

# Geomatics (GEOM)

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## Geomatics (GEOM) Courses

### **GEOM 1004 [0.5 credit]**

#### **Maps, Satellites and the Geospatial Revolution**

Introduction to the creation and use of maps using a variety of geospatial tools to better understand and resolve physical, social and environmental problems. Overview of geomatics (cartography and map design, geographic information systems, GPS, remote sensing).

Precludes additional credit for GEOM 2004 (no longer offered).

Lectures and laboratory, four hours a week.

### **GEOM 2007 [0.5 credit]**

#### **Geographic Information Systems**

Data in a spatial context; spatial data structures, georeferencing, data query; mapping; creating spatial databases; selected topics in GIS application to environmental, land-use planning and market analysis issues.

Precludes additional credit for GEOG 2007.

Prerequisite(s): GEOM 1004 or GEOM 2004 (no longer offered) or GEOG 2004 or EARTH 2406 (may be taken concurrently), or permission of the Department. Familiarity with personal computers is assumed.

Lectures and laboratory, four hours a week

### **GEOM 3002 [0.5 credit]**

#### **Air Photo Interpretation and Remote Sensing**

Aerial photography and digital remote sensing; visual interpretation of land use, landforms, and surficial materials; introduction to digital image processing and analysis.

Precludes additional credit for GEOG 3002.

Prerequisite(s): GEOM 2004 or GEOG 2004, or third-year standing, or permission of the Department.

Lectures two hours a week, laboratory two hours a week.

### **GEOM 3005 [0.5 credit]**

#### **Geospatial Analysis**

Acquisition, manipulation, and display of spatially referenced information using Geographic Information Systems (GIS). Spatial modeling, site selection, and routing analysis in raster and vector GIS.

Precludes additional credit for GEOG 3005.

Prerequisite(s): GEOM 2007 or GEOG 2007.

Workshop three hours a week.

### **GEOM 3007 [0.5 credit]**

#### **Cartographic Theory and Design**

Principles of cartography, cartographic communication and map design; practical work designed to provide experience in solving problems of cartographic representation using geospatial databases.

Precludes additional credit for GEOG 3007.

Prerequisite(s): GEOM 2004 or GEOG 2004, or permission of the Department.

Lectures and laboratory four hours a week.

### **GEOM 4003 [0.5 credit]**

#### **Remote Sensing of the Environment**

Advanced image enhancement; land cover classification for thematic mapping; biophysical modeling; applications in resources, environment, and urban mapping.

Precludes additional credit for GEOG 4003.

Prerequisite(s): GEOM 3002 or GEOG 3002, and Honours standing; or permission of the Department.

Lectures two hours a week, laboratory two hours a week.

### **GEOM 4005 [0.5 credit]**

#### **Directed Studies in Geomatics**

Students pursue their interest in a selected theme in Geomatics on a tutorial basis with a member of the Department.

Prerequisite(s): fourth-year Honours standing in Geomatics and permission of the Department.

### **GEOM 4007 [0.5 credit]**

#### **Seminar in Cartography**

Special topics in cartographic communication and design; technical and social issues in contemporary mapping practices; practical aspects of multimedia and web mapping.

Prerequisite(s): GEOM 3007 or GEOG 3007, and Honours standing, or permission of the Department.

Seminar, three hours a week.

### **GEOM 4008 [0.5 credit]**

#### **Advanced Topics in Geographic Information Systems**

Advanced methods and techniques in GIS applications including: positional and attribute error analysis, multiple criteria decision making, interpolation, elevation modeling and ortho-imaging, and spatial pattern measurement.

Precludes additional credit for GEOG 4008.

Prerequisite(s): GEOM 3005 or GEOG 3005 and Honours standing.

Lectures two hours a week, laboratory two hours a week.

### **GEOM 4009 [0.5 credit]**

#### **Applications in Geographic Information Systems**

Project design and customization, application development within a GIS, digital atlas compilation and geomatics education.

Precludes additional credit for GEOG 3006.

Prerequisite(s): GEOM 3005 or GEOG 3005.

Workshop three hours a week.

**GEOM 4406 [0.5 credit]****Practicum I**

Experience in an employment environment through field placement. Observation and involvement in issues and research methods used by professional geographers. May be taken for credit in addition to GEOG/GEOM 4408. Also listed as GEOG 4406. Prerequisite(s): fourth-year Honours standing in Geomatics and permission of the Department. Field placement one day a week.

**GEOM 4408 [0.5 credit]****Practicum II**

Experience in an employment environment through field placement. Observation and involvement in issues and research methods used by professional geographers. May be taken for credit in addition to GEOG/GEOM 4406. Also listed as GEOG 4408. Prerequisite(s): fourth-year Honours standing in Geomatics and permission of the Department. Field placement one day a week.

**GEOM 4906 [1.0 credit]****Honours Research Project**

Candidates for B.Sc. with Concentration in Geomatics undertake a research project within their area of specialization. The project is supervised by a member of the department and a written report must be submitted. The candidate may be examined orally on the report. Also listed as GEOG 4906. Prerequisite(s): fourth-year Honours standing in Geomatics. Hours to be arranged.

**GEOM 4909 [1.0 credit]****Honours Research Essay**

Independent design and implementation of a research project leading to the submission of a research thesis. Students work with an individual faculty adviser. The subject for research is decided upon in consultation with the supervisor. (Also listed as GEOG 4909.) Also listed as GEOG 4909. Precludes additional credit for GEOG 4904, GEOM 4904 (no longer offered), GEOG 4906, ENST 4906 and ENST 4907. Prerequisite(s): fourth-year Honours standing in Geomatics, a Geomatics CGPA of 9.00 or better, an approved research topic, and permission of the Honours supervisor. Hours to be arranged with faculty adviser.

**Summer session:** some of the courses listed in this Calendar are offered during the summer. Hours and scheduling for summer session courses will differ significantly from those reported in the fall/winter Calendar. To determine the scheduling and hours for summer session classes, consult the class schedule at [central.carleton.ca](http://central.carleton.ca)

Not all courses listed are offered in a given year. For an up-to-date statement of course offerings for the current

session and to determine the term of offering, consult the class schedule at [central.carleton.ca](http://central.carleton.ca)