

## ENVS 422/522 ADVANCED SPATIAL ANALYSIS

---

2:00-3:50 TR  
AH 16

INSTRUCTOR: Aquila Flower  
OFFICE HOURS: T 11-12, W 3:30-4:30, AH 209  
CONTACT: Please use Canvas messages

GIS Specialist:  
Stefan Freelan  
Email: stefan@wwu.edu.

TA: Shelby VanArnam  
OFFICE HOURS: TBA  
EMAIL: vanarns@students.wwu.edu

### **TEXT:**

No required text. Readings will be distributed on Canvas.

### **COURSE DESCRIPTION:**

This course is the culmination of the year-long ENVS 420-421-422 / 520-521-522 series. Students are expected to begin the term with an advanced level of GIS knowledge and skills. The course will focus primarily on the development and implementation of complex, original student research projects and professional development. Brief lectures will concentrate on an overview of advanced analysis and visualization techniques, GIS project management, and professional development.

Assessment will be centered on the quarter-long development of an advanced original research project. Collaboration with stakeholders and other researchers is encouraged.

### **COURSE STRUCTURE:**

Lectures will occur during the first hour of class. The second hour of class will be spent working on your original research projects. Students are expected to stay for the entire class period. Labs and project development will require additional work outside of our regularly scheduled class period. Most work will be individual assignments, but students are expected to review and critique each other's work on a regular basis.

Expectations for class participation are very high. This includes regular attendance (extremely important), active class participation in discussion (both in person and online), quick assimilation of new computer programs and the ability to work effectively with others in the lab.

## SCHEDULE

Our lecture schedule will remain flexible to accommodate guest lectures.

Date	Deliverables
Week 1 Mar 31, Apr 2	
Week 2 Apr 7, 9	Excel activity, due Apr 7
Week 3 Apr 14, 16	Data with metadata, due Apr 14.
Week 4 Apr 21, 23	Workflow design, due Apr 21.
Week 5 Apr 28, 30	Revised resume due Apr 28.
Week 6 May 5, 7	Methods section draft, due May 5. Results section draft, due May 7.
Week 7 May 12, 14	Draft poster, due May 12 Final poster, due May 16.
Saturday, May 16	AWG Conference!
Week 8 May 19, 21	Draft literature review, due May 21.
Week 9 May 26, 28	Web map, due May 28. Draft report, due May 28
Week 10 Jun 2, 4	Final project presentations
Finals week	Potluck party, Jun 6 <sup>th</sup> – save the date! Final paper, due Jun 11. Final portfolio, due Jun 11.

## **ASSESSMENT:**

**Attendance and participation (10%):** Attendance and participation will be graded based on attendance for both lecture and lab, participation in discussion (including asking your own questions) during lecture and lab, involvement in our online communities via regular posting of questions and interesting maps or articles, and your hard work critiquing your classmates' work in class. Regular attendance is crucial to your success in this class.

**Deliverables (20%):** There will be nine deliverables over the quarter. These will be designed to encourage timely completion of each element of the final project. Time management is a crucial skill, so late deliverables will lose 10% each day late. Most deliverables should be submitted via Canvas.

**Portfolio (5%):** Students will create a polished online portfolio showcasing their GIS skills and experience. This portfolio will include pages for multiple lab activities from this and previous GIS courses, and a more extensive section covering the final project completed in this course.

**Final research paper (30%):** Each student will conduct an original research project involving the collection, processing, analysis, and visualization of multiple spatial datasets. Data, results, discussion, and plans for future research will be included in a 10-15-page (double-spaced, times new roman 12 point font) research report including a literature review. The paper will contain a literature review with references within the text, and bibliographic citations for at least 15 articles found in peer-reviewed journals. ENVS 522 students will be expected to write a longer (15-20 page) paper, and to include a larger works cited list (at least 20 references).

**Final research poster (20%):** Each student will present their research project findings in poster form at the Association of Washington Geographers meeting on May 16<sup>th</sup>. Attendance at this conference is mandatory, so contact me immediately if you have sort of schedule conflict.

**Final research presentation (5%):** Each student will give a 5-7 minute presentation on their research project during the last week of class.

**Final research web map (10%):** Each student will create a web map showcasing their research project results.