

Contact Time	2 x 1.5 hours lectures per week 1 x 3 hours lab per week
Format	Lectures and Labs
Class Assessment	Lab Assignments (6): 60% Tests (2): 30% Attendance in Labs and Lectures: 10%

COURSE OVERVIEW

This course proposes to give the students a rigorous introduction to the theory and practice of Digital Photogrammetry, a technique that has witnessed a tremendous rise in popularity with the rise of high-resolution digital cameras and fast, multi-core computers in the early 2000s. Proper planning of photogrammetric projects will be emphasized, along with a focus on a priori estimates of accuracy of photogrammetric measurement. Data from Remotely Piloted Aircraft Systems (“drones”) will also be considered during the course, along with “historic” imagery from scanned film. The connection between GIS and photogrammetry will also be emphasized throughout the course. Data will be drawn from across the world and will deal with practical applications of photogrammetric techniques.

COURSE TOPICS

- Exterior Orientation
- Interior Orientation and Camera Calibration
- Absolute Orientation and Control Points
- Statistical Models of Error and Accuracy
- Coordinate Reference Systems
- Aerial Project Planning and Aerotriangulation
- Orthophotos and Orthomosaics
- Scanned Film Processing
- Airphoto Interpretation and Stereo Analysis
- Satellite Photogrammetry
- LiDAR and Elevation Data (DEM, DSM, DTM)

COURSE READINGS

Textbook:

Wolf, P. R., Dewitt, B., & Wilkinson, B. (2014). Elements of Photogrammetry with Applications in GIS. McGraw and Hill education. Available free of charge online through the Queen’s library.

Other readings in PDF format will be provided as links by the instructor.