

Geography 370 – 006 Introduction to Geographic Information

Summer 2021 (Weekdays, May 19 to June 18; 9:45am to 11:15am)

Instructor: *Prof. Javier A. Arce-Nazario*

Office Hours: By appointment.

Geographic data is everywhere, and it is used across a variety of research areas and business endeavors. This course will introduce you to the tools and methods needed to obtain, manage, interpret and display spatial data.

LEARNING OBJECTIVES

At the end of this class, you will not only know how to create digital geographic information, but you will also know how to look critically at maps and remotely sensed imagery and how to evaluate the sources of data and the assumptions that were used to make them. Your goals should be to:

- understand how geographic data is represented, and be comfortable with the different data models and coordinate systems
- develop a skillset allowing you to design maps and carry out simple spatial analyses
- become proficient in basic operations with GIS/Remote Sensing software tools

RECOMMENDED READING

See course website <https://gisunc.github.io/GEOG370Summer2021/>

PREREQUISITES

This is an introductory course, so there are no prerequisites. However, since this is an online course you will be required to have a working computer (Mac, PC or Linux) and internet access. Being patient and open-minded towards computers and technology will make your experience more pleasant.

COURSE PLAN

This is a mostly asynchronous remote course. There will be synchronous sessions two days a week (check schedule). Do not assume that the professor will record these synchronous lectures. Students are *not allowed* to record the zoom meetings, as your fellow students and the professor have not given consent to be recorded.

- **Asynchronous sessions:** You will be required to read course material and watch videos related to theory and methods. The course webpage has the links to the Sakai resources with the data used in the videos. You need to be able to replicate what is done in the video, otherwise you will not understand how to complete the homework or the tests. The benefit of learning techniques with these step-by-step videos is that you can do them at your own pace and repeat them as many times as you want until you feel comfortable doing the exercise. If you do not practice the videos, do not expect to be able to do the homework or the practical tests. The professor is always happy to help; however, you should demonstrate that you have attempted the videos before you ask for help with the technical aspects of a homework or test.

- **Synchronous sessions:**

- Introductory lectures and getting the computer ready. During the first week the professor will help you in the installation of several open-source software programs to manage geographic data, and get you started with most of the software that we will use in class.
- Starting on the second week we will be having meetings on Tuesdays and Thursdays. During these days the professor will give lectures on the theory and other practical information not covered in the webpage videos. We will work on difficulties that students might have with the homework and additional practice exercises. Students are expected to come and present their work during some of the synchronous sessions (check calendar). If for some reason you need to miss one of these sessions and you are expected to present your homework, you will have to make a recording presenting your homework and explaining where you got the data and the steps to create the map or analysis.
- Although occasional internet connection problems are expected, students should try their best to participate via Zoom with their cameras on. In case of trouble connecting, students can dial in by telephone. Students are encouraged to participate in sessions and ask questions, since through these conversations the class can learn the material better, and the professor can better understand the difficulties they might be experiencing. Your professor has a strong *Boricua* accent, so please feel free to ask him to repeat something if you do not understand him. He will not be offended; it is part of his identity.

REQUIREMENTS & GRADE BREAKDOWN

Tests (30%)

The theory will be assessed using a combination of multiple choice and short-answer questions. Students' comprehension of applied techniques will be evaluated through exercises that require them to create a particular type of map or geographic data analysis, using the techniques presented in class. The professor will be on Zoom to answer questions during these tests.

Final Exam (15%)

During the official final exam time students will have a final exam based on the material covered in the previous weeks.

Homework and presentations (50%)

Most of the student's comprehension of the material will be assessed through homework which will be shared and presented to the rest of the class during the small group sessions. Students will create unique maps or analysis that they will share with other students. This is a

very valuable part of the class, as other students learn about data and resources from other students, and the professor learns the interests of the students and can give direct feedback. The instruction and the deadlines for the [9 homework exercises](#) can be found on the [course webpage](#). Turning your homework on time is important, and so 20% will be deducted per day for late submissions. It is important that you verify that you sent through Sakai the correct data and that if you send a link to a homework, that the resources in the link are public and that all the information can be access from the web. It is even more important that you do not miss the small group sessions or fail to present your homework. At least 50% of your grade will be deducted from your homework if you do not show up to the small group session or submit a video in advance presenting how you did your work. During the small group session, be ready to explain how you did your homework and discuss the decisions that you made when designing the map.

Participation, leadership and collaboration (5%)

It is expected that students will actively and respectfully participate in the class discussion, recitations and presentations.

Your projects and assignments will be turned in electronically via Sakai. 20% of any assignment's grade will be deducted per day when the assignment is late. If for some reason your internet access, your health, or other circumstances affect your ability to actively participate, please let the professor know about the situation.

Students taking this course agree to abide by the provisions of the University of North Carolina at Chapel Hill Honor Code.

Final grades will be assigned using the UNC plus/minus letter grade system:

A (93-100) A- (90-92.9) B+ (87-89.9) B (83-86.9) B- (80-82.9) C+ (77-79.9) C (73-76.9) C- (70-72.9) D+ (67-69.9) D (60-66.9) F (<60)

Students with disabilities

UNC facilitates the implementation of reasonable accommodations, including resources and services, for students with disabilities, chronic medical conditions, a temporary disability or pregnancy complications resulting in difficulties with accessing learning opportunities. All accommodations are coordinated through the Accessibility Resources and Service Office (accessibility@unc.edu).

Title IX Resources

Any student who is impacted by discrimination, harassment, interpersonal (relationship) violence, sexual violence, sexual exploitation, or stalking is encouraged to seek resources on campus or in the community. Please contact the Director of Title IX Compliance (Adrienne Allison – Adrienne.allison@unc.edu), Report and Response Coordinators in the Equal Opportunity and Compliance Office (reportandresponse@unc.edu), Counseling and Psychological Services (confidential), or the Gender Violence Services Coordinators

(gvsc@unc.edu; confidential) to discuss your specific needs. Additional resources are available at safe.unc.edu.

Schedule:

Day		Blue bkgd: Sync Activity / Yellow bkgd: Async Requirements	Homework due date
5/19/2021	WED	Introduction/ Install Software / Meet professor and students	
5/20/2021	THU	Work on HW1 / an introduction to projections	HW1
5/21/2021	FRI	Watch videos 1a to 1f (topic: introduction to managing layers in QGIS)	
5/22/2021	SAT		
5/23/2021	SUN		
5/24/2021	MON	Watch videos 2a to 2u (topics: projections, georeferencing and using github)	HW2
5/25/2021	TUE	Additional discussions on projections / Students present HW2	
5/26/2021	WED	Watch videos 3a to 3d on webmapping	
5/27/2021	THU	Discussion on georeferencing and webmapping	
5/28/2021	FRI	Test #1	
5/29/2021	SAT		
5/30/2021	SUN		
5/31/2021	MON		
6/1/2021	TUE	Students present HW3, HW4 / Lecture on attribute table	HW3 & HW4
6/2/2021	WED	Watch videos 4a to 4j (topic: attribute tables, joins and data cleaning)	
6/3/2021	THU	Lecture on ratios and cartography / Students present HW5	HW5
6/4/2021	FRI	Watch videos 4k to 4n	
6/5/2021	SAT		
6/6/2021	SUN		
6/7/2021	MON	Test #2	
6/8/2021	TUE	Students present HW6 / Lecture on geoprocessing	HW6
6/9/2021	WED	Watch videos 5a to 5j (topic: geoprocessing)	
6/10/2021	THU	Students present HW7 / Lecture on basic raster analysis	HW7
6/11/2021	FRI	Watch videos on basic raster and topography	
6/12/2021	SAT		
6/13/2021	SUN		
6/14/2021	MON	Video on remote sensing	
6/15/2021	TUE	Lecture on remote sensing / Students present HW8	HW8
6/16/2021	WED	Test #3	
6/17/2021	THU	Students present HW9 and remote sensing applications	HW9
6/18/2021	FRI	Recap	
6/19/2021	SAT		
6/20/2021	SUN		
6/21/2021	MON	Final Exam	