REMOTE SENSING - GRADUATE CERTIFICATE

Remote sensing (satellite and ground-based) is increasingly being used as a technique to probe the Earth's atmosphere, ocean, and land surfaces. Probing of other planets is accomplished largely by satellite remote sensing. Given national priorities in such areas as climate and global change, the interest in remote sensing will only increase with time.

Remote sensing is a relatively new academic subject, with few universities having any sort of an organized curriculum. The CU remote sensing curriculum is formalized in order to coordinate curricula across campus so that a coherent curriculum in remote sensing can be provided to complement and supplement the students' regular degree program. An additional purpose is to encourage multi-disciplinary education of the students in the area of remote sensing.

Graduate students, research staff, and faculty work on a wide variety of topics, ranging from the theory of remote sensing, to instrument development, and application to scientific problems. Traditional satellite remote sensing is used by CU researchers to determine ocean surface temperature and heat fluxes; to determine surface biological characteristics and productivity; and for mapping of land use and surface landform and topographical features. Surface radar and lidar are used to improve the determination of clouds and precipitation from satellites; to determine upper atmosphere wind motions; and to study variations in the ionosphere caused by space weather. Aircraft remote sensing is used to assess the validity of satellite retrieval algorithms of surface and atmospheric characteristics. A wide range of other remote sensing techniques are used by CU researchers, including the use of Global Navigation and Satellite Systems (GNSS) signals to study variations in the ionosphere, and using radio signals from lightning to study thunderstorm development and lightning activity.

Distance Education Option

Students can take individual courses toward a master's degree or graduate certificate through distance education (online). For more information, connect with the graduate program advisor or visit the Graduate School's Distance Education [webpage](https://www.colorado.edu/graduateschool/distance-education).

Requirements

The Remote Sensing Certificate [current-students/graduates/curriculum/remote-sensing-earth-space-science/remote-sensing-certificate] will be awarded based on a written request by the student to the Remote Sensing Graduate Chair, provided that the following requirements have been met:

1. Four courses are required totaling at least 12 credits, with grades of B or better.
2. Two courses from one of the following topical areas:
   a. Data Analysis
   b. Instrumentation and Measurement Techniques
   c. Remote Sensing Theory
3. One course in each of the two remaining topical areas.
4. At least one semester of Remote Sensing Seminar (currently listed as ASEN 6210 and ATOC 7500), offered each year in the spring semester.