

**Fond du Lac Tribal and Community College  
COURSE OUTLINE FORM**

**01/21/16**

Please return this form to the college vice president of academic affairs and the chairperson of the Academic Affairs and Standards Council (AASC)

**1. Prepared by:** \_\_\_\_\_

**2. Date submitted:** \_\_\_\_\_

3. Date approved: \_\_\_\_\_ Date revised 11/30/17

**4. Department/discipline:** Geography

**5. Department(s) endorsement(s):** \_\_\_\_\_

**(Signatures of the person(s) providing the endorsement are required.)**

6. Course Title: Introduction to GIS

Abbreviated course title (25 characters or less): \_\_\_\_\_

7. Course Designator: GEOG                      8. Course Level: 2001

9. Number of Credits: Lecture 1                      Lab 2

10. Control Number (on site) 24                      Control Number (online) \_\_\_\_\_

11. Catalog/Course description:

This course introduces basic concepts of Geographic Information Systems (GIS). Students will apply GIS theory to hands-on laboratory activities and projects based on real-world scenarios and data. Industry standard online and desktop software is utilized to introduce data creation, acquisition, management, and editing, georeferencing, spatial analysis, symbolization, and map production workflows for a variety of professional GIS applications.

12. Course prerequisite(s) or co-requisite(s): Accuplacer scores/ Other courses

Prerequisite(s):

Co-requisite:

13. **Course Materials** (Recommended course materials and resources. List all that apply, e.g. textbooks, workbooks, study guides, lab manuals, videos, guest lecturers).

Textbook: Determined on a yearly basis by instructor based on availability, price, and content.

Additional resources:

- GIS computer lab (Room 208) with most recent versions of ESRI ArcMap and ArcGIS Pro installed
- Plotter for poster printing
- Bluetooth GPS receiver and/or handheld receivers
- Students' personal smartphones or tablets
- One-year student licenses for ESRI ArcGIS software
- Institutional ArcGIS Online account with student access

- ESRI Virtual Campus Courses
- Various government and ESRI data repositories
- Supplemental articles, videos, and case studies
- Open Educational Resource texts on GIS and Geospatial Information

**14. Course Content** (Provide an outline of major topics covered in course)

1. Three fields of GIS: Systems, Science, Studies (course emphasis is on Systems)
2. Example applications of GIS
3. Hardware, software, and grayware components of GIS
4. Drawing, symbolizing, and labeling data
5. Map layout and production
6. Information representation: analog vs. digital, objects vs. fields, generalization
7. Geospatial data file structure and geodatabases
8. Metadata
9. Geodesy: ellipsoids, datums, coordinate systems, and projections
10. Data acquisition and transformation
11. Attributes and spatial joins
12. Georeferencing and geocoding data
13. Digitizing and editing spatial data
14. Queries: visual, attribute, location-based
15. Common vector and raster geoprocessing operations

**15. Learning Goals, Outcomes, and Assessment**

At FDLTCC we have 4 Competencies Across the Curriculum (CAC) areas. They are as follows:

- A. Information Literacy (the ability to use print and/or non-print tools effectively for the discovery, acquisition, and evaluation of information)
- B. Ability to Communicate (the ability to listen, read, comprehend, and/or deliver information in a variety of formats.)
- C. Problem Solving (the ability to conceptualize, apply, analyze, synthesize, and/or evaluate information to formulate and solve problems.)
- D. Culture (knowledge of Anishinaabe traditions and culture, knowledge of one's own traditions and culture, knowledge of others' traditions and cultures, culture of work, culture of academic disciplines and/or respect for global diversity.)

Course Learning Outcomes will fulfill the identified competencies.

Course Learning Outcomes.

Upon completion of this course, students will be able to:

1. Describe several ways GIS can be used to analyze information and solve spatial problems in different domain fields (B, D)
2. Describe the components of a GIS and how they interact (A, B)
3. Critique the ontology of digital geospatial information as a product of dominant ways of thinking about the world (A, D)
4. Download and process geospatial datasets for analysis and mapping (A, C)
5. Edit spatial and attribute data using GIS software (A, B)
6. Perform joins to create linkages between tabular and spatial datasets (A)
7. Georeference raster and vector data that lack coordinate reference system information (A)

8. Perform spatial and attribute queries (A, C)
9. Choose, locate in the software, and perform a set of geoprocessing operations based on a given spatial analysis task (A, C)

16. **Minnesota Transfer Curriculum (MnTC):** If this course fulfills an MnTC goal area, state the goal area and list the goals and outcomes below:

See [www.mntransfer.org](http://www.mntransfer.org)

Goal Area(s): \_\_\_\_\_

Does this course require additional material for specific program requirements?  
If yes, please provide.

**01/21/16**