

**University of Maryland at College Park
Department of Geographical Sciences**

**GEOG 7880:
Processing Geospatial Data using Open Source Tools**

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Schedule of Classes

January 8 -January 12 9:00am-12:00pm LEF 1136

General information about the course

Students will learn to use open source GIS tools like QGIS, GeoServer and PostGIS to collect, store, analyze, serve and visualize spatial data on the web (e.g., OpenStreetMap Data). This course will help students understand the backend of web mapping services like Google map, Bing Map etc. by using open source GIS server to build Google Map-like web mapping services, including data services (WFS), visualization services (WMS), and processing services(WPS). Previous exposure to GIS environment and basic concepts of web server will be helpful but not required for learning in this course.

Learning outcomes for the course

Upon a successful completion of the course the students will be able to:

- Understand the basic concepts of spatial database and know how to use PostGIS platform to collect, manage and analyze spatial data.
- Comprehend the framework of QGIS and use QGIS to analyze and visualize spatial data.
- Understand the architecture of GeoServer and the mechanism of serving spatial data on the web. Know how to use GeoServer to build your own spatial server that can provide WFS and WMS.

Course materials

There is no required textbook for this class as there is no textbook that covers everything that we are going to explore in this course.

Software: Postgres/PostGIS, QGIS, GeoServer

In this class you must be comfortable with searching for resources to understand the concepts and terms that are new to you.

Course communication

The main course communication will be lectures in the GIS Lab (1136 Lefrak Hall). The lecture session will be a mixture of theoretical discussion and hands-on practice. Students will have course notes that guide them through the in-class experiment.

Coursework

Your performance in the course will be evaluated by the results of in-class exercises as well as a final course project.

Provisional outline of topics covered in the course and exams

Please note that modifications may be introduced to the schedule as the semester progresses. Updated schedules will be made available to all students via **Canvas** as soon as possible.

Date	Topic
08-Jan	Introduction to the course Introduction to PostGIS database (Spatial Data import, query, and analysis)
09-Jan	Introduction to QGIS. Using QGIS for spatial data attribute analysis and visualization.
10-Jan	Introduction to GeoServer
11-Jan	GeoServer for WFS, WMS
12-Jan	GeoWebCache and Web Mapping

Grade determination

The total grades of the course will be a combination of attendance, in-class exercises and a course project. The general guidelines for letter grades will be as follows: $94 \leq "A" < 100$, $90 \leq "A-" < 93$, $87 \leq "B+" < 90$, $83 \leq "B" < 87$, $80 \leq "B-" < 83$, $77 \leq "C+" < 80$, $73 \leq "C" < 77$, $70 \leq "C-" < 73$, $67 \leq "D+" < 70$, $63 \leq "D" < 67$, $60 \leq "D-" < 63$, $60 < "F"$. Minor adjustments may be introduced to the general scheme to allow for students grade distribution.

Final projects and grades

The course grade is evaluated based on your submissions on in-class exercises and a small final project.

Expectations of students in the class

Class attendance is required. Students should be aware that the course material covered during the lecture are evaluated through in-class exercises. Students are strongly encouraged to follow along during the lectures.

Students are expected to treat each other with respect. Disruptive behavior of any kind will not be tolerated. Students who are unable to demonstrate civility with one another, the teaching assistants, or the instructor will be subject to referral to the Office of Student Conduct or to the University Campus Police. You are expected to adhere to the Code of Student Conduct.

In this class, students will be allowed and encouraged to use their personal computers or other means of technology to take class notes and complete practice exercises.

Campus Policies

It is our shared responsibility to know and abide by the University of Maryland's policies that relate to all courses, which include topics like:

- Academic integrity
- Student and instructor conduct
- Accessibility and accommodations
- Attendance and excused absences
- Grades and appeals
- Copyright and intellectual property

Please visit www.ugst.umd.edu/courserelatedpolicies.html for the Office of Undergraduate Studies' full list of campus-wide policies and follow up with me if you have questions.

Get Some Help!

You are expected to take personal responsibility for your own learning. This includes acknowledging when your performance does not match your goals and doing something about it. Everyone can benefit from some expert guidance on time management, note taking, and exam preparation, so I encourage you to consider visiting <http://ter.ps/learn> and schedule an appointment with an academic coach. Sharpen your communication skills (and improve your grade) by visiting <http://ter.ps/writing> and schedule an appointment with the campus Writing Center. Finally, if you just need someone to talk to, visit <http://www.counseling.umd.edu>.