

OHIO STATE UNIVERSITY EXTENSION

Introduction to Spatial Information for Environment and Natural Resources ENR 3700

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Syllabus and Policies

- The syllabus is our contract. Please read thoroughly!
- This is stated: "there may need to be further clarifications or changes made to this syllabus"
- Announcements will be made in the recordings
- Changes will be put into an announcement. There may or may not be follow up emails.




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Office Hours

- All office hours will be posted on Carmen/Canvas. Will be on Zoom. In person is available upon request.
- If you can not make these times, please email us and we can make appointments.



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Open Lab Accessibility

- Anytime there is not a lab in Kottman 114, you may use this room. But if a class enters, please let them have the entire room.
- Kottman 231A is another lab that is available almost always for students to work in and is set up like 114. If the door is locked go to Kottman 210 reception for entry. LET US KNOW IF YOU ARE UNABLE TO USE THIS LAB.



Course Description

ENR 3700 – 3 Credit hours. Lab work and Lecture material are essential for understanding of these concepts.

Presents basic concepts and vocabulary of **spatial information systems** and geospatial technologies in context of environmental management.



Course Objectives

1. Develop basic understanding of the nature and representation of geographic data;
2. Explore examples of the interdependence of science and technological advances in the management of the earth's resources;
3. Learn the interpretation and measurement techniques used to create, extract and manipulate information remotely sensed data;
4. Discuss the social and philosophical implication of scientific discoveries understand and see the potential for future application.



Optional Textbooks

- ***GIS Fundamentals: A First Text on Geographic Information Systems***

Author: Paul Bolstad

Publisher: Eider Press; 6th Edition (2019)

ISBN-13: 978-1593995522

- ***Remote Sensing and Image Interpretation***

Authors: Thomas Lillesand, Ralph W. Kiefer, Jonathan Chipman

Publisher: Wiley; 7th edition (2015)

ISBN-13: 978-1118343289



Assessment Format

Task Points	% of Grade:
Weekly Laboratory	35%
Final Project	15%
Participation	5%
Midterm	20%
Final Exam (Cummulative)	25%
TOTAL	100%



Carmen/Canvas


- All notes and lab material will be housed here.
- If there is a final grade calculated – **IT WILL BE INCORRECT**– Use the %'s listed to calculate your grade.
- Please CONTACT one of the professors if you are unsure.



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To Pass

- You must have a passing average for the lab and final project combined.
- You must have a passing average for the Midterm exam, Final, and Participation combined.
- Use the introductions and the objectives as a study guide for the exam. Listen for clues in lecture
- Beware of the google docs. They are not complete and in some cases outright incorrect.




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Testing – Open notes -

- Exams – Midterm open 2-22-2024 at 12:00pm (NOON) and close at 11:59 pm on 2-23-2024. You are allotted 55 minutes (Unless you have SLDS accommodations) for this exam.
Make sure you allow yourself enough time to take the exam BEFORE it closes.
- Final –The final will be open 4-25-2024 at 10:00am and close at 2:00 pm on 4-27-2024. You will be allotted 105 minutes (Unless you have SLDS accommodations) for this exam.
Make sure you allow yourself enough time to take the exam BEFORE it closes.




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Labs

- Lab began this week.
- There will be NO lab the weeks of
 - 1/15/2024 thru 1/19/2024 - MLK
 - 3/11/2024 thru 3/15/2024 – Spring Break
- Lab the week of 3/04/2024 thru 3/08/2024 will be outdoors. Dress for the weather!!



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LAB INFORMATION

- Each lab will require you to download the materials from Carmen/Canvas.
- **YOU WILL NEED A 16 GB FLASH DRIVE (One drive can be used but it is your responsibility to know how to do this)**
- You will be required to be in lab and do the assignment. A TA will be available for instruction and to answer questions.
- Your lab report/assignment will be submitted online before the next lab period or as indicated.

Lab Cont.

- There WILL be a final project assigned week 12 in class 4-1-2024 (not an April fools). You will have 3 lab periods with which to complete this.
- LAB attendance during the final projects weeks of class are mandatory or you will lose 25% off the top of your final project for each absence.
- Project will be due April 22, 2024 by 5:00 pm (for all lab sections)!

Academic Misconduct

- All occurrences of academic misconduct will be dealt with in accordance with guidelines and procedures outlined in your syllabus
- Students must adhere to the OSU Honor Code:
https://www.ohio.edu/students/honor_code/

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Special Needs

OSU Office of Disability Services
<http://www.ods.ohio-state.edu>, 614-292-3307).



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Take Care of Yourself

OSU Counseling and Consultation Service
<http://www.ccs.osu.edu>; 614-292- 5766) for assistance, support, and advocacy. This service is free and confidential.

DON'T WAIT TOO LONG!! WE CAN HELP GET THIS STARTED IF YOU NEED SOME HELP!!



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Student Resources

Helpful Resources

Student Resources at Ohio State

Click through each tab (link) to review resources available to you as a student at The Ohio State University.


Academic Resources Health and Safety Resources Technology Resources Community Resources



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Readings

- Hypothesis will be used. This is embedded in Carmen.
- This can be tricky. Reach out to OCIO or Dr. Londo if having some difficulty


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Google Earth

- Provides free access to a rich resource of satellite imagery and geographic data
- Excellent for visualization
- On-screen digitizing capabilities allow mapping of features


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Download Google Earth


<http://www.google.com/earth/index.html>


Scroll to the bottom and Click as indicated below. Follow the onscreen instructions

Experience Earth on any device

See all Earth versions


 Google Earth on web
 Examine the world without leaving your desk. Available on Chrome and other browsers.


 Google Earth on mobile
 Create maps with advanced geospatial features on PC, Mac, or Linux.


 Google Earth Pro on desktop
 Create maps with advanced tools on PC, Mac, or Linux.

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Quantum GIS (QGIS) as a Solution Version 3.22.10

- For Windows - <https://download.qgis.org/downloads/windows/3.22/>

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File Name	Date	Time	Size
QGIS-OSGeo4W-3.22.9-1.msi	2022-07-15	19:19	1.0G
QGIS-OSGeo4W-3.22.9-1.sha256sum	2022-07-15	19:19	92
QGIS-OSGeo4W-3.22.9-2.msi	2022-07-18	10:34	1.0G
QGIS-OSGeo4W-3.22.9-2.sha256sum	2022-07-18	10:34	92
QGIS-OSGeo4W-3.22.10-1.msi	2022-08-13	01:21	1.0G
QGIS-OSGeo4W-3.22.10-1.sha256sum	2022-08-13	01:21	93
QGIS-OSGeo4W-3.22.11-1.msi	2022-09-09	21:07	1.0G
QGIS-OSGeo4W-3.22.11-1.sha256sum	2022-09-09	21:07	93
QGIS-OSGeo4W-3.22.12-1.msi	2022-10-21	17:19	1.0G
QGIS-OSGeo4W-3.22.12-1.sha256sum	2022-10-21	17:19	93

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for macOS

Installing QGIS, the first launch attempt may fail due to security protections. To enable QGIS, control-click the Applications folder and select Open in the context menu. A confirmation dialog will display where you need to click the button again. This only has to be done once.

Looking for the most stable version? Get QGIS 3.28 LTR

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Quantum GIS (QGIS) as a Solution Version 3.2

- For MACS - <https://www.qgis.org/en/site/forusers/download.html>

Download for macOS

After installing QGIS, the first launch attempt may fail due to security protections. To enable QGIS, control-click on its icon in your Applications folder and select Open in the context menu. A confirmation dialog will display where you need to click the Open button again. This only has to be done once.


 Download QGIS 3.34

Looking for the most stable version? Get QGIS 3.28 LTR

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Trouble Installing Quantum – See Buckeye Bar


- Unfortunately, with all the different configurations this can be a daunting amount of knowledge needed to execute this on all students computers.
- We will help if we can so don't be afraid to ask.

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ArcGIS – Windows Only

- Can be downloaded from OCIO website
- Be careful installing. Follow instructions given when ordering software.
- Only for Windows machines with a newer processor.
- See website for other requirements.

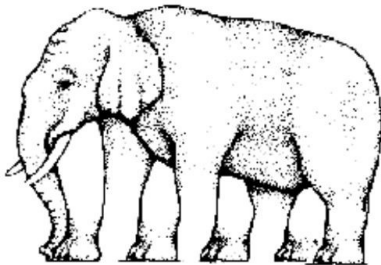
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ArcGIS

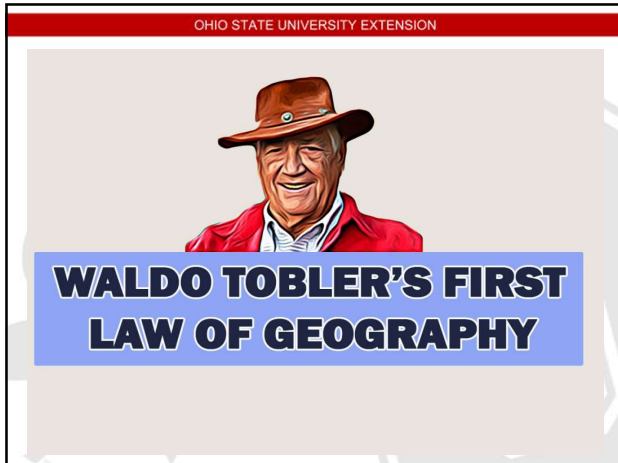
- Been around since the 1980's in one inception or another.
- Built upon predecessors (ArcInfo) platform.
- Industry standard when talking GIS software.
- Powerful and expensive.

Your Responsibilities

1. Attendance to all labs.
2. Total and responsive attention during lab.
3. Be prepared.
4. Conduct yourself as a professional.
5. No cell phone use in lab.
6. No eating/drinking or tobacco products.



How many legs does this elephant have?




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Tobler's First Law of Geography

"Everything is related in someway to everything else, but near things tend to be more related than distant things." - Waldo Tobler


- Not really a law, but it is the basis to fundamental analysis of spatial data.

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What is GIS?

- GIS stands for Geographic Information Systems.
- It is a computerized system (recent adaptation) used for assessing spatial information.
- GIS encompasses both software, hardware, and personnel to accomplish its tasks.

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ESRI - Environmental Systems Research Institute, Inc.

GIS connects data to a map, integrating location data (where things are) with all types of descriptive information (what things are like there)

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What is GIS?

- GIS stores information about the world as a collection of layers and displays this information as maps (using the locations).
- GIS technology can be used for scientific investigations, resource management, development planning and many other applications.

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How is a GIS used?

- Used to manage, analyze, and present information.
- Used to navigate.
- Used to understand spatial phenomenon.
- Used to explore the world near us.
- Used to better manage the world around us.
- And the list grows

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