

Fundamentals of GIS

GUS 3062 401, CRN 44301

ENST 3062 401, CRN 44302

GUS 5062 401, CRN 38882

Spring 2025

Asynchronous

Instructor: Thomas McKeon, MPH

Office Hours (By appointment):

e-mail: mckeont@temple.edu

The course syllabus will provide you with the course schedule, course objectives, explanations of assignments and assessments, grading policies, and instructor contact information.

Course Description

The purpose of this course is to teach the theory and practical use of Geographic Information Systems (GIS). At the end of the course the student is expected to have an understanding of fundamental GIS theory, working knowledge of a GIS software package, and the ability to develop GIS-based solutions to geographic modeling and analysis tasks.

Note that this is not 'just' a software training course! You will indeed finish the course with advanced skills in a specific GIS software package. However, broader learning objectives for this course include general scientific literacy and graphicacy (the understanding and creation of maps and other graphic representations), as well as developing skills related to the design, reporting, and interpretation of GIS analyses.

Learning Goals

1. Understand how spatial data are encoded in GIS
2. Acquire, generate, and integrate spatial data
3. Create maps and related graphics
4. Design and execute GIS analyses
5. Report and interpret GIS analyses

Course Materials

The textbook for this course is *GIS Fundamentals: A First Text on Geographic Information Systems, Seventh Edition* (2022) by Paul Bolstad and Steven Manson, published by Eider Press. The book is an essential resource for the course, and I highly recommend obtaining a copy to support your learning. Several options are available for accessing the book:

[VitalSource](#) or [RedShelf](#). The print version is available from [Baker & Taylor Publishing](#).

While I will provide supplementary materials, relevant sections, and references to key concepts in Canvas, having access to the full text will ensure you can delve deeper into the material and learn more from this course.

Other readings may be assigned on an ad hoc basis.

Course Technology Requirements

The course is asynchronous, meaning you have the week (sometimes two) to complete each module at your own pace. You may meet with me in person on campus, or via Zoom. These activities require the following:

- Headphones
- Webcam
- Recommended Internet Speed: 8mbps download & 5mbps upload. You can test your connection at <https://www.speedtest.net>
- Please note: Hard-wired connections are more consistent than Wi-Fi for Zoom sessions.

This course requires the use of Canvas, including access to materials and assignment submission. Some videos posted via Canvas will require the use of speakers. The instructor may utilize web-conferencing tools to deliver synchronous material. In order to participate in synchronous sessions (should they exist), you should have a computer, a webcam, headphones, and a microphone.

This course requires the use of Microsoft Office (i.e., Word, Excel, PowerPoint). To access these materials, please login to [TUportal](#) and look for the Microsoft Download link under TUapplications within the My Portal tab.

Students should check their Temple email for course updates.

All students are required to comply with [Temple University's Computer and Network Security Policy](#).

Instructional Methods

Asynchronous Online

Instructional Methods: Readings, video lectures, lab assignments, projects

Course Communications

To facilitate communication, the university requires you to have an e-mail account ending in @temple.edu.

During the semester, I will generally respond to emails within 24 hours of receiving them during the week and with 48 hours on weekends.

Grading Scale

A Range	B Range	C Range	D Range	F Range
A 94 - 100	B+ 87 - 89	C+ 77 - 79	D+ 67 - 69	F 0 - 59
A- 90 - 93	B 84 - 86	C 74 - 76	D 64 - 66	
	B- 80 - 83	C- 70 - 73	D- 60 - 63	

Weighting Details

Assessment Group	Undergraduate (3062)	Graduate (5062)
Midterm Exam	10%	5%
Final Exam	15%	10%
Lab Assignments	70%	60%
GIS Literature Review Presentation	4%	4%

Attendance	1%	1%
Graduate Project		20%

Assignment Descriptions

Lab Assignments

Each lab assignment involves experiential problem-solving using GIS software.

Assignments typically require you to complete a Lab Report.

Policies

1. I encourage students to work together on lab assignments and assist each other in understanding the course material. However, **all contents of each student's assignment submission (text and graphics) must be authored solely by that student.**
2. It is the student's responsibility to understand how data and projects are saved, and to manage and back up their own data and assignments (the lab assignments will indicate how to do this).
3. Labs up to 1 week late will be deducted 1 point. Labs 1-2 weeks late will be deducted 2 points. **Labs will still be accepted more than two weeks after their due date, however direct communication with me via e-mail is required along with submission.**

Accessing the GIS Software

This class uses the commercial GIS software package ArcGIS Pro (ESRI, Inc.). The software is available at all [CLA-managed computer labs](#) (primarily those in Anderson, Gladfelter, and Weiss), as well as all Windows machines in the [TECH Center](#).

The software is also available for students to download through Temple University's ESRI site license. **I recommend that you download the software and install it on your own machine, if you have a Windows (PC) machine.** To do this:

1. Sign into ArcGIS Online @ <https://temple.maps.arcgis.com/> using your Temple accessnet login and password.
2. Click on your User Account Icon in the top right (where it says your name and email)

3. Click My Settings > Licenses. Then scroll down to ArcGIS Pro and click Download to download the software (you do not need to download the ArcGIS Pro extensions).
4. Once the .exe file is downloaded (it may take a minute...) click on it to run the executable and install ArcGIS Pro.

It is possible to install ArcGIS Pro on a Mac, depending on the hardware, but you will have to create a Windows partition and install ArcGIS Pro to it. This may be complicated but help with this is available at the [TU HelpDesk](#).

Alternatively, you can use Temple University's [Remote Login \(Links to an external site.\)](#), which allows you to remotely login to a physical computer on campus and access the software from your home machine. You can use a Windows, Mac, Chromebook, or other platform. Be aware that this option requires you to **take care managing the storage of your GIS data**, as when you log off the remote session you will lose access to that local hard drive and data stored locally will be deleted. You can use OneDrive or other cloud storage options to store your files in order to continue working on a lab assignment during multiple sessions, but you may have to manually upload and download the GIS files. If you have trouble with the remote login process you can fill out a [TU Help \(Links to an external site.\)](#) ticket.

Exams

There will be a midterm and a final exam. Each exam will cover all lectures, readings, lab assignments, or other material taught for specific modules. Make-up exams will be given only for documented medical emergencies.

GIS Application Literature Review

The Review Project requires the student to complete a presentation on a GIS application area.

Graduate Project

Graduate students are expected to propose, design, and execute an applied GIS project of their choice.

General Policies

All [Temple University Academic Policies](#) will be upheld.

Student Support Services

The following academic support services are available to support you. Check the color-coded system in TUPortal to determine which services are virtual or in-person:

[Student Success Center](#)[Links to an external site.](#)

[University Libraries](#)[Links to an external site.](#)

[Undergraduate Research Support](#)[Links to an external site.](#)

[Career Center](#)[Links to an external site.](#)

[Tuttleman Counseling Services](#)[Links to an external site.](#)

[Disability Resources and Services](#)[Links to an external site.](#)

If you are experiencing food insecurity or financial struggles, Temple provides resources and support. Notably, the Temple University [Cherry Pantry](#) [Links to an external site.](#) and the Temple University

[Emergency Student Aid Program](#) [Links to an external site.](#) are in operation as well as a variety of resources from the [Division of Student Affairs](#) [Links to an external site.](#)

Technology specifications for this course

- Limited resources are available for students who do not have the technology they need for class. Students with educational technology needs, including no computer or camera or insufficient Wifi-access, should submit a request outlining their needs using the [Student](#) [Links to an external site.](#) [Technology Assistance Application form](#) [Links to an external site.](#). The university will endeavor to meet needs, such as with a long-term loan of a laptop or Mifi device, a refurbished computer, or subsidized internet access.
- Note that some software is available for free download on the [ITS Academic Support](#) [Links to an external site.](#) [page](#) [Links to an external site.](#). Other specialty software may be available for remote access through ITS.

Remote proctoring statement (if applicable)

Zoom, Proctorio or a similar proctoring tool may be used to proctor exams and quizzes in this course. These tools verify your identity and record online actions and surroundings. It is the learner's responsibility to have the necessary government or school issued ID, a

laptop or desktop computer with a reliable internet connection, the Google Chrome and Proctorio extension, a webcam/built-in camera and microphone, and system requirements for using Proctorio, Zoom, or a similar proctoring tool. Before the exam begins, the proctor may require a scan of the room in which you are taking the exam.

Statement on recording and distribution of recordings of class sessions

I will make videos of lecture and other materials available through Canvas.

Any recordings permitted in this class can only be used for the student's personal educational use. Students are not permitted to copy, publish, or redistribute audio or video recordings of any portion of the class session to individuals who are not students in the course or academic program without the express permission of the faculty member and of any students who are recorded. Distribution without permission may be a violation of educational privacy law, known as [FERPA](#)[Links to an external site.](#), as well as certain copyright laws. Any recordings made by the instructor or university of this course are the property of Temple University.

Recording of class sessions (in person, by Zoom, or otherwise) is prohibited, except in cases of an approved accommodation from the Office of Disability Resources (DRS).

Expectations for Class Conduct

In order to maintain a safe and focused learning environment, we must all comply with the four public health pillars, wearing face coverings, maintaining physical distancing, washing our hands, and monitoring our health. It is also important to foster a respectful and productive learning environment that includes all students in our diverse community of learners. Our differences, some of which are outlined in the [University's nondiscrimination](#)[Links to an external site.](#) [statement](#)[Links to an external site.](#), will add richness to this learning experience. Therefore, all opinions and experiences, no matter how different or controversial they may be perceived, must be respected in the tolerant spirit of academic discourse.

Treat your classmates and instructor with respect in all communication, class activities, and meetings. You are encouraged to comment, question, or critique an idea but you are not to attack an individual. Please consider that sarcasm, humor and slang can be misconstrued in online interactions and generate unintended disruptions. Profanity should be avoided as should the use of all capital letters when composing responses in discussion threads, which can be construed as "shouting" online. Remember to be careful with your own and others' privacy. In general, have your behavior mirror how you would like to be treated by others.

Course Minimum Grade

Although D- is a passing grade, a minimum grade of C- is required in many programs, and in courses required by the major.

For more information, please see [Temple University's Academic Policies on Grades and Grading](#).

Incomplete

A student will be eligible for a grade of “Incomplete” only if the student: 1) has completed at least 51% of the work at a passing level, 2) is unable to complete the work for a serious reason beyond their control, and 3) files a signed agreement with the instructor outlining the work to be completed and the time frame in which that work will be completed. The student is responsible for initiating this process and all incomplete forms must be sent to the Associate Dean for Academic Affairs prior to the start of study days in that semester.

Please refer to the following for further details: [Temple University's Incomplete Policy](#). (Policy #02.10.13).

Withdrawal from the Course

If a student wishes to withdraw from a course, it is the student's responsibility to meet the deadline for the last day to withdraw from the current semester

See [Temple University's Academic Calendar](#) for withdrawing deadlines and consult the [University policy on withdrawals](#) (Policy # 02.10.14).

Statement on Academic Rights & Responsibilities

Freedom to teach and freedom to learn are inseparable facets of academic freedom. The University has a policy on [Student and Faculty Academic Rights and Responsibilities](#) (Policy #03.70.02).

Academic Honesty

According to the University Student Code of Conduct, students must not commit, attempt to commit, aid, encourage, facilitate, or solicit the commission of academic dishonesty and impropriety including plagiarism, academic cheating, and selling lecture notes or other information provided by an instructor without the instructor's authorization. Violations may result in failing the assignment and/or failing the course, and/or other sanctions as enumerated in the [University Code of Conduct](#).

Netiquette

Your instructor and fellow students wish to foster a safe online learning environment. All opinions and experiences, no matter how different or controversial they may be perceived, must be respected in the tolerant spirit of academic discourse. You are encouraged to comment, question, or critique an idea but you are not to attack an individual.

Our differences, some of which are outlined in the [University's nondiscrimination statement](#), will add richness to this learning experience. Please consider that sarcasm and humor can be misconstrued in online interactions and generate unintended disruptions. Working as a community of learners, we can build a polite and respectful course atmosphere.

Disability Disclosure Statement

Revised: Date 12/16/20

Please bear in mind that COVID-19 may result in a need for new or additional accommodations.

Any student who has a need for accommodation based on the impact of a documented disability should contact [Disability Resources and Services](#) (DRS), Ritter Annex 100, (215) 204-1280 or 215-204-1786 (TTY) or drs@temple.edu, to make arrangements. Students requesting accommodations should meet with the instructor as soon as possible after the start of classes to discuss their needs and to provide documentation from DRS.

Accommodations are not retroactive.

Additional information regarding accessibility for all technologies used in this course is provided below:

- [Canvas](#)
- [Zoom](#)

- [VoiceThread](#)
- [ProctorU](#)
- [Proctorio](#)
- [GoogleDrive](#)

Technical Support

For a listing of technical support services available to Temple University students, [see the information linked here](#)

Academic and Support Services

Temple University provides a variety of services to support you throughout your studies. Please take a moment to view these [by visiting the page outlining resources that is linked here](#)

Continuity of Instruction in Event of Emergency

Students are to register for the TUAAlert System to be made aware of University closures due to weather or other emergency situations and follow all additional university-wide emergency instruction. Students can register for this system on the [Campus Safety Services website](#). Students registered for the class will be alerted to any alternate testing procedures and submission of assignment requirements from the instructor via email.

Please note that online classes are generally not affected by campus closures.

Privacy Policy

- [Temple University](#)
- [Canvas Instructure](#)
- [Zoom](#)

Course Schedule

Subject to change – see Modules for up-to-date schedule

Date (Week)	Module	Topic	Lab
1/13-1/17	1	Introduction to GIS and ArcGIS Pro	Lab 1
1/20-1/24	1	Introduction to GIS and ArcGIS Pro (Continue)	Lab 1 (Continue)
1/27-1/31	2	Projections and Coordinate Systems	Lab 2
2/3-2/7	3	Thematic Mapping	Lab 3
2/10-2/14	4	Tables and Attribute Data	Lab 4
2/17-2/21	5	Creating Geographic Data	Lab 5
2/24-2/28		MIDTERM (ONLINE)	Lab 5
3/3-3/7		SPRING BREAK	SPRING BREAK
3/10- 3/14	6	Vector Data Models and Operations	Lab 6
3/17 -3/21	7	Raster Data Models and Operations	Lab 7
3/24 -3/28	7	Raster Data Models and Operations continue	Lab 7
3/31 -4/4	8	Interactive Mapping with Leaflet JS /CSS/ HTML	Lab 8 [Different format Web Tool]

4/7 - 4/11		Lit Review Presentations	
4/14 - 4/18		Graduate Presentations / Review	
4/21 - 4/25		FINAL EXAM, 2 hours (ONLINE)	