IGME 382 - Introduction to Geospatial Technologies

Fall 2024

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Office Location: GOL-2519
Office Hours: TR 11:00AM – 2:00PM, By Appointment, and Discord when I'm awake.
Class Time: TR – 2:00PM – 3:15PM
Class Location: MAGIC – 2150 (MSS-2150)

1. General Course Information

1.1. Course Description

This course provides a survey of technologies used to represent the earth, collectively referred to as Geospatial Technologies (GTs). Students will gain hands-on experience with GTs, including Global Positioning Systems (GPS), Geographic Information Systems (GIS), Virtual Globes (Google Earth), Imaging, and web 2.0 "mapping mashups." Students should be comfortable working in Windows-based computing environments.

1.2. Course Objective

Broader developments with information technology have increased the use and application of GTs. For example, GTs have become common place in numerous industries such as telecommunications, civil engineering, and crisis management. Furthermore, 80% of all data contains a spatial component, thus making GTs relevant and applicable to very wide range of information management tasks.

The objective of this course is to expose students to foundational concepts and technologies of GTs. Students taking the course will be able to continue with additional GT courses on remote sensing, Geographic Information Systems (GISs), spatial databases, mobile GIS, spatial analysis, geographic visualization, and applications of GTs to environmental, societal, and other problem domains.

1.3. Course Assumptions

Students enrolling in this class are assumed to have the following skills. If you do not have these, do not worry, by the end of this class you will. The list is as follows:

- You can use Windows and Microsoft Excel
- You know how file management works.
- You know how to use the internet safely.

Throughout the semester, you will be required to complete several lab assignments and readings. Students should expect to spend 4-8 hours outside of class to complete readings and assignments. Students are encouraged to talk to me about their own interests in geospatial technologies.

2. Course Materials

2.1. Textbook, Readings, Software, and ArcGIS Online Accounts

There is no textbook for this course. Instead, you will be using the github repository for this course as notes and doing supplemental readings where necessary. The course is on Github at: https://github.com/nicklalone/382_sp24

In addition, we will be getting at laest a little into GIS. This is the software that we will be using in the class and it works only on Windows computers. Most of our work we will do in the classroom so there will be in-person time is available for you to use the RIT lab for the software. You can also use a Virtual Machine with ArcgGIS Pro installed; however, it is a bit annoying to use. Run everything on your machine or in the RIT labs if you can.

2.2. myCourses

The myCourses system will be used for facilitation of the course. I know everyone uses myCourses differently, so I'll try and bring you through my way of organizing and hopefully it isn't too obnoxious. If it is, tell me how and why.

2.3. Other Materials

For the most part, this course is an overview and a tour so we won't use a whole lot of other stuff. However, I will probably ask you to use a mobile phone, email, and Discord.

3. Administrative Information

3.1. Grades

Grades will be assigned according to points earned throughout the semester. These points are based on the following categories:

3.2. Categories:

Item	#	Points per	Total points	% of Grade
Exercises	10	50	500	50%
Test	1	200	200	20%
Final Project	1	200	200	20%
Quizzes	10	10	100	10%
Total			1000	100%

3.3. Letter grades:

Grade	Points
A	900-1000
B+	800-899
C+	700-799
D+	600-699
F	< 600

There is no curve or curving in this course as there are no calculations or need to round. In addition, no incompletes will be given. Should you not like your grade on any given assignment, simply correct the assignment, turn it back in, and let me know you have done so. In fact, talking to me is probably the easiest way to get and keep yourself present.

3.4. Course Organization

The course is mostly organized on Tuesday = talky and Thursday = do stuff. So, you should only be listening to me drone on as boring as I can for just 1 day a week. On the day of Thor, we will either do work in class, or I'll ask y'all to self-organize and accomplish tasks for the class.

Special note: on days where the whole class is turning 1 assignment in, if someone tries to turn the assignment in that isn't the designated person, they will fail the assignment.

3.5. Assignments

Get your assignments in when you can, preferably by the due date. If you do not get them in, please do your best to get them in before the end of the semester.

3.6. Midterm

There will be a midterm exam in week 10. This exam looks your understanding of the material up to that point in class.

3.7. Final Project

The final project will provide you with an opportunity to demonstrate what you have learned in the class and provide an outlet for your own interests in geospatial technologies. You are to develop your own projects ideas using GIS to look at a world problem. You will be required to find your own data for this (I will be able to give suggestions and point you in the right direction).

For the final project, you will need to develop a project abstract and a written summary detailing your project. Your final project will be a Story Map, and we will cover how to create them in class. Your story map must be hosted on the RIT ArcGIS Online organization and at least shared within the organization. All the maps are to be created by you.

3.8. Participation / Quizzes

One aspect of class that is often more beneficial than simply doing the work is participating in class discussions or thinking about how to apply what we're doing in class. As such, this category has 2 functions:

1. To gently push you to talk so I don't have to.
2. To give you a buffer that will boost your grade.

These will take 1 of 2 forms, a poll or form in class or an quiz that has to be done before class. I will not let you know which will be which beforehand; however, the whole course will be mostly available day 1 so there's that.

4. Policies and Procedures

4.1. Acceptable and Unacceptable Use of Generative AI

The use of generative AI tools (e.g. ChatGPT, Dall-e, etc.) is permitted in this course for the following activities:

- Brainstorming and refining your ideas,
- Fine tuning your research questions,
- Finding information on your topic,
- Drafting an outline to organize your thoughts, and
- Checking grammar and style.

The use of generative AI tools is not permitted in this course for the following activities:

- Impersonating you in classroom contexts, such as by using the tool to compose discussion board prompts assigned to you or content that you put into a Zoom chat.
- Completing group work that your group has assigned to you, unless it is mutually agreed upon that you may use the tool.
- Writing a draft of a writing assignment.
- Writing entire sentences, paragraphs, or papers to complete class assignments.

You are responsible for the information you submit based on an AI query (for instance, that it does not violate intellectual property laws, or contain misinformation or unethical content). Your use of AI tools must be properly documented and cited to stay within RIT policies on academic dishonesty (see below). For example, the use of APA citations.

Consequences: Any assignment that is found to have used generative AI tools in unauthorized ways will result in being given a new project to do within 3 days.

When in doubt about permitted usage, please ask for clarification.

4.2. Academic Dishonesty

Students are expected to be familiar with and abide by the Academic Honesty Policy as stated in the RIT Student Rights and Responsibilities.

You may review the posted policy on the RIT Student Rights and Responsibilities web site (http://www.rit.edu/studentaffairs/studentconduct/rr_academicdishonesty.php).

This policy covers all courses at RIT unless otherwise noted by the instructor, the department, or the college in which the course is offered.

Plagiarism in any format is a mistake on the part of the instructor as well as the student. As such, any students caught plagiarizing will be required to redo a new assignment and we will talk about it along the way. If you are unsure of what constitutes plagiarism and how to avoid it, err on the side of caution and consult myself as well as this guide:

https://library.rit.edu/instruction/dl/stud.html or the instructor for assistance.

4.3. ADA Statement

RIT is committed to fostering an environment where students with disabilities have the same access to academic programs, support services, social events, and physical facilities as every other student.

Please review the posted policy in the Students Rights & Responsibilities (http://www.rit.edu/studentaffairs/studentconduct/rr_disabilitiesservices.php) for further information and details on the application for accommodations.

The course will be accommodated for disabilities provided that they disclosed to the instructor the first week of classes. Do not wait until you are doing poorly in the course to request accommodation; poor grades will not be altered once earned. You must have current documentation from RIT's Office for Disability Services (ODS) that confirms your disability status and supports your request for academic adjustments, auxiliary aids, and services: http://www.rit.edu/studentaffairs/disabilityservices/index.php

4.4. Discrimination Statement

RIT is committed to providing a safe learning environment, free of harassment and discrimination as articulated in our university policies located on our governance website. RIT's policies require faculty to share information about incidents of gender-based discrimination and harassment with RIT's Title IX coordinator or deputy coordinators, regardless of whether the incidents are stated to them in person or shared by students as part of their coursework. If you have a concern related to gender-based discrimination and/or harassment and prefer to have a confidential discussion, assistance is available from one of RIT's confidential resources on campus (listed below).

1. The Center for Women & Gender: Campus Center Room 1760;
   a. 585-475-7464;
   b. CARES **(available 24 hours/7 days a week)** Call or text 585-295-3533.
2. RIT Student Health Center – August Health Center/1st floor;
   a. 585-475-2255.
3. RIT Counseling Center - August Health Center /2nd floor - 2100;
   a. 585-475-2261.
4. The Ombuds Office – SAU/Room 1114;
   a. 585-475-7200 or 585- 475-2876.
5. The Center for Religious Life – Schmitt Interfaith Center/Rm1400;
   a. 585-475-2137.
6. NTID Counseling & Academic Advising Services – 2nd Floor Lynden B. Johnson;
   a. 585-475-6468 (v),
   b. 585-286-4070 (vp).

4.5. Title IX Statement

RIT is committed to providing a safe learning environment, free of harassment and discrimination as articulated in our university policies located on our governance website. RIT's policies require faculty to share information about incidents of gender based discrimination and harassment with RIT's Title IX coordinator or deputy coordinators when incidents are stated to them directly. The information you provide to a non-confidential resource which includes faculty will be relayed only as necessary for the Title IX Coordinator to investigate and/or seek resolution. Even RIT Offices and employees who cannot guarantee confidentiality will maintain your privacy to the greatest extent possible.

If an individual discloses information during a public awareness event, a protest, during a class project, or advocacy event, RIT is not obligated to investigate based on this public disclosure. RIT may however use this information to further educate faculty, staff and students about prevention efforts and available resources.

If you would like to report an incident of gender based discrimination or harassment directly you may do so by using the online Sexual Harassment, Discrimination and Sexual Misconduct Reporting or anonymously by using the Compliance and Ethics Hotline.

If you have a concern related to gender-based discrimination and/or harassment and prefer to have a confidential discussion, assistance is available from any of RIT's confidential resources (listed below).

- RIT Counseling and Psychological Services
    - 585-475-2261 (V)
    - 585-475-6897 (TTY) www.rit.edu/counseling
- RIT Student Health Center
    - 585-475-2255 (V)
    - www.rit.edu/studentaffairs/studenthealth
- RIT Ombuds Office
    - 585-475-7357
    - 585-475-6424 585-286-4677 (VP)
    - www.rit.edu/ombuds/contact-us
- NTID Counseling and Academic Advising
    - 585-475-6400
    - www.ntid.rit.edu/counselingdept
- Center for Religious Life
    - 585-475-2137
    - www.rit.edu/studentaffairs/religion

Course Schedule and Outline

Dates (Monday)	Quiz?	Assignment	Week	General Idea of What We Will Be Discussing
08/26	No	No	1	What is Space and Why Do We Need a Map?
09/02	Q	Yes	2	How do maps work?
09/09	Q	Yes	3	Telling Stories with Geospatial Data
09/16	Q	Yes	4	Applied Topics: Game Maps
09/23	Q	Yes	5	Different Map Software / Open Source Maps
09/30	Q	Yes	6	Let's Bring in Data (Geospatial Analysis)
10/07	Q	Yes	7	From where do data originate?
10/14	Q	Yes	8	Applied Topics: Disaster and Maps
10/21		No	9	Paper Maps, Cartography, and Map Design
10/28	Q	Yes	10	What is the future of map design?
11/04	Q	Yes	11	Ethics of Maps and Application to Design
11/11	Q	Yes	12	Test Week
11/18 to 12/20		No	13 - 16	Work on Final Project and then, Thanksgiving Break and then, Final Project Working Time