

SAULT COLLEGE OF APPLIED ARTS AND TECHNOLOGY

SAULT STE. MARIE, ON

COURSE OUTLINE

**COURSE TITLE:** Geographic Information Systems (GIS)

**CODE NO.:** FOR 304-3 **SEMESTER:** Five

**PROGRAM:** Integrated Resource Management Technology

**AUTHOR:** Erwin Goertz

**DATE:** May 1997 **PREVIOUS OUTLINE DATED:** Aug./95

**APPROVED:** *J. Kautler* *June 9/97*  
DEAN DATE

**TOTAL CREDITS** 3

**PREREQUISITE(S):** none

**LENGTH OF COURSE:** 3 hours/week **TOTAL CREDIT HOURS:** 48

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**I. COURSE DESCRIPTION:** The aim of this course is to introduce students to the use of Geographic Information Systems (GIS) as a source of immediate information and as an analytic tool for solving natural resource management problems.

**II. LEARNING OUTCOMES AND ELEMENTS OF THE PERFORMANCE:**

Upon successful completion of this course, the student will demonstrate the ability to;

1) Be able to input spatial and attribute information.

Potential Elements of the Performance:

- retrieve location coordinates from an NTS topographic map
- use Windows 3.1/Windows '95
- familiarity with the action of buttons on the puck (mouse) of a digitizing tablet
- be able to accurately register a map to a digitizing tablet
- input vectors (lines) using 2D string digitizing
- input points and text relating to physical features
- understand the concept of layers or levels of mapping information
- be able to snap lines closed
- be able to edit, break and delete line segments
- be able to use common key-in commands as a way of changing settings
- understand the concept of database records and attribute (descriptive) information associated with natural resources
- be able to setup a database structure in order to enter the actual information

2) Be able to build map topology.

Potential Elements of the Performance:

- understand the link between spatial and attribute information
- be able to input database tags
- be able to grid a map sheet, identify errors and correct the errors
- be able to overlay levels (layers) of information
- be able to create and save views of queries
- be able to colour code (theme) results of a query



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- 3) Be able to perform queries (answer questions).

Potential Elements of the Performance:

- know how to browse a database
- perform a basic database search using the search tool
- perform a complex database search and create a report using the Planner tool
- create and display planning rings
- create fixed width and variable width buffers/corridors
- create and import ASCII data files from Windows to the GIS software
- use the software to count features

**III. TOPICS:**

1. The evolution of GIS, it's importance and where it's going.  
Review Articles - Forest Inventory for the Future  
Pilot Computer project will standardize maps  
Computer based mapping in Forestry: A view from N.B.
2. Map creation and inputting spatial information.  
Review Articles - What should a Forestry GIS do?  
- Are you a GIS Dead Head?  
- Pamap GIS reference manual
3. Creating a database
4. Inputting database attribute information.
5. Perform analysis functions offered within the GIS software.  
- create overlays, buffers, reports  
- are/perimeter calculations
6. Problem solving. A number of scenarios will be presented and students will be asked to obtain answers and comment on the outcome.

**IV. REQUIRED RESOURCES/TEXTS/MATERIALS:**

1. Course manual
2. Masking tape
3. Two (2) 3 1/2' diskettes

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**V. ADDITIONAL RESOURCE MATERIALS AVAILABLE FROM INSTRUCTOR:**

- Books**
- Principles of Cartography
  - Beyond Mapping - Concepts, Algorithms and Issues in GIS
  - GIS Sourcebook (various years and on CD)
  - Principles of Geographic Information Systems
  - GIS applications in Natural Resources I, II
- Periodicals**
- The Compiler (Forest Resources Systems Institute)
  - GIS World
  - Photogrammetric Engineering and Remote Sensing
- Audiovisual**
- GIS video series, "Welcome to the GIS"
  - Mapping the Future
  - The New World of GIS
  - Mapping Ontario's Forests

**VI. EVALUATION PROCESS/GRADING SYSTEM:**

Evaluation will be based on theory tests, weekly quizzes and problem solving exercises.

Theory Tests 2 @ 25%	50%
Quizzes (weekly)	25%
Exercises	25%
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	100%

**100% attendance is expected in this course.**

The following letter grades will be assigned:

Grades:	A+	Consistently outstanding	90 - 100%
	A	Outstanding achievement	80 - 89%
	B	Consistently above average	70 - 79%
	C	Satisfactory/acceptable	60 - 69%
	R	Repeat the course	



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**VII. SPECIAL NOTES:**

If you are a student with special needs (e.g. physical limitations, visual impairments, hearing impairments, learning disabilities) you are encouraged to discuss required accommodations with the instructor and/or contact the Special Needs Office, Room E1204 (telephone extension 493, 717, or 491) so that support services can be arranged for you.

Students who engage in "academic dishonesty" will receive an automatic failure for that submission/test and/or such other penalty up to and including expulsion from the course, as may be decided by the professor.

Your instructor reserves the right to modify the course as he/she deems necessary to meet the needs of the students.

**VIII. PRIOR LEARNING ASSESSMENT:**

Students who wish to apply for advanced credit in the course should consult the instructor.