



SYLLABUS

GEOG 5225 Geographic Applications of Remote Sensing

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: Tuesday 1–2 p.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: Ethan Lucas

Email: lucas.825@osu.edu

Office hours: Please see Canvas Coursesite

All office hours are through Zoom. Links to 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.

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
- 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 ENVI. 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	45
Project	25
Presentation (1)	10
Exams/Quizzes	20
Total	100

Assignment information

Exams/Quizzes (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 (25% of total grade)

You will have a final project in lieu of a final exam. Specifics will be available on Canvas.

Labs (45% 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. 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.

You do have **1** opportunity to extend your deadline **for 1 day** during the semester, applied to a lab assignment only. No permission is required; you indicate in your submission that you are using the one-day extension. Use this opportunity wisely. Quizzes/Exams and Presentations are not included in this late submission allowance.

Grading scale

92.5–100: A	80.0–82.49: B-	66.5 –69.99: D+
90.0–92.49: A-	76.5–79.99: C+	60.0 –66.49: D
86.5–89.99: B+	72.5–76.49: C	Below 59.99: E
82.5–86.49: 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 **7-14 days** once the assignment's deadline has passed, depending on the complexity of the assignment.

Attendance

Attendance of both lab and lecture sessions at over 90% could have a positive impact on your grade. For example, if you have a borderline grade (an 89% is a B+ and it could be increased to an A-). Attendance will be taken each day using iclicker. You will need to create an account: <https://www.iclicker.com/Links to an external site.>

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.

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:** 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 will be penalized at the discretion of the instructor/TA.) A more conversational tone is fine for non-academic topics.
- **Tone and civility:** Maintain a supportive learning community where everyone feels safe and 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.

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

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>). Non-compliance will be warned first and disciplinary actions will be taken for repeated offenses.

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

See **Descriptions of major course assignments**, above, for my specific guidelines about collaboration and academic integrity in the context of this class. Cheating or plagiarism of any kind is not tolerated.

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/>.

Disability Services

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, please 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 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.

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.