



THE UNIVERSITY OF TEXAS AT AUSTIN
SCHOOL OF
information

INF 385T: Mapping for the Common Good

FACULTY INFORMATION:

Tony H. Grubestic (Instructor)
Geoinformatics & Policy Analytics Lab (GPAL)
1616 Guadalupe Suite #5.202
Austin, TX 78701
Email: grubestic@utexas.edu

Jake Nelson (Teaching Assistant/Lab guru)
Geoinformatics & Policy Analytics Lab (GPAL)
1616 Guadalupe Suite #5.530
Email: jake.nelson@austin.utexas.edu

COURSE MEETING TIMES AND LOCATION:

Room: UTA 1.210A
Time: Tuesday, 9:00am – 12:00pm

OFFICE HOURS AND INSTRUCTOR COMMUNICATION:

Tony: By appointment
Jake: Monday 9:00am – 11:00am or by appointment

This course uses a “Three Before Me” policy for student to faculty or teaching assistant communications. When questions arise during the course of this class, please remember to check **three** sources for an answer **before** emailing your instructor or TA:

1. Course Syllabus
2. Announcements in Canvas
3. The Discussion/Q & A Forum in Canvas

This policy will help you in potentially identifying answers before either Jake or I can get back to you, and it also helps us from answering similar questions or concerns multiple times.

Although your classmates may be helpful in answering questions, please be aware that nothing in the Canvas forum constitutes official course policy. In the event of a conflict between information on the Q & A forum and information in the syllabus, always refer to the syllabus unless the information in the syllabus was formally changed by the instructor through an official course

announcement. Please note that your instructor will respond to your Q&A Forum posts and to your emails within 24-48 hours on business days.

All instructor correspondence will be sent to your “@utexas.edu” e-mail account. Forwarded emails to and from your UT to a personal account is not recommended because course related emails are frequently “lost” in cyberspace. **UT faculty will not respond to any e-mail address other than UT account addressed emails.**

NOTE: When emailing your instructor or TA, please include the course number “INF 385” in the subject of your email, so we can prioritize it over other emails that are not course related.

COURSE DESCRIPTION:

Mapping for the Common Good provides students of any background and any academic specialty/interest a broad theoretical and technical understanding of maps, spatial data and geovisualization. It is intentionally structured to highlight the many ways in which geographic information technologies and spatial reasoning skills can profoundly impact our understanding of the world. It also provides students with an opportunity to better appreciate how spatial data and mapping can be used to develop strategies, plans, and designs to improve the quality of life for communities and their citizens.

COURSE PREREQUISITE(S):

Graduate standing

LEARNING GOALS:

Upon successful completion of the course, students should be able to:

1. Explain how spatial analysis, mapping and geovisualization tools can be used to advance our knowledge and understanding of human and environmental activities, as well as policy, from a variety of disciplinary perspectives;
2. Recognize different types of maps and understand the structural and analytical issues that underlie their creation;
3. Understand the breadth of modern mapping and geovisualization technologies and the social ramifications of their use;

A core element of this course will include learning how to use a variety of mapping and visualization platforms, including Google Earth and a commercial geographic information system (GIS), known as ArcGIS Pro, from Environmental Systems Research Institute (ESRI).

REQUIRED BOOKS:

Smith, D., Strout, N., Harder, C., Moore, S., Ormsby, T. and T. Balstrom. (2018). Understanding GIS, fourth edition: An ArcGIS® Pro Project Workbook. Esri Press, Redlands. ISBN: 9781589485266.

RECOMMENDED BOOKS:

Monmonier, M. (1996). *How to Lie with Maps*. University of Chicago Press: Chicago, IL.
ISBN: 0226534219

OTHER REQUIRED RESOURCES:

A functioning computer, up-to-date within the last 5 years. Please note, mobile devices such as tablets or smartphones are not recommended for use with Canvas. The Canvas mobile app can be used for occasionally checking on the course, but the mobile app will not display the course in its entirety. You must access the course regularly from a full-featured laptop or desktop computer.

The following hardware and software packages will be available for use in the lab. Should you need to work on labs/homework/projects outside of class you will need to have access to the following:

- ArcGIS Pro 2 (free, comes with required book, but 2.4 can also be downloaded from UT)
- Microsoft Windows
- Presentation software (PowerPoint, Keynote, or similar)
- Word processing software (Word, Pages, or similar)
- Web browsers (Chrome, Mozilla Firefox, or Safari)
- Adobe Acrobat Reader (free)
- Adobe Flash Player (free)

Running ArcGIS Pro outside of lab

This course requires that students install and use ArcGIS Pro 2 or 2.4 (ArcPro), an industry-standard desktop GIS software suite produced by Esri. If you buy a new copy of the book you will get a 180-day trial license with all the necessary extensions. If you *do not* buy a new book you will need to obtain a copy of ArcGIS pro from UT if you plan on working off-campus.

UT students can obtain a stand-alone license for ArcGIS Pro 2.4 from UT (<https://guides.lib.utexas.edu/install-gis-software/arcgis-pro>). ArcPro runs only on computers with x86 and x64-compatible processors running Microsoft Windows. This means that some new Windows 10 tablets cannot run ArcPro. Mac and Linux users will have to install Windows to run ArcPro. If you are a Mac or Linux user, you have several options for installing and running Windows and ArcPro: (1) dual-booting your computer (multi OS utility such as Boot Camp), which involves carving out a separate partition on your hard drive for Windows and ArcPro, and (2) virtualization, which involves using specialized software to simulate another computer system. Virtualization is far easier, and should be used by anyone who is not already familiar with dual booting and disk partitioning. Oracle's VirtualBox is a free and open source virtualization platform that can be used to run Windows and ArcPro on Mac or Linux computers.

When working off campus you will need to download and install the Cisco Anyconnect VPN (<https://vpn.utexas.edu>). You will need to be connected to the internet and have the Cisco VPN running for ArcPro to function properly.

NOTE: Please do not underestimate the time required to get a copy of ArcGIS Pro 2 or 2.4 operational on your personal machine. It is a headache, every year, for everybody. Get this going ASAP.

LEARNING ACTIVITIES:

1. **Exams (40%):** There will be two exams in this class, each worth 20% of your final grade. Each examination consists of multiple choice and short answer/essay/application questions. The multiple-choice questions are designed to test your knowledge of lecture and text material. These questions are often difficult and require careful reading on the exam. The short answer/essay questions are designed to evaluate your comprehension of maps, map types, geovisualization and their analytical foundations. Clarity of expression is a factor in assessing these questions. There are no make-up exams.

2. **ArcGIS Pro 2/2.4 Project: Locating a new park along the Los Angeles River (20%)**

This is a ½ course-long project that will require a submission re: your activities each week. Specifically, there will be a series of questions pertaining to the project each week that will require your input. This may be the submission of a map, a small essay on the preliminary results, an essay regarding data uncertainty or spatial representation, etc. This is an opportunity for you to express yourself without strictly conforming to our project workbook. Take advantage of it. Each submission is worth between 10 and 15 points. Grading will adhere to the rubric posted in Canvas.

3. **Mini Project (20%)**

This is ½ course-long project that will require a final report (**60 points**) and presentation (**30 points**) to the class. Do not ask me what I want your project to be about. This is an opportunity for you to select a topic that interests you. A one-page proposal of your paper is due on the 6th week of class (**10 points**). The proposal should be written in sentence form (not an outline) and should contain:

- A working title
- A brief description of what topic you plan to investigate
- A brief description of how you plan to go about investigating that topic
- A brief hypothesis of what you expect to find in your results (if appropriate)
- A bibliography of sources you have already found on this topic (5 minimum)
- A comprehensive description of where you are going to get data for analysis

The actual project report should adhere to the following guidelines:

- Typed, double-spaced, 1 inch margins on all sides, 12 or 11 point Times New Roman or Arial fonts. You must also have a separate cover sheet that includes your name and contact information (UT email).
- Your paper must be referenced (APA style); including complete and specific within-paper citations of all books, articles, and Internet sites consulted (if I can't look these references up... don't use them).
- You must include at least three publication quality maps generated in ArcGIS Pro.

4. **Article Summaries (20%):** Five journal articles will be assigned for the class to read during the semester. The topics of these articles will relate to the subject matter of the lecture and/or class for that particular week. Students are required to write a detailed summary of each article (approx. 2-3 pages) discussing the subject matter and GIS/mapping techniques applied (with an emphasis on the latter). Be critical!! Grading will adhere to the rubric posted in Canvas.

SUBMITTING ASSIGNMENTS AND LATE ASSIGNMENTS

All assignments are to be submitted by the due date. Late submissions will not be accepted unless:

1. an extension was granted by the instructor in advance of the due date;
2. documentation of an unforeseeable excused absence (as assessed in the instructor's sole discretion) is provided;
3. Your instructor and TA retain the right of refusal on assignments. In other words, if you are turning in late work, we may not accept it.

Additionally:

4. All assignments, unless otherwise announced by the instructor, **MUST** be submitted via Canvas. Each assignment will have a designated place to submit the assignment. Do not submit an assignment via email.
5. Late submission of assignments is subject to penalty (see below). **All assignments are due on Mondays, at 11:59 pm Central Time.** There are no exceptions. Schedule accordingly.

<u>Number of days late</u>	<u>Percentage points taken off</u>
1	20%
2	40%
3	60%
4	80%
>=5	100%

SUMMARY OF GRADED ASSESSMENTS:

Grading Policy: The final grade is based on the proportion of cumulative points you have earned over the semester. There are a total of 500 points.

Section Exams:

Exam 1	100
Exam 2	100
Project Questions	100
Mini-Project	100
Article Summaries (n = 5)	<u>100</u>
Total	500

FINAL COURSE GRADING SCALE:

Final Grades will be assigned using the following breakdown:

A	460 - 500
A-	450 - 459
B+	440 - 449
B	410 - 439
B-	400 - 409
C+	390 - 399
C	360 - 389
C-	350 - 359
D+	340 - 349
D	310 - 340
D-	300 - 309
E	299 or below

ACADEMIC INTEGRITY:

1. Academic Dishonesty – In addition to academic performance, students are expected to demonstrate the qualities of honesty and integrity. All submissions by a student are expected to be the original work product of the submitting student. Material that violates this requirement in any way, or that constitutes any form of dishonesty, cheating, fabrication, the facilitation of academic dishonesty, and/or plagiarism, may result in the student receiving a failing grade in the course ('XE') and in appropriate disciplinary action being initiated. The possible sanctions include, but are not limited to, grade penalties, permanent record on your transcript of academic dishonesty, loss of registration privileges, disqualification, and dismissal. Please see the official UT Policy on Cheating and Plagiarism (Policy Statement 08-02) for more details about the consequences of academic dishonesty. It is accessible online at:

<https://deanofstudents.utexas.edu/conduct/academicintegrity.php>

2. Electronic Review – To ensure compliance with academic integrity policies, written submissions will be submitted to TurnItIn, or a similar plagiarism detection program. Submission of any writing assignment in the course to the professor constitutes consent by the student for the instructor to upload the paper to check against any anti-plagiarism database.
3. Citation Style – Students are required to use the citation style and format of either the American Psychological Association (APA).
4. Avoiding Plagiarism – Some students truly do not understand what plagiarism is, and therefore plagiarize unwittingly or unintentionally. But ignorance is not an excuse for unethical academic conduct. To combat such ignorance, here are rules and resources to help you avoid any problems with plagiarism. Of course, these rules apply regardless of the citation form or style you may be using.
 - a. Direct Quotations – Whenever you directly quote someone else, you must provide a citation to the source of the material from which you are quoting. Moreover, you must put the material in quotation marks or otherwise set it off in an indented quote so the reader knows what words are yours and what words are quoted. It is unacceptable to use the words of

others and only partially quote the original source. This is true even if you provide citation to the source both in text and in your references section!

- b. Paraphrasing/Indirect Quotations – Whenever you indirectly quote someone else (i.e., you paraphrase the work of another), you must provide a citation to the source of the material from which you are paraphrasing. Simply changing the structure of a sentence, or a few words in a sentence so that the sentence you write is not an exact quote from the original source does not mean a citation is not needed. This is because the idea you are expressing is not your own, but rather someone else's.
- c. Using Other's Ideas – Even if you compose an entire paragraph of writing in your own words (i.e., neither quoted nor paraphrased), if the idea you are expressing in that paragraph is not your own, original idea, you must provide a citation to the source from which you obtained this idea.
- d. Collaborative Work – If you collaborate on any work with someone else and fail to acknowledge that collaboration, you are guilty of plagiarism. If you have received permission from your professor to collaborate on some assignment, be sure that all the contributor's names appear on the submission.
- e. Altering or Revising Another's Work – If you alter or revise the work done by someone and submit that work as your own, you have plagiarized. Similarly, if you allow someone else to alter or revise work that you have done and then allow that person to submit it as his or her own work, you are both guilty of plagiarism. Work that is not entirely your own must be credited by citation, both in text and in your references page.
- f. Altering or Revising Your Own Prior Work – You should also be aware that altering or revising your own work that was prepared for another class or another professor, and not bringing it to the attention of the professor to whom you are submitting the revised work is also academic dishonesty. If, for example, you have two classes that require a term paper, and you can write one paper that meets the requirements of both classes, you may not submit that paper to both professors unless you get permission to do so in advance from both professors. Similarly, if you wrote a paper several semesters ago that can be revised and submitted in satisfaction of a paper requirement for a course in which you are currently enrolled, doing so is academic dishonesty unless you get the advanced permission of your professor to do so. The reason this is dishonest is that it is not an original work prepared in satisfaction for the requirements on the course you are currently taking.

IMPORTANT COURSE POLICIES

1. Required behavior standards are listed in the [Student Code of Conduct and Student Disciplinary Procedures](#), [Campus IT Policies](#), and outlined by the [Office of Student Rights and Responsibilities](#). Anyone in violation of these policies is subject to sanctions.
2. Students are entitled to receive instruction free from interference by other members of the class. When a student's behavior disrupts the educational process, the instructor may ask the student to leave the classroom.

3. The Office of Student Rights and Responsibilities accepts [incident reports](#) from students, faculty, staff, or other persons who believe that a student or student organization may have violated the Student Code of Conduct.
4. In accordance with [Note Taking Services](#), written permission must be secured from the instructor of the class in order to sell the instructor's oral communication in the form of notes. Notes must have the notetaker's name as well as the instructor's name, the course number, and the date.
5. All lectures, exercises and assignment questions are the intellectual property of the instructor. You are expected not to post completed assignments on the web, or to distribute these in any form unless explicitly requested to do so by the instructor.
6. This class is a [Wikipedia Free Zone](#). Under no circumstances are students to use Wikipedia, Infoplease, About.com or other sites that are considered open "information commons" for assigned work or term papers. Failure to observe this rule will result in a 10% penalty, **FOR EACH INSTANCE**, on a given assignment.
7. Please notify the instructor or TA **BEFORE** an assignment is due if an urgent situation arises and the assignment will not be submitted on time. Published assignment due dates (Central Time) are firm. Please follow the appropriate University policies to request an [accommodation for religious practices](#) or to accommodate a missed assignment due to University-sanctioned activities.
8. All assignments, unless otherwise announced, **MUST** be submitted to the designated area of Canvas unless otherwise noted.
9. There is a limited timeline to [drop or add the course](#). Consult with your advisor and notify your instructor to add or drop this course. If you are considering a withdrawal, review the following UT policies: [Withdrawal from Classes](#), [Medical/Compassionate Withdrawal](#), and a [Grade of Incomplete](#).
10. Grade disputes must first be addressed by discussing the situation with the instructor. If the dispute is not resolved with the instructor, the student may appeal to the department chair per the [University Policy for Student Appeal Procedures on Grades](#).

SPECIAL LEARNING NEEDS:

The University of Texas at Austin provides upon request appropriate academic accommodations for qualified students with disabilities. To determine if you qualify, please contact the Dean of Students at 471-6259; 471-4641 TTY. If they certify your needs, we will work with you to make appropriate arrangements.

DUE DATES, ABSENCES, AND EXCUSES:

[Planned Excused Absences](#) - It is important to complete your work on time, both so you can stay on track and so you can collaborate and interact with your fellow students. Late assignments will not be accepted. You will receive a zero if you do not submit your assignment on time. We use the Canvas upload time as the official time of the submission, so if you submit your assignment 5 seconds after the deadline, Canvas will mark your assignment late and you will receive a zero for that assignment. Not cool, but we have no control over this.

Please make sure you submit your assignments well in advance; computer problems, network outages, and other "technical" issues will not be considered a valid excuse for submitting an assignment late, so make sure you submit your work early. **Plan ahead.**

If you know that a future event will interfere with your ability to complete course work, you are encouraged to contact the instructor or TA to make arrangements for completing the assignments. Provided that a student informs the instructor of the reason for the absence at least one week in advance of the absence, the instructor will attempt to make arrangements, only when absences are due to any of the following three reasons:

- a. religious reasons;
- b. jury duty or similar governmental obligation (a copy of the summons or other official paperwork must be provided); and
- c. university-sanctioned and/or university-approved activities (e.g., artistic performances, participation in research conferences, intercollegiate athletic activities, student government, required class field trips, etc.).

MAKE-UP WORK:

If you are seriously ill or you are injured in a manner that prevents you from completing your work, you should email and notify the instructor to let him know that you are sick or injured as soon as possible. The same is true for the death, injury, or serious illness of an immediate family member. Please be advised that for missed work based on an emergency situation to be excused, you may be required to submit corroboratory documentation, such as a note from a physician documenting the illness or injury (notes from family members will not suffice), a death certificate or other form of proof of a family member's death, etc.

STUDENT CONDUCT:

The University and I expect all students to comport themselves professionally. Toward that end, I expect everyone to abide by the following rules of etiquette:

- Although you are welcome to disagree with the professor or your classmates, everyone is expected to participate respectfully. Students who engage in personal attacks; who use rude, insulting, or disrespectful language; or who engage in other disruptive or threatening behavior may face disciplinary action.
- Please use proper grammar, spelling, and punctuation in all course-related communications, whether that is in the discussion boards, emails to the instructor, or assignments. "Text lingo" and other invented spellings are not allowed.
- What To Call Me – I don't care much for titles, so "Tony" is fine with me. If that freaks you out, "Dr. G" or "Dr. Grubestic" works too.

SEXUAL VIOLENCE AND HARASSMENT:

Title IX is a federal law that provides that no person be excluded on the basis of sex from participation in, be denied benefits of, or be subjected to discrimination under any education program or activity. Both Title IX and university policy make clear that sexual violence and harassment based on sex is prohibited. An individual who believes they have been subjected to sexual violence or harassed on the basis of sex

can seek support, including counseling and academic support, from the university. If you or someone you know has been harassed on the basis of sex or sexually assaulted, you can find information and resources at <https://titleix.utexas.edu/campus-resources>.

TECHNICAL SUPPORT:

For technical assistance 24 hours a day, 7 days a week, please contact the Information Technology Office Help Desk:

Phone: 512-471-4357

Web: <https://education.utexas.edu/about/college-offices/information-technology-office>

SYLLABUS CHANGES:

I view this syllabus as an educational contract between me and the students in the course. Accordingly, I will make every effort to avoid changing the course schedule, but the possibility exists that unforeseen events will make syllabus changes necessary. I therefore reserve the right to make changes to the syllabus, other than to the attendance and grading policies.

STUDENT SUCCESS

Students are expected to engage with the material in-class and outside of class. Furthermore, those who do not read the assigned material carefully will do poorly. All assigned readings and lecture material are examinable. If you are having problems with the course material or with the assignments, or if you just seem to be getting behind, please see the course instructor as soon as possible.

To summarize:

- Check the course daily
- Read announcements
- Read and respond to course email messages as needed
- Complete assignments by the due dates specified
- Communicate regularly with your instructor and peers
- Create a study and/or assignment schedule to stay on track

COURSE SCHEDULE:

Please note: date, topics, and assignments listed are “best estimates”; they may be adjusted from time to time. In addition, although we start slowly, the course picks up steam (significantly) during weeks 4 and 5 and there is no looking back. Manage your time carefully. Work ahead when you can.

WEEK 1 (01/20 – 01/24)

Lecture: (1) Syllabus; (2) Why Should We Care About Maps and GIScience?

Reading: Lesson 1 (Smith et al.)

WEEK 2 (01/27 – 01/31)

Lecture: A Typology of Maps and Key Cartographic Elements

Reading: Lesson 2 (Smith et al.)

Lesson 1 Exercise Questions (Due 1/27)

WEEK 3 (02/03 – 02/07)

Lecture: Maps and the Media

Reading: Lesson 3 (Smith et al.)

Lesson 2 Exercise Questions (Due 02/03):

Article Review 1 (Due 02/03): Ratcliffe, J. H. (2002). Damned if you don't, damned if you do: crime mapping and its implications in the real world. *Policing and Society*, 12(3), 211-225.

WEEK 4 (02/10 – 02/14)

Lecture: Spatial Data are Special + Uncertainty

Reading: Lesson 4 (Smith et al.)

Lesson 3 Exercise Questions (Due 02/10)

Article Review 2 (Due 2/10): Vujaković, P. (2014). The State as a ‘Power Container’: The Role of News Media Cartography in Contemporary Geopolitical Discourse. *The Cartographic Journal*, 51(1), 11-24.

WEEK 5 (02/17 – 02/21)

Lecture: Patterns and Process

Reading: Lesson 5 (Smith et al.)

Lesson 4 Exercise Questions (Due 02/17)

Article Review 3 (Due 02/17): Delmelle, E., Dony, C., Casas, I., Jia, M., & Tang, W. (2014). Visualizing the impact of space-time uncertainties on dengue fever patterns. *International Journal of Geographical Information Science*, 28(5), 1107-1127.

HUGE WEEK 6 (02/24 – 02/28)

Lecture: Global Positioning Systems and GPS Applications

Reading: Lesson 6 (Smith et al.)

Lesson 5 Exercise Questions (Due 02/24)

Article Review 4 (Due 02/24): Zandbergen, P. A., & Hart, T. C. (2009). Geocoding accuracy considerations in determining residency restrictions for sex offenders. *Criminal Justice Policy Review*, 20(1), 62-90

Mini Project Proposal (Due 2/24)

WEEK 7 (03/02 – 03/06)

Lecture: Satellite Imagery and Remote Sensing Basics

Reading: Lesson 7 (Smith et al.)

Lesson 6 Exercise Questions (Due 03/02)

Article Review 5 (Due 03/02): Ishikawa, T., Fujiwara, H., Imai, O., & Okabe, A. (2008). Wayfinding with a GPS-based mobile navigation system: A comparison with maps and direct experience. *Journal of Environmental Psychology*, 28(1), 74-82.

WEEK 8 (03/09 – 03/13)

Lesson 7 Exercise Questions (Due 03/09)

EXAM 1 (Due 03/09)

WEEK 9 (03/16 – 03/20)

Spring Break!!

WEEK 10 (03/22 – 03/27)

Lecture: Drones 1

Reading: Lesson 8 (Smith et al.)

WEEK 11 (03/30 - 04/03)

Lecture: Drones 2

Reading: Lesson 9 (Smith et al.)

Lessons 8 Exercise Questions (Due 03/30)

WEEK 12 [Virtual Week] (04/6 – 04/10)

Lecture: Social and Environmental Justice

Reading: TBD

Lessons 9 Exercise Questions (Due 04/06)

WEEK 13 (04/13 – 04/17)

Lecture: Data Fusion

Reading: TBD

Interim Project Report (Due 04/13)

WEEK 14 (04/20 – 04/24)

EXAM 2 (Due 04/20)

WEEK 15 (04/27 – 05/01)

Lecture: Open session (90 minutes) for project help/guidance (completely optional)

Reading: N/A

WEEK 16 (05/04 – 05/08)

Pizza Party and Project Presentations

Final Project Report (Due 05/04)

Final Project Presentation (Due 05/04)