

A: Division: ACADEMIC DATE: OCTOBER 3, 1994

B: Department: SOCIAL SCIENCES New Course: \_\_\_\_\_

Revision of Course  
information form: X

DATED: JUNE 1981

C: GEOGRAPHY 170 D: INTRODUCTORY CARTOGRAPHY E: 3  
Subject & Course No. Descriptive Title Semester Credit

F: Calendar Description:  
This course introduces a range of topics in the field of cartography-the art, science and technology of map making. Topics include: map projections, elementary field surveying, interpretation of aerial photography and satellite imagery, cartographic methods and design, thematic mapping, and an introduction to computer mapping and Geographic Information Systems (GIS). The course is designed for geography students but will interest any students who value working with maps or who plan to work in any environmental field.

Summary of Revision:  
(Enter date & section)  
1984-10-03  
Section F,N,O,P,Q,R

G: Type of Instruction: Hours Per Week/  
Lecture 2 Hrs.  
Laboratory 3 Hrs.  
Seminar \_\_\_\_\_ Hrs.  
Clinical Experience \_\_\_\_\_ Hrs.  
Field Experience \_\_\_\_\_ Hrs.  
Practicum \_\_\_\_\_ Hrs.  
Shop \_\_\_\_\_ Hrs.  
Studio \_\_\_\_\_ Hrs.  
Student Directed Learning \_\_\_\_\_ Hrs.  
Other \_\_\_\_\_ Hrs.  
  
TOTAL 5 HOURS

H: Course Prerequisites: None  
I: Course Corequisites: None  
J: Course for which this course is a pre-requisite: None, but students planning to continue in Geography are strongly advised to include this course.  
K: Maximum Class Size: 25  
M: Transfer Credit:  
Requested \_\_\_\_\_  
Granted X  
Specify Course Equivalents or Unassigned Credit as Appropriate  
  
U.B.C. Geog. (3)  
S.F.U. Geog.250 (3)  
U. Vic.Geog.100 lev (1.5)  
OTHER:

L: College Credit Transfer X  
College Credit Non-Transfer \_\_\_\_\_

U.B.C. Geog. (3)  
S.F.U. Geog.250 (3)  
U. Vic.Geog.100 lev (1.5)  
OTHER:

*S.F. Smythe*  
COURSE DESIGNERS  
*Elizabeth Peelen*  
DIRECTOR/CHAIRPERSON

*P.H. Rogers*  
DIVISIONAL DEAN  
REGISTRAR

N: Textbooks and materials to be purchased by students  
(Use Bibliographic Form):

Campbell, J. (1991) Introductory Cartography (2nd Ed.)  
Dubuque, IA., Wm. C. Brown, Publishers

Text will be updated periodically.

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Complete Form with Entries Under the Following Headings:

- O. Course Objectives;      P. Course Content;      Q. Method of Instruction  
R. Course Evaluation  
O: Course Objectives

At the conclusion of the course the student will be able to:

1. Define cartography.
2. List and describe the fundamental elements of maps.
3. List and describe several common map projections and their characteristics, and determine which is most appropriately employed for a given objective.
4. Interpret topographic maps and construct topographic cross-sections.
5. Discuss the different ways in which topographic maps from various countries portray the same data.
6. Complete an elementary field survey and create a large-scale map from field notes.
7. Interpret aerial photographs and other remotely-sensed images.
8. List and describe various film types used in aerial photography and satellite imagery, and cite their potential uses and drawbacks.
9. List, describe and interpret types of thematic maps.
10. List and describe the stages of a cartographic design process.
11. Design and construct a computerized thematic map.
12. Define Geographic Information Systems (GIS) and list and describe the components of a GIS.
13. Use a simple GIS package for elementary spatial analysis.

P: Course Content

1. Introduction to Cartography  
Cartography Within Physical Geography  
History and Development of Cartography
2. Geodesy  
Shape of the Earth: Geoid, Spheroid, Ellipsoid  
Dimensions of the Earth
3. Map Projections  
Planar, Conic and Cylindrical Projections  
Distortion in Map Projections  
Attributes of Projections: Conformality, Equivalence, Distance, Direction  
Employment of Map Projections
4. Map Elements  
Map Scale  
Geographical and Cartesian Coordinate Systems  
Direction Indicators  
Map Titles, Data and Legends
5. Topographic Maps  
Basic Map Elements Employed in Topographic Maps  
Uses and Drawbacks of Different Techniques for Indicating Elevation  
Construction of Isolines from Spot Height Data  
Construction of Topographic Profiles  
Calculation of Vertical Exaggeration and Gradients
6. Field Surveying  
Principles of Spatial Location  
Field Survey Techniques  
Sources and Types of Error  
Map Creation From Field Survey Data
7. Remote Sensing  
Electromagnetic Radiation and Film Types  
Aerial Photography
  - Vertical and Oblique Photography
  - Scale Determination
  - Stereoscopy
  - Image Displacement
  - Height Measurement
  - Ordering Air Photographs from the National LibrarySatellite Imagery
  - Geostationary and Sun-Synchronous Orbits
  - Landsat and Eosat
  - Spectral BandsRadar, Infrared and Microwave Scanner  
Applications of Remotely-Sensed Images
8. Cartographic Design  
Design Process  
Symbolization  
Generalization  
Map Aesthetics

- 9. Thematic Mapping  
 Dot-Distribution Maps  
 Isoline Maps  
 Choropleth Maps  
 Flow-Line Maps  
 Cartograms  
 Stepped Statistical Surface Maps  
 Graphs and Diagrams

- 10. Geographic Information Systems  
 Development of Geographic Information System Technology  
 Components of a Geographic Information System  
 Geographic Information System Analysis Functions  
 Applications of a Geographic Information System

**Q: Method of Instruction**

This course will employ a number of instructional methods to accomplish its objectives, including some of the following:

- Lectures
- Labs
- Field Work
- Seminar Presentations
- Slides, Videos
- Small Group Discussions

**R: Course Evaluation**

The instructor will present a written course outline with specific evaluation criteria at the beginning of the semester. Evaluation will be carried out in accordance with Douglas College policy and will be based on some of the following:

1. Laboratory assignments with a combined value of up to 50%.
2. Multiple choice and/or short answer tests with a combined value of up to 50%.
3. Field work with a value of up to 20%.
4. A term project with a value of up to 25%.
5. An individual or group presentation on an assigned topic with a value of up to 15%.

An example of one possible evaluation scheme would be:

4 Laboratory Assignments	40%
Mid Term Examination	20%
Final Examination	20%
Field Project	10%
Term Project	<u>10%</u>
	<u>100%</u>