

Department of Forest Resources

University of Minnesota

ESPM 4295 – GIS in Environmental Science and Management – Fall 2015 (09/8/2015– 12/16/2015)

ESPM 5295

10:40 -12:35

Monday

35 Skok

10:40 -12:35

Wednesday

35 Skok

Instructor: Andrew C. Jenks
215 Green Hall, 651-387-9600
ajenks@umn.edu

Office Hours: Tue/Thu, 12-1:50 pm & via [Google Hangouts, Wednesdays 8pm-9pm](#)

Required Texts: None; some assigned chapters from *GIS Fundamentals: A First Textbook on Geographic Information Systems, 4th Ed.*, Bolstad, Paul V., Eider Press 2012. This book is on reserve in the Natural Resources Library 375 Hodson Hall. These readings will also be provided in PDF form.

Required Materials: Throughout the class you will need to save/backup your work. To do this **you should purchase at a portable USB drive to use in the lab.** As GIS files can be quite large, you should get an 8 GB or larger drive.

Other Resources: The **class draws heavily upon previous experience in GIS.** The introductory GIS <http://giscourses.cfans.umn.edu/espm4295> has many exercises that you may wish to revisit as needed for this class.

Student Responsibilities: You should attend the classes, do the readings, and complete the assigned exercises, project and analysis. There no tests or final for this class. Grading will be bases on exercises (30%), data sets (20%) and written and oral repots of analysis (50%)

If you need any assistive devices, services, or accommodations, due to a disability, please contact the Instructor.

ESPM 4295 Schedule

Week	Class Topic	Assignment
1 Sept 8	Introduction Skills - Geodesy	Introduction, Class Mechanics, NGS, Coordinate System/Datum Review, Study area assignment. Exercise 1: NGS exercise
2 Sept 14	Skills: GPS	Exercise 2: GPS accuracy exercise and NSSDA
3 Sept 21	Skills: Control, Image Registration & Metadata	Exercise 3: Establish control and image registration for sample area; create Metadata.
4 Sept 28	Skills: Data Design	Exercise 4: Design and build a Geodatabase for sample area
5 Oct 5	Skills: Data Dictionary & Soil Data	Exercise 5: Design, build implement field data dictionary (PFO & ODK); access and download soil data layers.
6 Oct 12	Skills: Advanced Editing	Exercise 6: Digitizing sample area with topology and other data sources
7 Oct 19	Skills: LiDAR & DEM	Exercise 7: LiDAR reclassification
8 Oct 26	Project: Control	Project 1: Establish GPS control in assigned area
9 Nov 2	Project: Image prep	Project 2: Acquire, prepare and register imagery for assigned area
10 Nov 9	Project: Data Design	Project 3: Data Design and implement - Geodatabase, field data collection
11 Nov 16	Project; Digitize and Field Collection	Project 4: Digitizing (including topology/data sources) and field data collection
12 Nov 23	Project; Digitize and Field Collection	Project 4: Digitizing (including topology/data sources) and field data collection
13 Nov 30	Skills: Hydrologic Conditioning and Watershed	Skills: Hydrological Conditioning and Watershed Analysis Report Outline
14 Dec 7	Analysis: Hydrologic and Report	Analysis: Hydrological Analysis (sub-watershed and pervious/impervious surface run of modeling) Report Draft 1
15 Dec 14	Analysis: Hydrologic and Report	Analysis: Hydrological Analysis (sub-watershed and pervious/impervious surface run of modeling) Report Draft 2 & Final Report
16 Dec 21	Finals Week	No class final; all assignments due by Wednesday, December 23, 1:30 pm

Overview

- Teach intermediate-level spatial data collection and analysis techniques commonly applied in natural resource fields.
- Provide hands-on experience in field data collection, data development, analysis, and reporting in spatial problems.
- Improve student writing.
- Develop spatial problem-solving skills in spatial natural resource analysis.
- Develop abilities for independent new knowledge acquisition in spatial analysis methods and analysis.

Mechanics

Assignments will require more than the two-hour period to complete. The Skok35 and Green 210a labs are open additional hours. Registered students will receive a 1 year copy of ArcGIS for use at home.

All assignments will to be submitted via Moodle, <https://www.myu.umn.edu> . Log in to www.myu.umn.edu, select “Academics” and then select the Moodle Course Link for ESPM 4295.

All assignments are due the Friday (11.55 p.m.) of the week they are assigned (unless otherwise indicated) . Late assignments are docked by 10% if turned after the due date and 20% if more than 1 week late, and may not be accepted at the discretion of the instructor after two weeks past due. If you anticipate conflicts please see the instructor in advance. Assignments are only accepted through the Moodle Course Site.

Grading, Integrity, Ethics

Please note you may work together on exercises, project and analysis, but you each must do every part of each assignment, and turn in entirely your own work. Your grade is for individual effort; copied files/maps from other students will be construed as cheating, at a minimum you'll get zero for the assignment, and you may automatically fail the course.

Grading will be on a straight scale, not on a curve. If you all do well, you will all get an A. The scale is:

A	90 – 100				
B+	88 – 89.99	B	82 - 87.99	B-	80 – 81.99
C+	78 – 79.99	C	73 - 77.99	C-	70 – 72.99
D+	67 – 69.99	D	63 - 66.99	D-	60 – 62.99