

EAS 4380/6380: Land Remote Sensing (3 credits)

SEMESTER: Fall 2026

COURSE LECTURE SCHEDULE: Tuesdays & Thursdays from 9:30-10:45 AM EDT

INSTRUCTOR: Dr. Frances Rivera-Hernández

COURSE DESCRIPTION: This course will cover the broad spectrum of techniques for making remote measurements of the composition, morphology, and thermophysical properties of solid surfaces on Earth and other planetary bodies. Both the physics underlying the techniques and their applications to a range of problems of interest will be discussed. Students will gain experience accessing, processing, and interpreting remote sensing data, and will acquire an understanding of which techniques are most useful for answering particular scientific questions about a range of land environments.

LEARNING OBJECTIVES: Upon completion of this course, students should be able to:

- Explain the basic physics of electromagnetic radiation, including the various ways in which this radiation can interact with matter.
- Distinguish the different types of remote sensing platforms and understand how these sensors are used to acquire data.
- Explain the basic properties of remote sensing data (e.g., image resolution, spectral resolution, signal-to-noise ratios).
- Identify and discuss the utility and limitations of different wavelength ranges for different planetary applications.
- Acquire, process, analyze, and interpret a range of remote sensing datasets from the Earth, Moon, Mars, and other planetary bodies using the ENVI software package.

EXPECTATIONS: Throughout this course, students are expected to:

- Read and familiarize yourself with the syllabus and course schedule
- Understand lecture and assignment material
 - Be able to restate key concepts and facts clearly and simply
 - Be able to make calculations based on lecture/assignment material
 - Be able to extend material to slightly different situations
- Attend lectures and submit carefully completed assignments
- Adhere to Georgia Tech honor code

REQUIRED MATERIALS

Optional Reading: Weekly reading suggestions will be assigned and provided via pdf files or external links on Canvas.

Lab Exercise software: The ENVI software will be used for lab exercises and is pre-installed on the Windows PCs in the computer lab accessible to students.

GRADING AND ASSESSMENT: The students will be evaluated on in class participation, lab exercises, quizzes, and a term project. All exercises and quizzes will be equally weighted. The course grading breakdown is as follows:

Participation.....**10%**
Assessments.....**20%**
Exercises.....**40%**
Term Project.....**30%**

GRADING SCALE: Final letter grades will be assigned according to the following scale:

A	$\geq 90.0\%$
B	$\geq 80.0\%$ and $< 90.0\%$
C	$\geq 70.0\%$ and $< 80.0\%$
D	$\geq 60.0\%$ and $< 70.0\%$
F	$< 60.0\%$

Grades in this course are NOT curved.

ATTENDANCE POLICY: Students need to attend and participate **in at least 20 lecture periods (out of 25 currently planned lectures)** to receive full participation credit.

COURSE ACCESSIBILITY AND ACCOMMODATIONS: If you anticipate or experience any learning barriers in this course, you are invited to share your concerns with the instructor to discuss potential solutions. If you are a student with a disability or think you may have a disability we also recommend that you contact Georgia Tech's Office of Disability Service. They can help you document your needs and create an appropriate accommodation plan without disclosing any private information to the instructor. The Office of Disability Services can be reached by phone at (404) 894-2563 or email at dsinfo@gatech.edu.

ACADEMIC INTEGRITY AND HONOR CODE: Georgia Tech aims to cultivate a community based on mutual trust, academic integrity, and honor. As such, all instructors and students are expected to act according to the highest ethical standards and bound by the Georgia Tech Honor Code. For more information visit: <https://catalog.gatech.edu/policies/honor-code/>

While we encourage students to help each other learn course material, each student must complete their own work without engaging in plagiarism or other false claims of performance. In addition, course materials, including assignments and notes, are not to be archived anywhere online, distributed, or provided to persons outside of this class. Materials are presented for your benefit and evaluation. ***Any student who breaches this policy and violates the GT Academic Honor Code will be reported to the Office of Student Integrity, who will investigate the incident and identify the appropriate penalty for violations.***