COURSE OVERVIEW
The aim of the course is to examine contemporary image processing and information extraction techniques; and analyze remotely sensed data for environmental and geographical applications and research. This course represents an extension of GPHY 242/3.0, with an in-depth examination of data processing techniques from passive and active remote sensing sources with the purpose of information extraction. Topics include remote sensor technology, image enhancement, image classification, radiometric and geometric correction, change detection, lidar data processing, and applications of remote sensing data.

LEARNING OUTCOMES
At the end of the course, students should be capable of advising on the best types of remote sensing data, scales and analysis procedures for studying specific geographical/environmental problems or phenomena. Special emphasis will be placed on passive satellite and airborne sensors operating in the visible and near-infrared regions of the spectrum, as well as active sensor systems. In addition to learning the characteristics of the sensors, how they record data and how the data are processed, the students will analyze these data using sophisticated digital analysis techniques. Emphasis will be placed on how these data and data products can be integrated with other spatial data for various types of spatial data analysis.

COURSE TOPICS
Image processing and image statistics; Image enhancement; Radiometric and Geometric Correction; Thematic information extraction – Pattern recognition; Active remote sensing – Information extraction; Digital change detection, Thematic map accuracy assessment.

COURSE READINGS
Required Text:

Recommended Text: