SIO 110. Introduction to GIS and GPS for Scientists (4)   Fall 2021

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Instructor: Heidi Batchelor   hbatchelor@ucsd.edu

TA: Canyon Breyer   cbreyer@ucsd.edu

Office hours:
Heidi - Thursday 7-8 pm Pacific chat and Friday 4-5pm Pacific Zoom
Canyon – weekly schedule on canvas

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Course Syllabus
Course Description:
A hands-on introduction to science applications of geographic information systems and global positioning system. Students acquire data through GPS field surveys, design and construct GIS using ESRI's ArcGIS software, analyze spatial data, and present the results in a web-based environment. *Prerequisites:* upper-division standing or consent of instructor. (W)

In this introductory course, students will learn the fundamentals of GPS and the data associated with GPS coordinates, and basic geographic information systems (GIS) Topics will include coordinate systems, GPS data collection, basic spatial data analysis, spatial database fundamentals, and web GIS. We will cover the most commonly used spatial data for marine science, with an emphasis on geological and oceanographic data. This course will use the GIS software ArcGIS by ESRI and ArcGIS Online.

Goals and Objectives:
Upon completion of the course, students will be familiar with using different components of ESRI ArcGIS and ArcGIS Online for a variety of oceanographic applications with full ability to integrate GPS data from a hand held GPS, smart phone, and other sources of spatial data. At the end of the course, students will be able to create their own Web GIS application and have a series of map products that can be used in a GIS portfolio.

Course Structure

Student/Course Requirements:
Lab Assignments:
Concepts from lessons will be further reinforced by lab exercises which will also allow students to develop an expertise using ArcGIS software. These will be a combination of questions from reading assignments/classroom lessons and software skills. *Please submit lab assignments through Canvas. Either a pdf or word document is acceptable. Assignments sent as a google drive link cannot be graded – you must upload a pdf or word doc for credit.* All assignments should be completed on or before the due date. Late work will be accepted up to one week late, with a penalty of a 25% reduction in the assignment grade.

Group Activities:
Two group activities will be required. These activities will help students explore areas of interest in greater detail and will facilitate a sense of community within the course. Deliverables will be a set of powerpoint (or similar) slides.

Discussions:
Discussion board posts will be assigned throughout the course. These will be student responses to a posted set of questions.

Exams:
One online midterm exam will be required. The exam is open note, multiple choice questions.

One online final exam will be required during the week of finals. Exam is open note, only one attempt will be permitted. The final exam will consist of multiple choice questions and a software exercise.

Course Materials:
Main Course Lab Assignment Book
The ArcGIS Book (free e book at https://learn.arcgis.com/en/arcgis-book/)
  Print edition ISBN: 9781589484870

Computer: Class will meet in a computer lab, which has many open hours each week for student use. Students can also use their own windows computer, or use the GIS lab computers in the Geisel Library.

Software: We will use ESRI ArcGIS Pro and ArcGIS Online with publishing rights in our course. Software can be installed on a student's own windows computer, or can be accessed through ERC 117 or Geisel Library GIS lab machines. Accounts are tied to your AD (email) account.

Course Information:

SIO 110 will be taught as a fully in-person course on campus.
All participants will be required to wear a mask at all times in class. Food and drinks are not permitted in the computer lab, but there will be several breaks each day.

In the event that someone needs to miss class due to illness or quarantine, please email the instructor as soon as possible. We will provide course materials to you and provide the ability to use the software remotely when you are feeling well enough to complete the assignments. We will help you as much as we can to complete the course.

What to expect from the instructor
I will respond to emails within 48 hours, and grade all assignments within a week of the due date. I am here to help you learn, and will do everything I can to help. Online and in-person interactions are available to you several times each week with the instructor or TA.

Student responsibilities
Each week there will be a Module to follow on Canvas – this will give you all of the information for lessons, demonstrations, discussions, lab assignments, and anything else you will need to know for the course.

1. Participate in the course. Come to class and to the lab.

2. Complete the lab assignments – each one will build on the skills from the previous assignments, and we minimize repetition. Many people need to go through the work more than one time to fully understand the topics.

3. Let us know if you need help, are falling behind, have questions, or need extra time. We can't help you unless we know there is a problem! There are many opportunities for assistance – office hours are available with the instructor and TA, and there is an area on Canvas to post questions for help with the lab assignments.

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Grading System:

8 Lab assignments:	720 points
2 Group assignments:	080 points
Discussions:	50 points
Mid term Exam:	50 points
Final Exam:	100 points

Grades are based on percent earned
Grading scale:

A+	96-100	B-	80-82
A	93-95	C+	76-79
A-	90-92	C:	73-75
B+	86-89	C-	70-72
B	83-85	D	60-69
		F:	below 60

Due dates:

Discussions as assigned	Lab 6 – Nov 8
Lab 1 – Oct 4	Lab 7 – Nov 22
Lab 2 – Oct 11	Lab 8 – Dec 1
Lab 3 – Oct 18	
Lab 4 – Oct 25	Group project 1 – Oct 20
Lab 5 – Nov 1	Group project 2 – Nov 24

Mid Term Exam – Nov 10

Welcome to SIO 110!

Instructor's Diversity Statement

All students are welcome in our course. The nature of GIS requires incorporating different fields and backgrounds – all backgrounds are welcome in our course.

I will gladly honor your request to address you by an alternate name or gender pronoun. Please advise me early in the semester so that I may make appropriate changes to my records. I support the values of UC San Diego to "create a diverse, equitable, and inclusive campus in which students, faculty, and staff can thrive".

If you feel like your performance in the class is being negatively impacted by your experiences outside of class, please let me or the TA know. We are here to help. If something was said in class by anyone involved with our course that made you feel uncomfortable, please let me know – you can email or talk with me any time. (Anonymous feedback is also an option.)

As a participant in our course, you should also strive to honor the diversity of your classmates. Please submit anonymous feedback if you have any suggestions to improve the quality of the course materials – there is a space on canvas for suggestions. You can also contact me any time to discuss concerns.

From UCSD

Student Resources

UC San Diego (as an institution) and I (as a human being and instructor of this course) are committed to full inclusion in education for all persons. Services and reasonable accommodations are available to students with temporary and permanent disabilities, to students with DACA or undocumented status, to students with health or other personal concerns, and to students with other kinds of support needs. Please feel free to let me know if there are circumstances affecting your ability to participate in class. Some resources that might be of use include:

Basic Needs
Any student who has difficulty accessing sufficient food to eat every day, or who lacks a safe and stable place to live, and believes this may affect their performance in this course, is encouraged to contact:
foodpantry@.ucsd.edu | basicneeds@ucsd.edu | (858)246-2632

CAPS Student Health and Well-Being
Provides services like confidential counseling and consultations for psychiatric services and mental health programming https://wellness.ucsd.edu/caps/

Community Centers *As part of the Office of Equity, Diversity, and Inclusion the campus community centers provide programs and resources for students and contribute toward the evolution of a socially just campus* https://students.ucsd.edu/student-life/diversity/

Triton Concern Line *Report students of concern at (858) 246-1111*
https://blink.ucsd.edu/instructors/advising/concern/

Undocumented Student Services *Programs and services are designed to help students overcome obstacles that arise from their immigration status and support them through personal and academic excellence* https://uss.ucsd.edu/

Office of Equity, Diversity, and Inclusion
858.822.3542 | diversity@ucsd.edu | https://diversity.ucsd.edu/

Student Life: Diversity
https://students.ucsd.edu/student-life/diversity/

Policy on University of California Diversity Statement
https://regents.universityofcalifornia.edu/governance/policies/4400.html

Accessibility
Students requesting accommodations for this course due to a disability must provide a current Authorization for Accommodation (AFA) letter issued by the Office for Students with Disabilities (OSD) which is located in University Center 202 behind Center Hall. Students are required to present their AFA letters to Faculty (please make arrangements to contact me privately) and to the OSD Liaison in the department in advance so that accommodations may be arranged.

Office for Students with Disabilities (OSD) *Documents student disabilities, provides accessibility resources, and reasonable accommodations*
858.534.4382 | osd@ucsd.edu | https://disabilities.ucsd.edu/

UC San Diego Principles of Community
The University of California, San Diego is dedicated to learning, teaching, and serving society through education, research, and public service. Our international reputation for excellence is due in large part to the cooperative and entrepreneurial nature of the UC San Diego community. UC San Diego faculty, staff, and students are encouraged to be creative and are rewarded for individual as well as collaborative achievements.

To foster the best possible working and learning environment, UC San Diego strives to maintain a climate of fairness, cooperation, and professionalism. These principles of community are vital to the success of the University and the well being of its constituents. UC San Diego faculty, staff, and students are expected to practice these basic principles as individuals and in groups. Click here for the complete UC San Diego Principles of Community in English and Spanish.

UC San Diego Academic Policies
Academic Integrity
Academic Integrity is expected of everyone at UC San Diego. This means that you must be honest, fair, responsible, respectful, and trustworthy in all of your actions. Lying, cheating or any other forms of dishonesty will not be tolerated because they undermine learning and the University's ability to certify students' knowledge and abilities. Thus, any attempt to get, or help another get, a grade by cheating, lying or dishonesty will be reported to the Academic Integrity Office and will result sanctions. Sanctions can include an F in this class and suspension or dismissal from the University. So, think carefully before you act by asking yourself:

a) is what I'm about to do or submit for credit an honest, fair, respectful, responsible & trustworthy representation of my knowledge and abilities at this time and,

b) would my instructor approve of my action?

You are ultimately the only person responsible for your behavior. So, if you are unsure, don't ask a friend—ask your instructor, instructional assistant, or the Academic Integrity Office. You can learn more about academic integrity at http://academicintegrity.ucsd.edu

      (Source: Academic Integrity Office, 2018)

Classroom Behavior Policy
We treat everyone with respect in our course. Food and drinks, including water, cannot be in the classroom. We will take frequent breaks to allow for everyone's comfort. Please silence electronics. There will be ample time to check email, etc. during breaks and open lab time.

UCSD Student Conduct Code
https://students.ucsd.edu/_files/student-conduct/ucsandiego-student-conduct-code_interim-revisions1-16-18.pdf
Principles of Community https://ucsd.edu/about/principles.html

Religious Accommodation
It is the policy of the university to make reasonable efforts to accommodate students having bona fide religious conflicts with scheduled examinations by providing alternative times or methods to take such examinations. If a student anticipates that a scheduled examination will occur at a time at which his or her religious beliefs prohibit participation in the examination, the student must submit to the instructor a statement describing the nature of the religious conflict and specifying the days and times of conflict.

For final examinations, the statement must be submitted no later than the end of the second week of instruction of the quarter.

For all other examinations, the statement must be submitted to the instructor as soon as possible after a particular examination date is scheduled.

If a conflict with the student's religious beliefs does exist, the instructor will attempt to provide an alternative, equitable examination that does not create undue hardship for the instructor or for the other students in the class.

See: [EPC Policies on Religious Accommodation, Final Exams, Midterm Exams](#)

Nondiscrimination and Harassment
The University of California, in accordance with applicable federal and state laws and university policies, does not discriminate on the basis of race, color, national origin, religion, sex, gender, gender identity, gender expression, pregnancy (including pregnancy, childbirth, and medical conditions related to pregnancy or childbirth), physical or mental disability, medical condition, genetic information, ancestry, marital status, age, sexual orientation, citizenship, or service in the uniformed services (including membership, application for membership, performance of service, application for service, or obligation for service in the uniformed services). The university also prohibits

harassment based on these protected categories, including sexual harassment, as well as sexual assault, domestic violence, dating violence, and stalking. The nondiscrimination policy covers admission, access, and treatment in university programs and activities.

If students have questions about student-related nondiscrimination policies or concerns about possible discrimination or harassment, they should contact the Office for the Prevention of Harassment & Discrimination (OPHD) at (858) 534-8298, ophd@ucsd.edu, or http://reportbias.ucsd.edu.

Campus policies provide for a prompt and effective response to student complaints. This response may include alternative resolution procedures or formal investigation. Students will be informed about complaint resolution options.

A student who chooses not to report may still contact CARE at the Sexual Assault Resource Center for more information, emotional support, individual and group counseling, and/or assistance with obtaining a medical exam. For off-campus support services, a student may contact the Center for Community Solutions. Other confidential resources on campus include Counseling and Psychological Services, Office of the Ombuds, and Student Health Services.

CARE at the Sexual Assault Resource Center 858.534.5793 | sarc@ucsd.edu | https://care.ucsd.edu

Counseling and Psychological Services (CAPS) 858.534.3755 | https://caps.ucsd.edu

See: Nondiscrimination Policy Statement