THE OHIO STATE UNIVERSITY   Department of Geography

SYLLABUS
GEOG 5225 Geographic Applications of Remote Sensing
Spring 2024

3 Credit Hours
Lecture – Tuesday 9:35 – 10:55 a.m.
Lab Sections: Tu or Th 3:55 – 5:15 p.m.
Location: Derby Hall 0135

Course overview

Instructor and Teaching Assistant (TA)

Primary instructor: Dr. Tammy E. Parece
Email: parece.1@osu.edu (preferred contact method is Outlook)
Office hours: Wednesday 1–2 p.m. on Zoom, Thursday 2 – 3p.m. & Friday 10–11 a.m. (open hours, you don't need an appointment) or by appointment. You can generally expect a reply to e-mails within **48 hours on school days.**

TA: Srijana Shrestha, Shrestha.137@buckeyemail.osu.edu
Office Hours: Tuesday 1:00 pm-2:00pm (In person); Wednesday 12:00 pm-1:00pm (In person)
Room: **Derby hall 1131**

Thursday 1:00 pm -2:00pm (Zoom) – link is on Canvas

Except where note, all office hours are in person in our respective offices. Links for zoom office hours are available on the course website. To request an appointment outside of the above times, please send both instructor and TA an email with your availability up to a week ahead.

Course description

This course introduces the fundamentals of remote sensing and its geographic applications. Lectures will focus on basic concepts and techniques in remote sensing data acquisition and analysis. Examples from a variety of topical areas will be used to illustrate how the information derived from remotely sensed data can be used in geographic studies. Computer laboratory exercises are designed to help students to gain hands-on experiences on the digital processing of remotely sensed data. Students are expected to complete a project that applies remote sensing techniques to solve a real-world problem.

Course learning outcomes

By the end of this course, students should successfully be able to:
- Describe maximal and minimal definitions of remote sensing and explain physical and logical process of remote sensing.
- Describe electromagnetic spectrum and explain how it is organized.
- Identify remote sensing data models, platforms and sensor models, and understand sensor characteristics and describe how they impact the quality of remotely sensed data.
- Describe the necessities for radiometric and geometric corrections and explain different types of radiometric and geometric correction methods and apply them via remote sensing software.
- Identify the purposes for remote sensing imagery enhancement and classification.
- Compare and contrast radiometric, spatial and spectral enhancement methods and utilize them under different circumstances.
- Explain the concepts of supervised and unsupervised classifications. Describe most widely used classification methods and be able to identify and apply feasible/appropriate classification methods given a specific remote sensing data set and application scenario.
- Compare and assess performance of different classification methods applied on the same remote sensing image.

How This Course Works

Mode of delivery: This class is in-person. All learning materials will be uploaded on Carmen Canvas. Additional components:

- General lectures - Tuesdays
- Labs and exercises – Tuesdays or Thursdays
- Office hours on Zoom and in person.

Credit hours and work expectations: This is a 3-credit-hour course. According to Ohio State policy, an average student 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.

Do not expect to complete entire lab assignments during the scheduled lab time. Lab sessions are 80 minutes, and it takes longer than 80 minutes to complete a lab.

Course materials

- Required Textbook: Campbell, J.B., R.H. Wynne & V.A. Thomas. *Introduction to Remote Sensing 6th Edition*. Guilford. ISBN: 9781462549405
- Lab Book: Remote Sensing with ArcGIS Pro, 2nd Edition. T. Parece and J. McGee. Link to the book is provided in Canvas.
- Additional required reading materials/videos will be provided within Canvas.

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, 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

- Basic computer and web-browsing skills
- Navigating Carmen: see the Canvas Student Guide.
- CarmenZoom virtual meetings

IMPORTANT: The next two sections indicate equipment and software that you must be able to access to complete lab assignments for this course. You have access to these items in Derby 0135.

Hardware

- Computer: current PC (Windows 7+) or Mac (OS X) with high-speed internet connection. Please note that ArcGIS Pro only works on Windows PCs
- USB Drive
- Webcam: built-in or external webcam, fully installed and tested
- Microphone: built-in laptop or tablet mic or external microphone
- Other: a mobile device (smartphone or tablet) to use for BuckeyePass authentication

Software

Please keep in mind that you are NOT required to purchase any software for this class. You will use a word processing program, a spreadsheet program, Adobe reader and ArcGIS Pro. We might also use ENVI later in the semester but due to licensing restrictions, ENVI is not available for your personal computer.

Carmen Access

You will need to use BuckeyePass multi-factor authentication to access your courses in Carmen. To ensure that you can 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.

If none of these options 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

Assignment or category	Percentage
Labs	**50**
Project	**20**
Presentation (1)	**10**
Exams - 2	**20**
Total	**100**

Assignment information

Exams (2 @ 10% each or 20% of total grade)
- *Timed*. Time will depend on length of quiz/exam. (If you are registered with SLDS for extended time accommodations, please confirm that time has been granted before you begin the exam.) Once you open the exam, the timer starts to run.
- *Open-note*. You can use the lecture slides, the handouts, your notes, the textbook, etc. But this does not mean you can get assistance from another student, the instructor or the TA.
- *Completed independently*. You must complete the exam by yourself. Collaboration with one or more other persons is considered academic misconduct.
- Do your best to ensure that you have a reliable internet connection and a reliable device (desktop, laptop, tablet, or phone) for accessing the exam *before* you get started.

Presentation (10%)
You will have 1 presentation. You will need to identify an academic paper regarding a remote sensing application and present the paper and its results in class.

Final Project (20% of total grade)
You will have a final project in lieu of a final exam. Specifics will be available on Canvas.

Labs (50% of total grade)
You will have multiple lab assignments. Keep in mind that the process of completing any given lab may not go as smoothly, plan for unexpected challenges. Set a goal to submit each lab in advance of the deadline. Some labs are submitted in Canvas, under quizzes, these are not timed quizzes, just a mechanism to easily submit your answers. Some questions are graded

automatically, and some require manual grading.

Late assignments

Late submissions for any assignments are not accepted in this course.

You do have **1** opportunity to extend your deadline **for 1 calendar day** during the semester, applied to a lab assignment of your choice. No permission is required, use this opportunity wisely, it can only be used once.

Accommodations for religious holidays will be considered. A request must be submitted prior to any assignment due date that conflicts with such holidays. Please provide information on the holiday and its date and the number of days requested in the extension.

Additionally, in case of personal and family emergencies, please notify us as soon as possible so that we can work out a submission timeline. Such extensions may or may not be granted, it is decided on a case-by-case basis. Extensions are not granted after the fact, e.g., you can't ask for an extension on an assignment that was due two weeks before or wait until the end of the semester to submit assignments you missed. To request an extension for one of these emergency conditions, you must put the request in writing to Dr. Parece (cc to the TA) and the email must contain the following information:

Course Name and Code (GEOG 5225 Geographic Applications of Remote Sensing)
Reason for the extension request:
The specific assignment:
Specific extension requested:
Attach documentation of the reason for the extension

Any emails requesting extensions without this information will be returned with a request to provide this information.

Grading scale

92.5–100: A	86.5–89.99: B+	76.5–79.99: C+	66.5 –69.99: D+	Below 59.99: E
90.0–92.49: A-	82.5–86.49: B	72.5–76.49: C	60.0 –66.49: D	
	80.0–82.49: B-	70.0 –72.49: C-		

Note – I do not round up. An 89.99 does not round up to 90%. If you want an A/A-, you must achieve 90% or better.

Grades and feedback

You can generally expect grades and feedback to be returned within **7 business days** once the assignment's deadline has passed, depending on the complexity of the assignment.

Attendance

Attendance is not taken in this class. However, attendance in both lecture and lab is highly recommended.   You are required to do a presentation after spring break so attendance is mandatory, or you will not get credit for that specific assignment.

Course Academic Integrity Policy

Turnitin is enabled for all written assignments. Watch your Turnitin score. At 40%, I will give you a zero for the assignment. If your assignment rises to the level of Academic Misconduct, I will report the conduct to the University and you will get a Zero for the entire semester.

To maintain a culture of integrity and respect, generative AI tools should not be used in the completion of course assignments, quizzes, discussion posts, and exams unless specifically authorized by Dr. Parece.

Discussion and communication guidelines

The following are expectations for how we should communicate as a class. Please remember to be respectful and thoughtful.

- **Writing style**: When writing lab reports, you need to write these as if you were writing a formal essay. Use good grammar, spelling, and punctuation.
- **Tone and civility**: Maintain a supportive learning community where everyone feels safe and people can disagree amicably. Sarcasm is not appropriate in the classroom or in emails.
- **Citing your sources**: 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 as part of the correct and full citation.

Managing notifications

How can I manage notifications about course activity?

You can tailor your notifications by going to Account > Notifications. You can choose Email and/or Push notifications. You can choose what types of activity you want to follow.

If you are not receiving notifications of discussion board activity, you may need to subscribe to the discussion board itself. Open the discussion board and click Subscribe (near top right). Alternatively, make a reply, and you will be automatically subscribed.

If you want email notifications but you're not getting any at all, regardless of activating email notifications, then you may need to go Account > Settings and verify your email address.

Other course/University policies

Absence related to COVID-19

Continuous engagement with this course is essential to learning the material. Students are expected to attend class and engage with assignments and discussion prompts for every

scheduled meeting. Students who need to miss class or who are not able to participate due to illness (COVID-19 or other illnesses), exposure to COVID-19, care for family members exposed to COVID-19 or other reasons are expected to contact the instructors as soon as possible to arrange for accommodation. Students in special situations or those requiring specific, long-term or other accommodation should seek support from appropriate university offices including but not limited to Student Advocacy, Student Life Disability Services and the Office of Institutional Equity.

Health and safety requirements

All students, faculty and staff are required to comply with and stay up to date on all university safety and health guidance (https://safeandhealthy.osu.edu), which includes optional wearing of a face mask in any indoor space and maintaining a safe physical distance at all times. If you make an appointment to meet with me in my office, I do request that you wear a facemask.

Academic integrity policy

All assignments, exams, and quizzes are required to be your own work. Use of AI is not permitted in this course.

Turnitin (https://www.turnitin.com/) is a plagiarism and AI verification platform. This check is set to automatically review your paper when you submit it on Canvas. Please note that any assignments with a score of 25% or more may result in reporting a code of conduct violation to OSU's Committee on Academic Misconduct (please see the Academic Integrity Policy below).   Please note that when you use quotes or repeat the assignment instructions within your written report, it increases the Turnitin and AI score. Avoid these when at all possible.

Ohio State's academic integrity policy

It is the responsibility of the Committee on Academic Misconduct 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/csc/.**

Inclement Weather

Should in-person classes be canceled, we will meet virtually via CarmenZoom during our regularly scheduled time. I will share any updates via [CarmenCanvas, email or other mode of communication].

Religious Accommodations

It is Ohio State's policy to reasonably accommodate the sincerely held religious beliefs and practices of all students. The policy permits a student to be absent for up to three days each academic semester for reasons of faith or religious or spiritual belief.

Students planning to use religious beliefs or practices accommodations for course requirements must inform the instructor in writing no later than 14 days after the course begins. The instructor is then responsible for scheduling an alternative time and date for the course requirement, which may be before or after the original time and date of the course requirement. These alternative accommodations will remain confidential. It is the student's responsibility to ensure that all course assignments are completed.   See https://oaa.osu.edu/religious-holidays-holy-days-and-observances?utm_source=sfmc&utm_medium=email&utm_campaign=oaa_sp23instructors_fy23_spring-2023-updates&sfmc_id=94946360&sfmc_key=0032E00003KAtEpQAL

Disability Services

The University strives to make all learning experiences as accessible as possible. In light of the current pandemic, students seeking to request COVID-related accommodations may do so through the university's request process, managed by Student Life Disability Services. 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.

Mental Health Statement

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.

Sexual Misconduct/Relationship Violence

Title IX makes it clear that violence and harassment based on sex and gender are Civil Rights offenses subject to the same kinds of accountability and the same kinds of support applied to offenses against other protected categories (e.g., race). If you or someone you know has been sexually harassed or assaulted, you may find the appropriate resources at http://titleix.osu.edu or by contacting the Ohio State Title IX Coordinator at titleix@osu.edu

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 people 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.

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.