

Spring 2021
ESPM 3031-5031 (via [Zoom](#))
Mondays 10:40 AM - 11:30 AM
Wednesday 10:40 AM - 12:35 PM

Applied Global Positioning Systems for Geographic Information Systems (Applied GPS for GIS)

This course will cover the principles and fundamentals of GPS and the use of GPS units in the field. ESPM 3031 will focus on juniors and seniors, and 5031 on graduate students.

Prerequisites will be junior (3031) or graduate (5031) standing, plus familiarity with desktop computer use; an introductory course in GIS is recommended. The course will meet twice each week. Additional time may be required to complete field exercises.

Lecture topics will focus on GPS/GNSS system principles, fundamentals, operations and techniques to improve accuracy. Datums, Projections and Coordinate Systems will be covered. Differential correction and accuracy assessments will be discussed and applied in laboratory exercises. Both code phase and carrier phase GPS will be used in the class and field exercises. Seven different types of GPS/field data collection equipment will be studied in the classroom and used in the field. In addition to traditional GPS handheld units, students will work with Nexus tablets and Juno3 based GPS equipment. Students will be transferring field data to and from desktop systems and develop skills integrating GPS data with GIS applications.

Students will complete 13 GPS lab exercises and 2 data collection/location homework assignments. There will be a final project integrating concepts from the entire course.

Students registered in ESPM 5031 will also complete special Graduate level applied GPS/GNSS project.

Grading will be A-F; 66% labs/homework, 8% Final Project, 26% Section Tests

3 Credits – 3 hours per week (lecture and field/laboratory)

Instructor:

Paul Bolstad,
Department of Forest Resources
Office: 301J Green Hall
Telephone: 651-337-9223
Email: gishelp@umn.edu