Fond du Lac Tribal and Community College
COURSE OUTLINE FORM

03/19/19

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: Michael Knudson
2. Date submitted:
3. Date approved: 5/6/26 Date revised
4. Department/discipline: Geography and Geographic Information Systems
5. Department(s) endorsement(s):
   (Signatures of the person(s) providing the endorsement are required.)
6. Course Title: Web GIS

   Abbreviated course title for Transcripts (25 characters or less): Web GIS
7. Course Designator: GEOG 8. Course Level: 2055
9. Number of Credits: Lecture 1 Lab 1
10. Control Number (on site) 30 Control Number (online) 30
11. Catalog/Course description:

    This course introduces students to the concepts, tools, and workflows of Web GIS using ArcGIS Online. Students learn how to create, manage, analyze, and share geospatial data through cloud-based mapping tools. Emphasis is placed on hands-on experience with ArcGIS Online, including creating web maps, building web applications, managing data layers, performing spatial analysis, and understanding how Web GIS differs from traditional desktop GIS. By the end of the course, students will have developed a portfolio of interactive web maps and apps suitable for academic or professional use.

12. Course prerequisite(s) or co-requisite(s): Accuplacer scores/ Other courses
    Prerequisite(s): GEOG 2001, GEOG 2005 or instructor consent
    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: none

    Additional Resources:

- ArcGIS Online organizational account (college-provided)
- Modern web browser (Chrome/Edge/Firefox)
- Spreadsheet software (Excel/Google Sheets)
- Mobile device with ArcGIS Field Maps or Survey123 (Used for field-data lab)
- All materials provided through lab guides, Esri Learn tutorials, supplemental readings and videos.

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

1. What is Web GIS? ArcGIS Online (AGOL) Basics
2. AGOL Interface & Core Concepts
3. Data in AGOL
4. Creating and Configuring Web Maps
5. Data Sharing and Collaboration
6. Spatial Analysis in AGOL
7. Web Mapping Applications
8. Dashboards
9. StoryMaps
10. Experience Builder
11. Field Data Collection (Survey123 vs. Field Maps)
12. Application Showcase

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.)

Provide 4-7 Course Learning Outcomes for the course. These outcomes should be stated in measurable terms and be reflective of the content of the course. Please indicate which CAC areas are covered by each outcome as applicable using the following notation at the end of each outcome: (A, B), (B), etc. As well as the appropriate WINHEC Cultural Standards (if applicable).

Upon completion of this course, the student will be able to:

Learning Outcomes	**Competencies (CAC)**	**Cultural Standards**
Publish and manage basic hosted feature layers in ArcGIS Online.	(A, B)	(1)
Create effective, well-designed web maps using symbology, labels, and pop-ups.	(A, B, C, D)	(1, 2, 4)
Perform essential ArcGIS Online spatial analysis tools to support simple questions.	(A, B, C)	(1)
Build at least one functional web application (Instant Apps, Dashboard,	(A, B, C)	(1, 2, 4)

StoryMap, Experience Builder, or Survey123)		
Apply appropriate sharing settings for internal or public use cases.	(B, D)	(1, 4)
Create a small Web GIS product demonstrating end-to-end workflow.	(A, B, C)	(1, 2, 4)

WINHEC Cultural Standards:

1. **GIKENDAASOWIN – *Knowing knowledge:*** To develop human beings who value knowledge, learning, and critical thinking and are able to effectively use the language, knowledge, and skills central to an Ojibwe-Anishinaabe way of knowing.
2. **GWAYAKWAADIZIWIN – *Living a balanced way:*** To develop balanced human beings who are reflective, informed learners who understand the interrelatedness of human society and the natural environment, recognize the importance of living in harmony with creation, and are able to apply a systems approach to understanding and deciding on a course of action.
3. **ZOONGIDE'EWIN – *Strong hearted:*** To increase the students' capacity to live and walk with a strong heart, humble and open to new ideas and courageous enough to confront the accepted truths of history and society.
4. **AANGWAAMIZIWIN – *Diligence and caution:*** To develop students' capacity to proceed carefully, after identifying, discussing, and reflecting on the logical and ethical dimensions of political, social, and personal life.
5. **DEBWEWIN – *Honesty and integrity:*** To increase students' capacity to think and act with honesty and integrity as they understand and face the realities of increasingly interdependent nations and people
6. **ZAAGI' IDIWIN – *Loving and Caring:*** To encourage students' acceptance of the diversity within their school, community, and environment by developing healthy, caring relationships built on respect for all.
7. **ZHAWENINDIWIN – *Compassion:*** To expand students' knowledge of the human condition and human cultures and the importance of compassion especially in relation to behavior, ideas, and values expressed in the works of human imagination and thought.

16. **Minnesota Transfer Curriculum (MnTC):** List which goal area(s) – up to two – this course fulfills.

    See www.mntransfer.org

    Goal Area(s):_____

    Provide the specific learning outcomes as listed on the mntransfer.org website that pertain to this course.

17. Are there any additional licensing/certification requirements involved?
    _____Yes_____No

    Provide the required documentation to show course meets required licensing/certification

standards.

Complete the following only if you are proposing a new course:

1. Planned pattern of offering: Fall_____ Spring __x___Summer___x____ Alternate Years____

2. Rationale for course: If this course is an ADDITION or replacement to current offerings, add a detailed explanation of the necessity for the change.

   The GIS faculty propose replacing the current 4-credit *Web Mapping* course with a streamlined, skills-focused 2-credit *Web GIS* course. This change reflects current industry practices, supports students' learning needs in the A.S. degree and Certificate in GIS, and better aligns with campus resources and faculty instructional load.

   First, this change is academically necessary because the A.S. degree and Certificate in GIS is designed to prepare students for both transfer to regional bachelor's programs and workforce development. Employers increasingly rely on cloud-based GIS platforms, especially ArcGIS Online, for data management, map publishing, field data collection, dashboards, and application development. The proposed 2-credit course, focused on ArcGIS Online, provides students with practical, job-ready skills aligned with these expectations. Rather than covering a broad set of legacy or code-heavy web-mapping tools, the revised course emphasizes hands-on competencies relevant to GIS technicians and interns.

   Second, centering the course on ArcGIS Online strengthens internal program coherence. ArcGIS Online already supports instruction across several FDLTCC GIS courses, including *Cartography and Visualization*, *GIS Applications*, and field data management collaborations with the Environmental Institute. It is also the primary cloud GIS environment used by regional agencies, tribal governments, natural resource organizations, and transfer institutions. Focusing on this platform ensures students learn tools that reflect both employer needs and regional academic pathways.

   Third, shifting from 4 credits to 2 credits is a practical adjustment to campus instructional capacity. The former 4-credit course required a broad range of technical resources and specialized support that are no longer sustainable. The new 2-credit course leverages the college's existing Esri educational licensing and the cloud-based ArcGIS ecosystem, ensuring long-term feasibility without increasing technical demands.

   In summary, this revision strengthens the GIS program, aligns with employer and transfer expectations, and ensures sustainable delivery within the college's instructional and technical capacities.

3. Does this course overlap with any course(s) offered at FDLTCC? If so, justify such duplication or indicate other adjustments to be made. Obtain signatures from affected departments.

   N/A

4. What is the apparent or expressed student need for this course?

Students in the A.S. and Certificate in GIS programs have shown a clear need for practical, workforce-ready Web GIS skills, especially using ArcGIS Online. Students need more hands-on experience with interactive web maps, dashboards, field data collection, and cloud-based GIS tools. These skills are now standard in regional agencies, tribal governments, and environmental organizations where many students intern or seek employment.

5. If this course includes a Native American or specifically Anishinaabe component list campus resource person/s—i.e., campus cultural/spiritual resource person/s and, if necessary, elder/s—consulted and include specific comments and written responses as appropriate.

N/A

6. What types of tutoring will be made available through the CAA to students taking this course?

N/A

7. How will the course be evaluated?

__x__ student evaluation _____ administrative evaluation
____ colleague/peer evaluation ___x___ instructor prepared evaluation
____ other(please explain)_____

8. Special resources—e.g. faculty, space, equipment, library, etc

N/A

9. Differential Tuition: The proposer must meet with the Chief Financial Officer to determine if there is differential tuition.

No differential tuition

Signature _____
Chief Financial Officer

10. Relationship of course to the college mission statement and goals.

The *Web GIS* course supports FDLTCC's mission by providing accessible, high-quality education in a welcoming and culturally diverse environment. The course strengthens academic excellence by teaching in-demand GIS skills needed for transfer and workforce preparation. Because ArcGIS Online is widely used by tribal governments, natural resource organizations, and regional partners, the course aligns with the college's commitment to serving American Indian communities and fulfilling its land-grant responsibilities.

The course also advances the mission to provide technological opportunities and prepare students for the future by offering hands-on experience with modern cloud-based GIS tools. Its focus on responsible data use and place-based mapping aligns with the values of stewardship, integrity, and respect, while the use of innovative geospatial technologies supports the college's emphasis on innovation.

Overall, the course directly contributes to the college's mission, vision, and core values by preparing students to use GIS in ways that support their communities and future careers.

11. Relationship of course to the department's mission statement and goals.

Web GIS directly advances the Geography and GIS Department's mission to "empower students to understand the complex relationships between people, places, and the environment" and to "prepare future leaders for careers in GIS, environmental science, and related fields." The course operationalizes this mission by teaching students to create, analyze, and share geospatial data in a cloud environment, skills that translate spatial reasoning and geographic concepts into real-world, decision-support tools. Through hands-on work with web maps, data services, and configurable applications, students cultivate intellectual curiosity and strong analytical skills while developing a professional portfolio that represent career readiness and supports continued academic progression.

By emphasizing the differences between Web GIS and traditional desktop GIS, the course deepens students' understanding of the full geospatial technology ecosystem: data management, service publishing, web app design, and collaborative sharing. Thereby preparing them to contribute meaningfully to environmental science and geospatial technology projects. The culminating portfolio aligns with the department's goal to equip students with tangible, industry-relevant artifacts that demonstrate leadership potential, technical proficiency, and the ability to communicate spatial insights to diverse audiences.

12. Relationship of course to colleges/university offerings (include tribal colleges).

College or University	**Course Number and Title**	**Credits Awarded**	**General Education**	**Program**
Hibbing CC				
Itasca CC				
Mesabi CC				
Lake Superior				
Leech Lake				
LCO CC				
Bemidji State University	CS 2270 Introduction to Web Programming	3	Computer Science	GIS minor
College of St. Scholastica				
University of Minnesota-Duluth	GIS 4533 Distributed Geographic Information	4	GIS	Geographic Information Science

	Services: Mobile and Web Based Solutions			
University of Minnesota-Duluth	GIS 3574 – Geospatial Analysis with Software-as-a-Service	4	GIS	Geographic Information Science
University of Wisconsin-Superior				
TRIBAL COLLEGES (identify institution)				
Other	University of MN – U-Spatial Workshop: Web GIS: Introduction to ArcGIS Online	0	GIS	U-Spatial Training

03/19/19