about the applicability of their AP in that particular course and/or if they do not desire to take advantage of some or all of the elements of their AP in that course.

PLNU ATTENDANCE AND PARTICIPATION POLICY

Regular and punctual attendance at all classes is considered essential to optimum academic achievement. If the student is absent from more than 10 percent of class meetings, the faculty member can file a written report which may result in de-enrollment. If the absences exceed 20 percent, the student may be de-enrolled without notice until the university drop date or, after that date, receive the appropriate grade for their work and participation. See [Academic Policies](#) in the Undergraduate Academic Catalog.

TENTATIVE COURSE SCHEDULE (this will most likely change)

Week	Week of	Topic	Chapters in Chang	Notes
1	9/2/2019	Introduction to GIS & ArcGIS	1	
2	9/9/2019	Geospatial data: Coordinate systems	2	
3	9/16/2019	Geospatial data: Vector Data	3	
4	9/23/2019	Geospatial data: Raster Data	4	
5	9/30/2019	Geospatial data	3, 4	
6	10/7/2019	Data acquisition	5	1st Exam – 10/8/19 in class
7	10/14/2019	Data acquisition: Geometric transformation	6	
8	10/21/2019	Data acquisition: Spatial data	7	10/25/19: No Class (Fall Break)
9	10/28/2019	Data management: Attribute data	8	
10	11/4/2019	GIS data	7, 8	
11	11/11/2019	Data display & Cartography	9	2nd Exam – 11/12/19 in class
12	11/18/2019	Data exploration	10	
13	11/25/2019	Data exploration	10	11/27-29/19: No Class (Thanksgiving)
14	12/2/2019	Data analysis: Vector	11	
15	12/9/2019	Data analysis: Raster	12	
16	12/16/2019	Finals Week		FINAL: 12/19/19, 10:30AM-1PM