SAULT COLLEGE OF APPLIED ARTS AND TECHNOLOGY

SAULT STE. MARIE, ONTARIO

Sault College

COURSE OUTLINE

COURSE TITLE: Geographic Information Systems (GIS)

CODE NO. : NRT 2080 **SEMESTER:** Four

PROGRAM: Fish & Wildlife Technician, Forestry Technician

AUTHOR: Erwin Goertz

DATE: Dec. 2002 **PREVIOUS OUTLINE DATED:** Jan/02

APPROVED:

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DEAN   **DATE**

TOTAL CREDITS: 3

PREREQUISITE(S): none

LENGTH OF COURSE: 4 hours/week

TOTAL CREDIT HOURS: 64

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. Students will be using ESRI's ArcView.

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 identify the usefulness of GIS applications in natural resource management.

   Potential Elements of the Performance:
   - define what a GIS is and does
   - identify GIS software used by various agencies and the strength and weaknesses of each
   - investigate solutions to real world natural resource management problems using GIS

2. Be able to use the ArcView interface effectively

   Potential Elements of the Performance:
   - access and start the ArcView software
   - open and close projects and exit from the software correctly
   - read the project window and understand it's graphical user interface
   - browse and access files in various directories
   - back up files onto floppy disk
   - re-boot the computer if the system locks up
   - use Windows NT

3. Open a VIEW and use the view user interface.

   Potential Elements of the Performance:
   - view and manipulate project properties
   - manipulate view properties and operations
   - manipulate theme properties and operations
   - add themes to a view
   - add labels to a theme
   - make a theme active

4.　Be able to manipulate basic TABLE properties and operations.

　　Potential Elements of the Performance:
　　- build a new table
　　- edit a table by adding and deleting fields
　　- perform a query using the Field Calculator function and the Query Builder button
　　- retrieve statistics and advanced calculations relating to a table
　　- make and save a summary table

5.　Be able to create a CHART from a table.

　　Potential Elements of the Performance:
　　- manipulate chart properties and operations including type of chart, the chart axes, labels, scale and colors

6.　Manipulate and customize the symbology for feature classes within a theme.

　　Potential Elements of the Performance:
　　- change symbols for features in a theme
　　- save and load a legend
　　- access and retrieve different symbol palettes through the Palette Manager
　　- add labels to symbols
　　- access and use the fill palette, pen palette, marker palette, font palette, and color palette

7.　Create and print a LAYOUT

　　Potential Elements of the Performance:
　　- manipulate layout properties and operations
　　- use the frame tool to add components to the layout including the view, the legend, the scale bar, the north arrow, the chart, the table, and the picture frames

8.　Retrieve, access and run a script.

　　Potential Elements of the Performance:
　　- locate previously compiled scripts on the internet
　　- identify scripts which perform a particular function and execute them.

9.   Perform theme on theme selections.

Potential Elements of the Performance:
- extend theme data by joining additional tabular data
- perform Boolean queries to select theme features
- use the "Select by Theme" capability to select theme features with the features of another theme

III.   TOPICS:

1.   Starting ArcView
2.   Projects
3.   Views
4.   Tables
5.   Charts
6.   Layouts
7.   Scripts
8.   Advanced features

IV.   REQUIRED RESOURCES/TEXTS/MATERIALS:
- Two (2) 3 ½" floppy diskettes
- Handouts will be given out in class

V.   ADDITIONAL RESOURCES AVAILABLE FROM THE INSTRUCTOR:
Books
- Fundamentals of GIS 2nd ed.
- Principles of Geographic Information Systems
- GIS applications in Natural Resources I, II
- ArcView GIS exercise book 2nd ed.
- Inside ArcView GIS
- Getting to know ArcView GIS

Periodicals
- The Compiler (Forest Resource Systems Institute)
- GeoWorld (formerly GIS World)

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 practical tests, weekly quizzes and problem solving exercises.

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

- 100% attendance is expected in this course. Students who miss 3 classes (without adequate reason and proof) will automatically receive an "R" grade. Quizzes are given at the beginning of each class. Students who arrive late forfeit the quiz mark.

  There is no re-write in this course.

The following semester grades will be assigned to students in postsecondary courses:

Grade	Definition	Grade Point Equivalent
A+	90 - 100%	4.00
A	80 - 89%	3.75
B	70 - 79%	3.00
C	60 - 69%	2.00
R (Repeat)	59% or below	0.00
CR (Credit)	Credit for diploma requirements has been awarded.	
S	Satisfactory achievement in field placement or non-graded subject areas.	
U	Unsatisfactory achievement in field placement or non-graded subject areas.	
X	A temporary grade. This is used in limited situations with extenuating circumstances giving a student additional time to complete the requirements for a course (see *Policies & Procedures Manual – Deferred Grades and Make-up*).	
NR	Grade not reported to Registrar's office. This is used to facilitate transcript preparation when, for extenuating circumstances, it has been impossible for	

                    the faculty member to report grades.
VII.   SPECIAL NOTES:

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

Retention of course outlines:
It is the responsibility of the student to retain all course outlines for possible
future use in acquiring advanced standing at other postsecondary
institutions.

Plagiarism
Students should refer to the definition of "academic dishonesty" in *Student
Rights and Responsibilities*. Students who engage in "academic
dishonesty" will receive an automatic failure for that submission and/or
such other penalty, up to and including expulsion from the course, as may
be decided by the professor. In order to protect students from inadvertent
plagiarism, to protect the copyright of the material referenced, and to credit
the author of the material, it is the policy of the department to employ a
documentation format for referencing source material.

The Professor reserves the right to change the information contained in
this course outline depending on the needs of the learner and the
availability of resources.

Substitute course information is available in the Registrar's office.

VIII.   **PRIOR LEARNING ASSESSMENT:**

Students who wish to apply for advanced credit in the course should
consult the instructor. Credit for prior learning will be given upon
successful completion of the following:

IX.   **DIRECT CREDIT TRANSFERS:**

Students who wish to apply for direct credit transfer (advanced standing)
should obtain a direct credit transfer form from the Dean's secretary.
Students will be required to provide a transcript and course outline related
to the course in question.