

Term Information

Effective Term Spring 2021
Previous Value Autumn 2015

Course Change Information

What change is being proposed? (If more than one, what changes are being proposed?)

We are proposing this course be offered in alternative formats. In addition to the traditional in person lecture, we propose to teach this course as a completely online course.

What is the rationale for the proposed change(s)?

The new format will make the course more available to students in all terms who need the course offered in an alternative format to accommodate work or athletic schedules, greater accessibility needs, as well as to accommodate students who are away from the OSU campus. The COVID-19 pandemic has also made it necessary for our courses to have online offerings. Alternative formats will also provide greater capacity potential enrollments without detracting from student learning and instructor engagement.

What are the programmatic implications of the proposed change(s)?

(e.g. program requirements to be added or removed, changes to be made in available resources, effect on other programs that use the course)?

None

Is approval of the request contingent upon the approval of other course or curricular program request? No

Is this a request to withdraw the course? No

General Information

Course Bulletin Listing/Subject Area Geography
Fiscal Unit/Academic Org Geography - D0733
College/Academic Group Arts and Sciences
Level/Career Graduate, Undergraduate
Course Number/Catalog 5210
Course Title Fundamentals of Geographic Information Systems
Transcript Abbreviation Fundamentals GIS
Course Description Basic principles of geographic and land information systems and their use in spatial analysis and information management.
Semester Credit Hours/Units Fixed: 3

Offering Information

Length Of Course 14 Week, 12 Week, 8 Week, 7 Week, 6 Week
Flexibly Scheduled Course Never
Does any section of this course have a distance education component? Yes
Is any section of the course offered 100% at a distance
Previous Value No
Grading Basis Letter Grade
Repeatable No
Course Components Recitation, Lecture
Grade Roster Component Recitation

Credit Available by Exam	No
Admission Condition Course	No
Off Campus	Never
Campus of Offering	Columbus

Prerequisites and Exclusions

Prerequisites/Corequisites

Exclusions

Not open to students with credit for 5220, CRPlan 5001, or CivilEn 5001.

[Previous Value](#)

Not open to students with credit for 5220 (607), CRPlan 5001 (607), or CivilEn 5001(607).

Electronically Enforced

No

Cross-Listings

Cross-Listings

Subject/CIP Code

Subject/CIP Code	27.0304
Subsidy Level	Doctoral Course
Intended Rank	Junior, Senior, Masters, Doctoral

Requirement/Elective Designation

Required for this unit's degrees, majors, and/or minors

The course is an elective (for this or other units) or is a service course for other units

Course Details

Course goals or learning objectives/outcomes

- Understand the fundamentals of GIS
- Practical skills with GIS software

Content Topic List

- GIS data and map projection
- Thematic maps
- Map design
- GIS data sources
- Vector geoprocessing
- Raster geoprocessing
- Spatial databases
- Spatial data analysis

Sought Concurrence

No

COURSE CHANGE REQUEST
5210 - Status: PENDING

Last Updated: Vankeerbergen, Bernadette
Chantal
09/08/2020

Attachments

- GEOG5210-online-fundamentals-of-GIS.docx: Syllabus (online)
(Syllabus. Owner: Xiao, Ningchuan)
- GEOG5210-inperson-fundamentals-of-GIS.pdf: In-person syllabus
(Syllabus. Owner: Xiao, Ningchuan)
- GEOG5210-asctech-review.docx: ASCTech review (online)
(Other Supporting Documentation. Owner: Xiao, Ningchuan)

Comments

Workflow Information

Status	User(s)	Date/Time	Step
Submitted	Xiao, Ningchuan	07/20/2020 01:53 AM	Submitted for Approval
Approved	Munroe, Darla Karin	07/24/2020 05:33 PM	Unit Approval
Approved	Haddad, Deborah Moore	07/25/2020 09:04 AM	College Approval
Pending Approval	Jenkins, Mary Ellen Bigler Hanlin, Deborah Kay Oldroyd, Shelby Quinn Vankeerbergen, Bernadette Chantal	07/25/2020 09:04 AM	ASCCAO Approval



SYLLABUS

GEOG5210

FUNDAMENTALS OF GIS (ONLINE)

AUTUMN 2020 - ONLINE

Course overview

Instructor

Instructor: Dr. Emily S. Castellucci
Email address: castellucci.5@osu.edu
Office hours: See the CarmenCanvas Calendar
Office Location: CarmenZoom

Course description

This course introduces principles of geographic information systems (GIS) and their applications in spatial analysis and information management. The course is designed to give students an understanding of cutting-edge geospatial technologies, their capabilities, uses, and limitations. Representative applications for each discipline area are demonstrated in the computer laboratory portion.

Course learning outcomes

By the end of this course, students should successfully be able to:

- Communicate the applicability of GIS and spatial analysis in the present day.
- Create geospatial data from scratch or from existing geospatial data sources.
- Work with geospatial data, including access, management, and manipulation spatial data.
- Utilize spatial functions and operations in the manipulation of spatial data, as appropriate to various contexts.
- Generate sharable outputs resulting from geospatial analyses, including in cartographic form using basic mapping principles.
- Connect concepts learned in class to real world problems, workflows, and solutions.

How This Course Works

Mode of delivery

This course is 100% online. *There are no required sessions when you must be logged in to Carmen at a scheduled time.*

Pace of online activities

This course is divided into **weekly modules** that are released at least one week ahead of time. Students are expected to keep pace with weekly deadlines but may schedule their efforts freely within that time frame.

Credit hours and work expectations

This is a **3-credit-hour course**. According to [Ohio State policy](#), students should expect around 3 hours per week of time spent on direct instruction (instructor content and Carmen activities, for example) in addition to 6 hours of homework (reading and assignment preparation, for example) to receive a grade of (C) average.

Course materials

We will use the book *GIS Fundamentals: A First Text on Geographic Information Systems*, 6th Edition by Paul Bolstad (2019) as the **recommended/optional** (not required) text for this course. The ISBN-13 for the paperback is 9781593995522. It is available for purchase in print or electronic format from the campus bookstore, Amazon, the publisher (XanEdu), etc.

Course technology

For help with your password, university e-mail, Carmen, or any other technology issues, questions, or requests, contact the OSU IT Service Desk. Standard support hours are available at <https://ocio.osu.edu/help/hours>, and support for urgent issues is available 24x7.

- **Self-Service and Chat support:** <http://ocio.osu.edu/selfservice>
- **Phone:** 614-688-HELP (4357)
- **Email:** 8help@osu.edu
- **TDD:** 614-688-8743

Baseline technical skills for online courses

- Basic computer and web-browsing skills
- Navigating Carmen: for questions about specific functionality, see the [Canvas Student Guide](#).
- [CarmenZoom virtual meetings](#)

Required equipment

- Computer: current PC (Windows 7+) or Mac (OS X) with high-speed internet connection

- Webcam: built-in or external webcam, fully installed
- Microphone: built-in or external microphone, fully installed

Required software

Please keep in mind that you are NOT required to purchase any software for this class. The following list should help you access the software free-of-cost to you as a student in this class.

- [Microsoft Office 365 ProPlus](#) All Ohio State students are now eligible for free Microsoft Office 365 ProPlus through Microsoft's Student Advantage program. Each student can install Office on five PCs or Macs, five tablets (Windows, iPad® and Android™) and five phones.
 - Students are able to access Word, Excel, PowerPoint, Outlook and other programs, depending on platform. Users will also receive 1 TB of OneDrive for Business storage.
 - Office 365 is installed within your BuckeyeMail account. Full instructions for downloading and installation can be found at <https://ocio.osu.edu/kb04733>.
- ArcGIS Pro
 - ArcGIS Pro is provided free-of-cost to OSU students, staff, and faculty for educational and research purposes under the ESRI Education Site License Program. You may review ESRI's privacy policies at [Esri Privacy](#).
 - Full instructions for downloading and installing can be found at <https://osu.box.com/s/qxrdqgoni1qvhc0esjgsvm5dpoxhypvl>. **DO NOT attempt to download and install this software using any other method.** Otherwise, you might end up with the wrong software, the wrong version of the software, or a paywall when you should have free and unlimited access while a student.
 - For information about accessibility, visit [Accessibility in ArcGIS Pro](#).
 - Note for Mac users: ArcGIS Pro requires a Windows operating system. If you can install Windows on your Mac using Parallels, Boot Camp, VMWare Fusion, or a similar program, then you should be to install ArcGIS Pro. If installing Windows on your machine is not an option, then you will need to access this software using the RemoteLab option (see below).
 - Email esri-support@osu.edu for ArcGIS Pro technical support. If they are unable to help you install ArcGIS Pro on your machine, then you will need to access this software using the Remote Lab option (see below).
- QGIS
 - This is the leading open source desktop GIS software that is available free-of-cost. You can download the software from here: <https://qgis.org/en/site/forusers/download.html>.
 - Successful download and installation of QGIS is ultimately the student's responsibility. You may contact your instructor/TA with installation-related questions, but we cannot guarantee that we'll be able to resolve all issues. If you

are unable to install QGIS on your own machine, then you will need to access this software using the RemoteLab option (see below).

- RemoteLab
 - If you have any trouble with downloading, installing, or using ArcGIS Pro or QGIS on your own machine, you may access the computers in the Derby Hall 0135 and 0140 computer labs via remotelab.osu.edu.
 - Instructions for using RemoteLab can be found at [this Google Doc](#).
 - Important: It is best if you can download, install, and use ArcGIS Pro and QGIS on your own machine, rather than via RemoteLab, because there are a limited number of computers available remotely, so please only use this option of absolutely needed.
 - Email Jens Blegvad at belgvad.1@osu.edu for RemoteLab technical support.

Carmen Access

You will need to use [BuckeyePass](#) multi-factor authentication to access your courses in Carmen. To ensure that you are able to connect to Carmen at all times, it is recommended that you take the following steps:

- Register multiple devices in case something happens to your primary device. Visit the [BuckeyePass - Adding a Device](#) help article for step-by-step instructions.
- Request passcodes to keep as a backup authentication option. When you see the Duo login screen on your computer, click **Enter a Passcode** and then click the **Text me new codes** button that appears. This will text you ten passcodes good for 365 days that can each be used once.
- Download the [Duo Mobile application](#) to all of your registered devices for the ability to generate one-time codes in the event that you lose cell, data, or Wi-Fi service.

If none of these options will meet the needs of your situation, you can contact the IT Service Desk at 614-688-4357 (HELP) and IT support staff will work out a solution with you.

Grading and faculty response

Grades

Assignment or category	Percentage
Participation	10
Exams (6)	42
Labs (10)	48

Total	100
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See course schedule, below, for due dates

Assignment information

Participation

With each module, there will be 1-2 participation activities, usually 0.5-1 point each. Your goal is to accumulate 10+ points to receive full credit for the participation portion of your grade.

Exams

There will be 6 short, noncumulative exams. Each exam will be...

- *Timed.* (If you are registered with SLDS for extended time accommodations, please confirm that extended time has been granted before you begin the exam.)
- *Open-note.* This means that you can use the lecture slides, the handouts, your notes, the textbook, etc.
- *Completed independently.* You should complete the exam by yourself. Collaboration with one or more other persons will be considered academic misconduct.
- *Allowed only one attempt.* Be sure that you are ready to complete the exam in one sitting before you begin.
- *Graded immediately.* Your grade should be visible as soon as you click Submit; if it is not, please notify your instructor. Correct answers will be posted once the "available until" date and time has passed (i.e. once the exam closes).
- *Password protected.* You'll find the password in the quiz instructions, so make sure you read the instructions before you click Take the Quiz.

Labs

There will be 10 labs. You will be provided with data and step-by-step instructions for each lab, but keep in mind that the process of completing any given lab may not go as smoothly as planned. Unexpected challenges may arise, so it is best to plan for this. Set a goal to submit each lab in advance of the deadline. That way, if unexpected challenges do arise, you have time to deal with them before the deadline passes.

If you need assistance with a lab, you are required to post your question(s) in the Q&A discussion board for that lab. If you attempt to contact your instructor/TA with your lab-related question, you will be directed to post your question in the discussion board before it is answered. (The only exception to this is grade-related questions. These are private!) Using the discussion boards for Q&A is how your instructor/TA can avoid answering the same questions repeatedly, and the discussion board becomes an excellent archive for editing the lab for use in future semesters.

Late assignments

- You can submit assignments up to **one week late** unless otherwise noted, and the late penalty is 5% (of the total possible score) per day. The late penalty will not reduce grades to below 70% (of the total possible score). Late penalties are managed by the course website and automatically applied.
- Extensions are NOT typically granted due to getting “stuck,” encountering unexpected errors, software crashes, lost work, or other issues related to these. This is because these are realistic issues that you are likely to encounter when performing GIS work outside of this class, and you need to learn how to manage these issues. However, do keep in touch with your instructor/TA when issues arise so that we can provide support.

Grading scale

92.5–100: A
 89.5–92.49: A-
 86.5–89.49: B+
 82.5–86.49: B
 79.5–82.49: B-
 76.5–79.49: C+
 72.5–76.49: C
 69.5–72.49: C-
 66.5–69.49: D+
 59.5–66.49: D
 Below 59.5: E

Instructor feedback and response time

I am providing the following list to give you an idea of my intended availability throughout the course.

Grades and feedback

You can generally expect grades and feedback to be returned within **7 days** once the assignment’s deadline has passed. More or less time may be needed, depending on the complexity of the assignment.

E-mail and discussion boards

I usually reply to e-mails and discussion board posts within **24 hours on school days**. This usually occurs during normal work hours (8am-5pm), and although I might reply to emails outside of those hours, please do not expect this.

What should I call my instructor?

Use the proper title when addressing your instructors/TAs. Recommended resource: [What should I call my professor?](#) For example: Because Emily S. Castellucci has a Ph.D., it's always Dr. Castellucci, *never* Ms., Mrs., or Miss.

Attendance, participation, and discussions

Student participation requirements

Because this is a distance-education course, your attendance is based on your online activity and participation. The following is a summary of everyone's expected participation:

- **Logging in: AT LEAST ONCE PER WEEK**
Be sure you are logging in to the course in Carmen each week, including weeks with holidays or weeks with minimal online course activity. (During most weeks you will probably log in many times.) If you have a situation that might cause you to miss an entire week of class, discuss it with me *as soon as possible*.
- **Office hours and live sessions: OPTIONAL**
All live, scheduled events for the course, including my office hours, are optional.
- **Participating in discussion forums: 0-2 TIMES PER WEEK (FLEXIBLE)**
There are two ways that we'll be using discussion forums.
 - In each module, there will be 1-2 participation activities (each worth 0.5 - 1 point), and many of these activities will require participation in a discussion forum. Your goal is to accrue 10+ points by the end of the semester, which allows some flexibility for which participation activities you choose to complete.
 - There is a Q&A discussion forum for every lab. These forums are for addressing lab-specific questions, and you may engage with these forums as needed. Participating in these forums does not affect your participation grade.

Discussion and communication guidelines

The following are my expectations for how we should communicate as a class. Above all, please remember to be respectful and thoughtful.

- **Writing style:** While there is no need to participate in class discussions as if you were writing a research paper, you should remember to write using good grammar, spelling, and punctuation. (Note: Excessive grammar, spelling, or punctuation errors in discussions or any other assignment submissions may be penalized at the discretion of the instructor/TA.) A more conversational tone is fine for non-academic topics.
- **Tone and civility:** Let's maintain a supportive learning community where everyone feels safe and where people can disagree amicably. Remember that sarcasm doesn't always come across online.

- **Citing your sources:** When we have academic discussions, please cite your sources to back up what you say. For the textbook or other course materials, list at least the title and page numbers. For online sources, include a link.
- **Backing up your work:** Consider composing your academic posts in a word processor, where you can save your work, and then copying into the Carmen discussion.

Other course policies

Academic integrity policy

Ohio State's academic integrity policy

Academic integrity is essential to maintaining an environment that fosters excellence in teaching, research, and other educational and scholarly activities. Thus, The Ohio State University and the Committee on Academic Misconduct (COAM) expect that all students have read and understand the university's [Code of Student Conduct](#), and that all students will complete all academic and scholarly assignments with fairness and honesty. Students must recognize that failure to follow the rules and guidelines established in the university's *Code of Student Conduct* and this syllabus may constitute "Academic Misconduct."

The Ohio State University's *Code of Student Conduct* (Section 3335-23-04) defines academic misconduct as: "Any activity that tends to compromise the academic integrity of the university or subvert the educational process." Examples of academic misconduct include (but are not limited to) plagiarism, collusion (unauthorized collaboration), copying the work of another student, and possession of unauthorized materials during an examination. Ignorance of the university's *Code of Student Conduct* is never considered an excuse for academic misconduct, so I recommend that you review the *Code of Student Conduct* and, specifically, the sections dealing with academic misconduct.

If I suspect that a student has committed academic misconduct in this course, I am obligated by university rules to report my suspicions to the Committee on Academic Misconduct. (Note that "warnings" are not given due to an offense being one's first offense, due to ignorance of what constitutes academic misconduct, or due to any other circumstances.) If COAM determines that you have violated the university's *Code of Student Conduct* (i.e., committed academic misconduct), the sanctions for the misconduct could include a failing grade in this course and suspension or dismissal from the university.

Other sources of information on academic misconduct (integrity) to which you can refer include:

- The Committee on Academic Misconduct web pages ([COAM Home](#))
- *Ten Suggestions for Preserving Academic Integrity* ([Ten Suggestions](#))
- *Eight Cardinal Rules of Academic Integrity* (www.northwestern.edu/uacc/8cards.htm)

Academic integrity information specific to this course

Collaboration for the purposes of troubleshooting is highly encouraged in this course, but everyone is expected to complete all assignment tasks themselves and submit their own unique work. With this in mind, here are some examples of acceptable and unacceptable behavior:

- Acceptable:
 - Asking a classmate how to resolve an unexpected error message, how to find a hidden setting in the software, or similar troubleshooting tasks.
 - Participating in a study group study the course material.
 - Asking a trusted person to proofread (without revising or rewriting) your assignments before you turn them in.
- Unacceptable:
 - Using another student's work (in part or in full) as your own.
 - Sharing files and/or using shared files that contain intermediate or final results.
 - Submitting the same work (even if modified) from a past semester or from another course.
 - Comparing and/or sharing answers before submitting a graded assignment.
 - Forgetting to cite sources, including the course materials, websites visited, etc.

There are many other acceptable/unacceptable actions than those exemplified here, so if you have any questions or concerns about acceptable/unacceptable actions or what constitutes academic misconduct in this course, ask your instructor for clarification/permission.

Copyright disclaimer

The materials used in connection with this course may be subject to copyright protection and are only for the use of students officially enrolled in the course for the educational purposes associated with the course. Copyright law must be considered before copying, retaining, or disseminating materials outside of the course.

Statement on title IX

All students and employees at Ohio State have the right to work and learn in an environment free from harassment and discrimination based on sex or gender, and the university can arrange interim measures, provide support resources, and explain investigation options, including referral to confidential resources.

If you or someone you know has been harassed or discriminated against based on your sex or gender, including sexual harassment, sexual assault, relationship violence, stalking, or sexual exploitation, you may find information about your rights and options at titleix.osu.edu or by contacting the Ohio State Title IX Coordinator at titleix@osu.edu. Title IX is part of the Office of Institutional Equity (OIE) at Ohio State, which responds to all bias-motivated incidents of harassment and discrimination, such as race, religion, national origin and disability. For more information on OIE, visit equity.osu.edu or email equity@osu.edu.

Statement on diversity

The Ohio State University affirms the importance and value of diversity in the student body. Our programs and curricula reflect our multicultural society and global economy and seek to provide opportunities for students to learn more about persons who are different from them. We are committed to maintaining a community that recognizes and values the inherent worth and dignity of every person; fosters sensitivity, understanding, and mutual respect among each member of our community; and encourages each individual to strive to reach his or her own potential. Discrimination against any individual based upon protected status, which is defined as age, color, disability, gender identity or expression, national origin, race, religion, sex, sexual orientation, or veteran status, is prohibited.

Accessibility accommodations for students with disabilities

The University strives to make all learning experiences as accessible as possible. If you anticipate or experience academic barriers based on your disability (including mental health, chronic or temporary medical conditions), please let me know immediately so that we can privately discuss options. To establish reasonable accommodations, I may request that you register with Student Life Disability Services. After registration, make arrangements with me as soon as possible to discuss your accommodations so that they may be implemented in a timely fashion. SLDS contact information: slds@osu.edu; 614-292-3307; slds.osu.edu; 098 Baker Hall, 113 W. 12th Avenue.

Accessibility of course technology

This online course requires use of Carmen (Ohio State's learning management system) and other online communication and multimedia tools. If you need additional services to use these technologies, please request accommodations with your instructor.

- [CarmenCanvas accessibility](#)
- [CarmenZoom accessibility](#)

Your mental health!

As a student you may experience a range of issues that can cause barriers to learning, such as strained relationships, increased anxiety, alcohol/drug problems, feeling down, difficulty concentrating and/or lack of motivation. These mental health concerns or stressful events may lead to diminished academic performance or reduce a student's ability to participate in daily activities. The Ohio State University offers services to assist you with addressing these and other concerns you may be experiencing. If you or someone you know are suffering from any of the

aforementioned conditions, you can learn more about the broad range of confidential mental health services available on campus via the Office of Student Life's Counseling and Consultation Service (CCS) by visiting ccs.osu.edu or calling 614- 292-5766. CCS is located on the 4th Floor of the Younkin Success Center and 10th Floor of Lincoln Tower. You can reach an on call counselor when CCS is closed at 614-292-5766 and 24 hour emergency help is also available through the 24/7 National Suicide Prevention Hotline at 1-800-273- TALK or at suicidepreventionlifeline.org.

Disclaimer

This course syllabus provides a general plan for the course; deviations may be necessary. Such deviations may be made for individuals or for the entire class, as deemed appropriate by the instructor. Any changes that affect the entire class will be announced by the instructor with as much advance notice as possible.

Course schedule

Week	Days	Start Date	End Date	Activities
1	1-5	T 8/25	M 8/31	Course Introduction Lab 0 - Setting Up
2	6-10	T 9/1	T 9/8	Lecture 1 - An Introduction to GIS Read: Chapter 1 from Bolstad (2019) Lab 1 - An Introduction to GIS
3	11-15	W 9/9	T 9/15	Lecture 2 - Data Models Read: Chapter 2 from Bolstad (2019) Lab 2 - Data Models Exam 1 - Lectures 1-2
4	16-20	W 9/16	T 9/22	Lecture 3 - Geodesy, Datums, Map Projections and Coordinate Systems Read: Chapter 3 from Bolstad (2019) Lab 3 - Geodesy, Datums, Map Projections and Coordinate Systems
5	21-25	W 9/23	T 9/29	Lecture 4 - Maps, Data Entry, Editing, and Output Read: Chapter 4 from Bolstad (2019) Lab 4 - Maps, Data Entry, Editing, and Output - Part 1
6	26-30	W 9/30	T 10/6	Lab 5 - Maps, Data Entry, Editing, and Output - Part 2 Exam 2 - Lectures 3-4
7	31-35	W 10/7	T 10/13	Lecture 5 - Global Navigation Satellite System and Coordinate Surveying Read: Chapter 5 from Bolstad (2019) Part 1 of Lab 6 - Global Navigation Satellite Systems, Aerial and Satellite Images, Digital Data, and Attribute Data & Tables

				Lecture 6 - Aerial and Satellite Images
				Read: Chapter 6 from Bolstad (2019)
				Part 2 of Lab 6 - Global Navigation Satellite Systems, Aerial and Satellite Images, Digital Data, and Attribute Data & Tables
8	36-40	W 10/14	T 10/20	Lecture 7 - Digital Data
				Read: Chapter 7 from Bolstad (2019)
				Part 3 of Lab 6 - Global Navigation Satellite Systems, Aerial and Satellite Images, Digital Data, and Attribute Data & Tables
				Exam 3 - Lectures 5-7
9	41-45	W 10/21	T 10/27	Lecture 8 - Attribute Data and Tables
				Read: Chapter 8 from Bolstad (2019)
				Lecture 9 - Basic Spatial Analysis
				Read: Chapter 9 from Bolstad (2019)
10	46-50	W 12/28	T 11/3	Lab 7 - Basic Spatial Analysis
				Exam 4 - Lectures 8-9
11	51-55	W 11/4	T 11/10	Lecture 10 - Topics in Raster Analysis
				Read: Chapter 10 from Bolstad (2019)
				Lecture 11 - Terrain Analysis
				Read: Chapter 11 from Bolstad (2019)
12	56-60	R 11/12	W 11/18	Lab 8 - Topics in Raster Analysis and Terrain Analysis
				Exam 5 - Lectures 10-11
13	61-65	R 11/19	W 11/25	Lecture 12 - Spatial Estimation: Interpolation, Prediction, and Core Area Delineation
				Read: Chapter 12 from Bolstad (2019)
				Lab 9 - Spatial Estimation: Interpolation, Prediction, and Core Area Delineation
14	66-70	M 11/30	F 12/4	Lecture 13 - Spatial Models and Modeling
				Read: Chapter 13 from Bolstad (2019)
				Lab 10 - Spatial Models and Modeling
15	Finals	M 12/7	F 12/11	Lecture 14 - Data Standards and Data Quality
				Read: Chapter 14 from Bolstad (2019)
				Exam 6 - Lectures 12-14
				Course Conclusion

GEOG 5210 Fundamentals of GIS – Spring 2020

Meeting Times:

Lecture: MW 3:00-3:55pm, CBEC 130

Lab: M or W 4:10-5:05pm, Derby Hall 135

OR

Lecture: TR 10:20-11:15am, Scott Lab E001

Lab: T or R 11:30am-12:25pm, Derby Hall 135

Instructor Name and Email: Dr. Emily S. Castellucci, castellucci.5@osu.edu

Office Hours and Location: My office is Derby Hall 1168. To schedule a meeting with me, please visit the course website (Carmen) and go to [Calendar](#) > Find Appointment. By default, all meetings are 15 minutes in length. If you would like to meet for longer than 15 minutes, please schedule more than one meeting. Yes, you may schedule meetings back-to-back. If none of the times that I am available work for you, please email me with times that do work for you, and I'll see what I can do. If you cannot make your appointment, please cancel. Thanks so much!

Teaching Assistant(s):

<i>Name</i>	<i>Email</i>	<i>Office Hours and Location</i>
Blake Acton (MW)	acton.58@osu.edu	MW 5:05-5:35pm (after lab) in Derby 0135 and F 2:00-4:00pm (virtual)
Zhihao Wang (TR)	wang.11424@osu.edu	W 9:00-11:00am in Derby 0160

Course Description: This course introduces principles of geographic information systems (GIS) and their applications in spatial analysis and information management. The course is designed to give students an understanding of cutting-edge geospatial technologies, their capabilities, uses, and limitations. Representative applications for each discipline area are demonstrated in the computer laboratory portion.

Course Learning Objectives:

Upon completion of this course, students should be able to...

- Communicate the applicability of GIS and spatial analysis in the present day.
- Create geospatial data from scratch or from existing geospatial data sources.
- Work with geospatial data, including access, management, and manipulation spatial data.
- Utilize spatial functions and operations in the manipulation of spatial data, as appropriate to various contexts.
- Generate sharable outputs resulting from geospatial analyses, including in cartographic form using basic mapping principles.
- Connect concepts learned in class to real world problems, workflows, and solutions.
- Identify employment and career opportunities relevant to GIS.

Schedule: You can find the schedule as a Google Doc at this link: [Schedule](#).

Textbook:

We will use the book *GIS Fundamentals: A First Text on Geographic Information Systems, 6th Edition* by Paul Bolstad (2019) as the strongly recommended text for this course. The ISBN-13 for this book is 9781593995522. The 5th edition (2016) is acceptable, but editions older than the 5th edition are unacceptable.

Evaluation:

- Labs: 48%
 - There will be 10 labs, and all labs will be counted toward your final grade in the course. No labs will be dropped.
 - Do not expect to complete all of your lab work during the scheduled lab time. You will need to dedicate time outside of class to completing your labs.
- Exams: 42%
 - There will be 4 exams, and your lowest exam grade will be dropped.
 - On exam days, you need to bring the following:
 - **BuckID (or some other form of official photo identification)**. As an exam security measure, we will be confirming *everyone's* identity, even if we know your name and face.
 - **Calculator**. A scientific calculator, not a basic calculator, is needed for exams that might include calculations. You may not use the calculator on a cell phone; cell phone use is not permitted during exams.
 - **#2 pencil**. You might also want to bring a good eraser.
 - **One 3 in x 5 in (or smaller) index card**. This may be covered on front and back with whatever you wish. Cards may be confiscated at the instructor/TA's discretion (e.g. if card exceeds size limitation).
- Participation/Attendance: 10%
 - Attendance will be taken at all lecture meetings and lab meetings using a sign-in sheet. You must sign the sheet during the scheduled class time to be considered present. Failure to sign the sheet during the scheduled class time is considered an absence.
 - Attendance is worth 10 points in total. You are allowed 2 unexcused absences from lecture without penalty. After this, every unexcused absence results in a -0.5 point deduction. You are allowed 1 unexcused absence from lab without penalty. After this, every unexcused absence results in a -1 point deduction. No more than 10 points can be lost toward your attendance score.
 - Excused absences may be requested by contacting the instructor/TA. Decisions about excused absence requests are made at the discretion of the instructor/TA. It is highly recommended that documentation in support of the request is provided as soon as possible to expedite the decision-making process.
- *Grading Scale* (OSU standard scale):

○ A	93-100%	○ B-	80-82%	○ D+	67-69%
○ A-	90-92%	○ C+	77-79%	○ D	60-66%
○ B+	87-89%	○ C	73-76%	○ E	0-59%
○ B	83-86%	○ C-	70-72%		

Note: Your final grade as seen on the course website is rounded to the nearest whole number (e.g. an 89.49 is a B+ but an 89.50 is an A-). No other adjustment or curve will be applied. The letter grade that you see on the course website is what will be submitted to the registrar at the end of the semester.

Policies:

1. *Course correspondence policies.*
 - a. Use the proper title when addressing your instructors/TAs. Recommended resource: [What should I call my professor?](#) For example: Because Emily S. Castellucci has a Ph.D., it's always Dr. Castellucci, *never* Ms., Mrs., or Miss.
 - b. When emailing your instructors/TAs using OSU email, always include the course number and meeting time somewhere in the subject or body of the email. This information will help your instructor/TA respond more quickly.
 - c. You are responsible for all announcements, assignments, and other material posted on Carmen. It is highly recommended that you review your Carmen Canvas notification settings each semester to ensure that you are receiving the information that you need to succeed.
 - d. If you need help with lab assignments outside of class time, you should post your question(s) to the appropriate discussion on the course website. This is great practice for posting in online forums for assistance when working on projects outside of class. Additionally, using discussion boards for lab questions helps us respond to questions in an efficient manner, so do not send your questions via OSU email or Carmen message, unless it is grade-related.
2. *Late policy.*
 - a. You can submit assignments up to two weeks late, but the late penalty is 5% (of the total possible score) per day. The late penalty will not reduce grades to below 70% (of the total possible score). Late penalties are managed by the course website and automatically applied.
 - b. Extensions are NOT typically granted due to getting "stuck," encountering unexpected errors, software crashes, lost work, inability to access the lab classrooms and/or Derby Hall, or other issues related to these. This is because these are realistic issues that you are likely to encounter when performing GIS work outside of this class, and you need to learn how to manage these issues when they arise. However, do keep in touch with your instructor/TA when issues arise so that we can provide support.
3. *Exam policies.*
 - a. Make-up exams are allowed, but they may be classified as excused (no penalty) or unexcused (10% penalty), as deemed appropriate by the instructor.
 - b. You are expected to arrive to all exams *on time*. If you arrive late, you might not be allowed to begin the exam, as deemed appropriate by the instructor.
 - c. You are expected to finish all exams *on time*. Exams begin when scheduled class time begins, and exams end when the scheduled class time ends. At the end of the scheduled class time, you are to stop working and turn in your exam. You may not continue working on your exam after the scheduled class time.

4. *Disability services policy.* The University strives to make all learning experiences as accessible as possible. If you anticipate or experience academic barriers based on your disability (including mental health, chronic or temporary medical conditions), please let me know immediately so that we can privately discuss options. To establish reasonable accommodations, I may request that you register with Student Life Disability Services. After registration, make arrangements with me as soon as possible to discuss your accommodations so that they may be implemented in a timely fashion. SLDS contact information: slds@osu.edu; 614-292-3307; slds.osu.edu; 098 Baker Hall, 113 W. 12th Avenue.
5. *Academic integrity/misconduct policies.*
 - a. It is the responsibility of the Committee on Academic Misconduct (COAM) to investigate or establish procedures for the investigation of all reported cases of student academic misconduct. The term “academic misconduct” includes all forms of student academic misconduct wherever committed; illustrated by, but not limited to, cases of plagiarism and dishonest practices in connection with examinations. Instructors shall report all instances of alleged academic misconduct to the committee (Faculty Rule 3335-5-487). For additional information, see the Code of Student Conduct: http://studentlife.osu.edu/pdfs/csc_12-31-07.pdf.
 - b. IMPORTANT: “Warnings” are not given due to an offense being one’s first offense, due to ignorance of what constitutes academic misconduct, or due to any other circumstances. *All* instances of suspected misconduct must be reported.
 - c. For specific academic integrity/misconduct information relevant to this course, see the Academic Integrity Supplement link under Modules > Course Information on the course website.
6. *Other policies.*
 - a. If you are ill, please consider the health of your fellow classmates and your instructor/TA when deciding whether or not you should come to class. If you are displaying symptoms indicating that what you have may be contagious (e.g. fever, etc.), please do not come to class. Instead, notify your instructor of your illness and ask how you can make up the missed class.
 - b. Practice your professionalism by ensuring that your work is free from spelling and grammatical errors. Such errors may be penalized at the discretion of the instructor/TA.

Student Support Services:

For information about student support services, see the Student Support Services link under Modules > Course Information on the course website.

Technology:

For information about software access, computer access, classroom access, and building access, see the Technology Access link under Modules > Labs on the course website.

Feedback:

If you'd like to make a suggestion for how this course could be improved for future semesters, please submit that suggestion in the [Suggestion Box](#) (Google Form). However, please keep in mind that form submissions are not likely to be viewed until after the semester has ended, so if your concern requires a timely response, please email your instructor and/or TA, as appropriate.

Disclaimer:

This course syllabus provides a general plan for the course; deviations may be necessary. Such deviations may be made for individuals or for the entire class, as deemed appropriate by the instructor. Any changes that affect the entire class will be announced by the instructor with as much advance notice as possible.

Schedule (original)

Remember: *Lab sections always meet, regardless of what is taking place during lecture.*

Week	Date	Lecture	Reading*	Notes**
1	M 1/6	Course Overview	Chapter 1	
	W 1/8	1 - An Introduction to GIS	Chapter 2, pp. 27-59	
2	M 1/13	2 - Data Models – Part 1	Chapter 2, pp. 60-86	
	W 1/15	2 - Data Models – Part 2	Chapter 3, pp. 87-115	
				Lab 1 - An Introduction to GIS DUE @ 11:59pm
	F 1/17			Self Introduction and Syllabus Quiz DUE @ 11:59pm
3	M 1/20	HOLIDAY		
	W 1/22	3 - Geodesy, Datums, Map Projections and Coordinate Systems – Part 1	Chapter 3, pp. 116-146	
4	M 1/27	3 - Geodesy, Datums, Map Projections and Coordinate Systems – Part 2	Chapter 4, pp. 147-167	Lab 2 - Data Models DUE @ 11:59pm
	W 1/29	4 - Maps, Data Entry, Editing, and Output – Part 1	Chapter 4, pp. 168-200	
5	M 2/3	4 - Maps, Data Entry, Editing, and Output – Part 2		No lab due today.
	W 2/5	Exam 1 (This exam covers Lectures 1-4.) <i>Note: Labs always meet, even on exam days!</i>	Chapter 5	
6	M 2/10	5 - Global Navigation Satellite Systems and Coordinate Surveying	Chapter 6, pp. 245-272	Lab 3 - Geodesy, Datums, Map Projections and Coordinate Systems DUE @ 11:59pm

	W 2/12	6 - Aerial and Satellite Images – Part 1	Chapter 6, pp. 273-298	
7	M 2/17	6 - Aerial and Satellite Images – Part 2	Chapter 7	Lab 4 - Maps, Data Entry, Editing and Output - Part 1 DUE @ 11:59pm
	W 2/19	7 - Digital Data	Chapter 8, pp. 331-349	
8	M 2/24	8 - Attribute Data & Tables – Part 1	Chapter 8, pp. 350-372	Lab 5 - Maps, Data Entry, Editing and Output - Part 2 DUE @ 11:59pm
	W 2/26	8 - Attribute Data & Tables – Part 2 <i>Midterm Evaluations</i>	Chapter 9, pp. 373-403	
9	M 3/2	9 - Basic Spatial Analysis – Part 1	Chapter 9, pp. 404-444	Lab 6 - Global Navigation Satellite Systems, Aerial and Satellite Images, Digital Data, and Attribute Data & Tables DUE @ 11:59pm
	W 3/4	9 - Basic Spatial Analysis – Part 2		
10	M 3/16	TBD: Catch Up / Review Day / Other		No lab due today.
	W 3/18	Exam 2 (This exam covers Lectures 5-9.) <i>Note: Labs always meet, even on exam days!</i>	Chapter 10, pp. 445-461	
11	M 3/23	10 - Topics in Raster Analysis – Part 1	Chapter 10, pp. 462-484	Lab 7 - Basic Spatial Analysis DUE @ 11:59pm
	W 3/25	10 - Topics in Raster Analysis – Part 2	Chapter 11	
12	M 3/30	11 - Terrain Analysis	Chapter 12, pp. 521-546	Lab 8 - Topics in Raster Analysis and Terrain Analysis DUE @ 11:59pm
	W 4/1	12 - Spatial Estimation: Interpolation, Prediction, Core Area – Part 1	Chapter 12, pp. 547-572	
13	M 4/6	12 - Spatial Estimation: Interpolation, Prediction, Core Area – Part 2	Chapter 13, pp. 597-615	Lab 9 - Spatial Estimation: Interpolation, Prediction, Core

				Area Delineation DUE @ 11:59pm
	W 4/8	13 - Spatial Models and Modeling	Chapter 14	
14	M 4/13	14 - Data Standards and Data Quality		Lab 10 - Spatial Models and Modeling DUE @ 11:59pm
	W 4/15	TBD: Catch Up / Review Day / Other <i>Lab attendance optional for students who have submitted all labs.</i>		
14	M 4/20	Exam 3 (This exam covers Lectures 10-14.) <i>Lab attendance optional for students who have submitted all labs.</i>		
	W 4/22			Final Deadline: Late Submissions DUE @ 11:59pm
Final Exam	F 4/24, 4:00pm - 5:45pm	Exam 4 (This exam covers Lectures 1-14.) This is the final exam for students in the M/W section.		

* The assigned reading prepares you for the next lecture.

** Deadlines listed in this column apply to everyone, regardless of section.

Disclaimer: This course schedule provides a general plan for the course; deviations may be necessary. Any changes will be announced by the instructor with as much advance notice as possible.

Arts and Sciences Distance Learning Course Component Technical Review Checklist

Course: Geog 5210

Instructor: Emily S. Castellucci

Summary: Fundamentals of GIS

Standard - Course Technology	Yes	Yes with Revisions	No	Feedback/ Recomm.
6.1 The tools used in the course support the learning objectives and competencies.	X			<ul style="list-style-type: none"> • Office 365 • Carmen • ArcGIS • QGIS • RemoteLab
6.2 Course tools promote learner engagement and active learning.	X			<ul style="list-style-type: none"> • CarmenZoom • CarmenWiki • Carmen Discussion Boards
6.3 Technologies required in the course are readily obtainable.	X			All tools are available via OSU site license free of charge.
6.4 The course technologies are current.	X			All are updated regularly.
6.5 Links are provided to privacy policies for all external tools required in the course.	X			Privacy policies for all 3 rd party tools are included.
Standard - Learner Support				
7.1 The course instructions articulate or link to a clear description of the technical support offered and how to access it.	X			Links to 8HELP are provided
7.2 Course instructions articulate or link to the institution's accessibility policies and services.	X			a
7.3 Course instructions articulate or link to an explanation of how the institution's academic support services and resources can help learners succeed in the course and how learners can obtain them.	X			b
7.4 Course instructions articulate or link to an explanation of how the institution's student services and resources can help learners succeed and how learners can obtain them.	X			c
Standard – Accessibility and Usability				
8.1 Course navigation facilitates ease of use.	X			Recommend using the Carmen Distance Learning "Master Course" template developed by ODEE and available in the Canvas Commons to provide student-users with a consistent user experience in terms of navigation and access to course content.
8.2 Information is provided about the accessibility of all technologies required in the course.	X			Accessibility policies for all 3 rd party tools are included.
8.3 The course provides alternative means of access to course materials in formats that meet the needs of diverse learners.	X			Instructions are provided to obtain materials in another format.
8.4 The course design facilitates readability	X			
8.5 Course multimedia facilitate ease of use.	X			All assignments and activities that use the Carmen LMS with embedded multimedia facilitates ease of use. All other multimedia resources facilitate ease of use by being available through a standard web browser

Reviewer Information

- Date reviewed: 7/13/20
- Reviewed by: Ian Anderson

Notes: This is ready to go!

^aThe following statement about disability services (recommended 16 point font):
Students with disabilities (including mental health, chronic or temporary medical conditions) that have been certified by the Office of Student Life Disability Services will be appropriately accommodated and should inform the instructor as soon as possible of their needs. The Office of Student Life Disability Services is located in 098 Baker Hall, 113 W. 12th Avenue; telephone 614- 292-3307, slds@osu.edu; slds.osu.edu.

^bAdd to the syllabus this link with an overview and contact information for the student academic services offered on the OSU main campus.
<http://advising.osu.edu/welcome.shtml>

^cAdd to the syllabus this link with an overview and contact information for student services offered on the OSU main campus. <http://ssc.osu.edu>. Also, consider including this link in the “Other Course Policies” section of the syllabus.