

Maps, Satellites and the Geospatial Revolution

GEOM 1004 - Fall 2021

Department of Geography and Environmental Studies, Carleton University



Professor: Murray Richardson, PhD

Contact options:

- "Ask the instructor" on Brightspace
- Meet "face-to-face" online via zoom Link on Brightspace (after class)
- Email: murray.richardson@carleton.ca

Lectures: Tuesdays online (synchronous) via Zoom 8:35 am to 10:25 pm. Normally, the online lecture period will not make use of the full period and will end early, but you must be prepared to attend for the full period each week for when the necessity arises.

Laboratory periods: Tuesday or Friday online (synchronous) during the time indicated below for your section:

Section A1:	Tuesdays	2:35 pm to 4:25 pm
Section A2:	Tuesdays	11:35 am to 1:25 pm
Section A3:	Fridays	8:35 am to 10:25 am

Note: Online meetings (lecture and lab) will take place over "Zoom". To facilitate the setup and use of online breakout rooms, students will be required to set up a free Zoom account using their Carleton email address. Please refer to section VII for more information about setting up your Zoom account.

Teaching Assistants:

Frederic Brieger, PhD candidate (FredericBrieger@cmail.carleton.ca)
Loucas Diamant-Boustead (loucasdiamantboustea@cmail.carleton.ca)

I. Course Description:

Introduction to the creation and use of maps using a variety of geospatial tools to better understand and resolve physical, social and environmental problems. Overview of geomatics (cartography and map design, geographic information systems, GNSS, remote sensing).

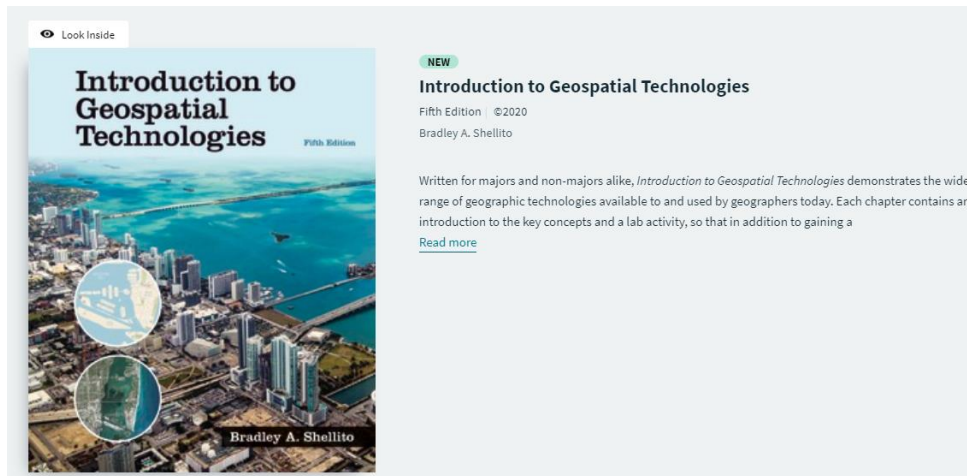
II. Prerequisites: Prerequisites additional credit for GEOM 2004 (no longer offered).

III. Learning Outcomes:

- To become familiar with the core sub-disciplines in the broad field of geomatics, including cartography, global navigation satellite system applications, geographic information systems, and remote sensing.
- To develop an appreciation for how geospatial tools are used and how they are shaping the way we make decisions.
- To develop practical, hands-on skills in cartography, GPS data collection and mapping, introductory GIS analysis, introductory remote sensing, and to learn how they can be used to help solve social and environmental problems.

IV. Textbook:

We will use the following mandatory textbook by Bradley Shellito (must be 5th edition) extensively throughout the course (available online as e-book purchase or rental, and in hardcopy at the Carleton University bookstore in Ottawa):



A detailed explanation of the required readings will be posted on Brightspace on a week-by-week basis. Weekly quizzes will be based on assigned readings from this textbook and other online sources.

V. Course Calendar: Please refer to the course schedule posted on Brightspace for detailed timeline of course topics and assessments. The schedule may require minor revisions to accommodate unexpected scheduling issues.

VI. Course Evaluation:

Students will be evaluated on the basis of five components:

Geospatial Laboratory Assignments:	50%
Weekly Online Quizzes:	20%
Final Lab exam:	15%
ESRI Story Map Project:	15%
Total:	100%

Geospatial Laboratory Assignments: There will be up to six lab assignments in total. ***These are normally due by midnight on the evening prior to your lab section, two weeks after the assignment introduction.*** Assignments submitted after the due date will be considered late and will be penalized by -1% of the maximum assignment grade for a period of up to seven days. After seven days, no late submissions will be accepted, period. This is a firm policy. If you plan to submit late (up to seven days), you do not need to notify the instructor, and if you do, you will not likely receive a response. Only extenuating circumstances such as an acute health problem, accident or family emergency will be considered as a valid reason to extend the deadline without penalty or beyond seven days. Please do not attempt to negotiate with the instructor or TAs over assignment submission deadlines unless your circumstance falls within one of these serious categories. Otherwise, a -1% per day penalty is quite minor, and you should simply accept it.

Weekly assigned resources with online quizzes: Online quizzes will be based on assigned course readings from the textbook and other resources, including web-based resources such as websites and videos and short videos by the instructor. Quizzes must be completed prior to the online lecture meeting date that follows the week in which they were assigned. You will have a set amount of time to complete each one. Once you start a quiz, you must complete it in the same session. It is best to complete your review of the readings and other assigned resources prior to starting the quiz to ensure you have enough time to finish all questions. Your overall quiz grade will be graded from the best 7 out of 9 quizzes. Late submissions will not be accepted, period. If you miss a quiz deadline by accident or for another reason (other than a serious, verifiable and extenuating circumstance as described above), you can take advantage of this otherwise flexible assessment policy. Please do not attempt to negotiate with the instructor over quiz deadlines unless your circumstance falls within one of these serious categories.

Laboratory Exam: This will happen in the final week of classes during the scheduled lecture period. It will involve a 110-minute computer-based test in which you will answer multiple-choice and short answer questions, and you will be required to use GIS software to come up with some of your answers.

Story Map Project: [ArcGIS Story Maps](#) is an online platform for communicating engaging topics through maps, photos and written content. Over the course of the semester, you will be working on your own individual story map during lab work periods. The specific topic will be up to you (e.g. documenting a recent trip you did, your favourite coffee shops/pubs around Ottawa, a "homage" to the neighbourhood you grew up in, or a story map that documents a social/environmental issue of interest). You will receive additional guidelines early in the term.

Online Laboratory Sessions and Assignments:

The geospatial laboratory assignments provide an opportunity to apply course concepts and get hands-on experience using geomatics tools. Assignments will be introduced during the online laboratory sessions by your teaching assistant and/or the course instructor, which usually includes a brief review of relevant course material, software demonstrations, and tips on how to successfully complete the assignment. While the assignments have been designed by the instructors, the TAs are primarily responsible for organizing and running the laboratory sessions, providing assistance during their office hours, and for grading assignments. Please seek assistance as needed, but keep in mind that their role is to facilitate learning and not to provide answers.

Lecture and lab attendance/participation:

Attendance at all online lecture and lab meetings is expected and will be tracked through Zoom. The purpose of tracking attendance is to help inform grade assessment in the event of discrepancies or disputes over assignment or test grades. Student attendance records will also be used to determine whether a student's final grade should be rounded up to the next letter grade if they are very close to achieving it.

VII. Other General Course Information

Weekly Course Structure

The typical weekly structure of the course, including typical activities and expectations, are as follows:

- Complete textbook readings and other weekly assigned resources on your own schedule, prior to the lecture to which they are assigned;
- Complete online quiz associated with weekly assigned resources prior to attending lecture;
- Attend Tuesday lectures via Zoom at your designated time as shown at the top of this outline to receive weekly guidance and mini-tutorials and to interact with the instructor;
- Attend your online lab session via Zoom at your designated time as shown at the top of this outline to receive assignment instructions and technical help;
- Make use of "Ask your instructor" for course content and schedule related questions (if possible, please limit your use of email to the instructor; use it primarily for more personal issues that require discussion or to arrange an in-person Zoom meeting);
- Make use of "Student Coffee Shop" on Brightspace to interact and converse with other students and to help and support each other!

Required Computer Software

During this course, you will make use of the following software and phone apps:

1. Google Earth Pro Desktop Version (free)
2. ArcGIS Pro v2.5 (student license available)
3. Avenza Maps GPS App for iOS and Android (free version)

For more information about computing requirements to run the desktop GIS software packages (items 1-3 above), please visit: <https://www.carleton.ca/geography/computing-requirements-for-dges-courses/>

For students using macOS, please refer to the note in the above link that pertains to you. Briefly, ArcGIS Pro only runs on the Windows platform, and you will need to install a Windows partition on your computer or use Windows VM access with the installed software (instructions will be posted on Brightspace).

Understanding the purpose of online meetings, weekly assigned resources with quizzes and laboratory assignments:

The online meetings, weekly assigned resources with quizzes, and laboratory sessions/assignments are designed to complement and reinforce each other in meeting the course's learning objectives. Online meetings for "lectures" will be approximately 1 hour. These meetings will be synchronous ("live") online sessions conducted using "Zoom". The purpose of these meetings is not to impart all of the course theory as in a more typical lecture format but to introduce key concepts for the week, to provide opportunities for student-instructor engagement, and to explain other aspects of the course as required. The weekly assigned resources cover the substantive theoretical concepts for introductory geomatics, and the quizzes are based on these resources and used to help students engage with and learn the material. The laboratory assignments will also take place online over "Zoom" through synchronous meetings with at least two teachers who will be able to help students individually or in small groups using "breakout rooms". Laboratory meetings and assignments will provide the opportunity to apply key methods and concepts introduced via the weekly assigned resources.

Student Zoom Accounts

To facilitate the use of breakout rooms during our online meetings, please sign up for a free zoom account (<https://zoom.us/signup>) **using your Carleton email address (this is critical to make breakout sections work properly)**. Next, download and install the "Zoom Meeting Client" (<https://zoom.us/download>) on your PC (if you've used Zoom already, then most likely you have it installed on your computer as the web browser client will download automatically when you start or join your first Zoom meeting). Each time you are joining a lecture or a lab session, please use your first and last names as used in Carleton's records (like the ones on your Carleton student card).

Attendance during online meetings

Students are expected to attend all synchronous online meetings. Please understand that it will be very difficult or impossible to successfully participate completely asynchronously in this course. At the same time, we recognize there will be challenges and will work with you to provide flexibility. Some of this will likely involve the recording of synchronous sessions. If you have a genuine scheduling issue that prevents you from attending one or more meetings (either the lecture or the lab), please contact the professor by email at least 24 hours ahead of time to arrange access to a recording of the meeting.

Privacy issues related to recordings of online meetings

The sudden switch to online learning creates potential privacy problems that we never had to worry about in the past. When we do synchronous video calls, and we have cameras on, we are opening windows into our homes. Please respect that fact with all your fellow students and instructors. Do not record people without their permission, and do not distribute recordings that may be made available by the instructor to anyone outside of the course. Remember, it's not just the course materials anymore; It is also recordings of what was said and seen and shown by all of your classmates. If you have any concerns about privacy, don't hesitate to bring them up with the instructor.

Finally, we ask all students to provide permission for these recordings, under the conditions outlined above, i.e. that the recordings only be used for the purposes of reviewing or getting caught up while taking this class. This permission will be requested in the "course outline review quiz" that all students are asked to complete prior to our first online meeting.

Assignment Scheduling and Due Dates

There are up to six laboratory assignments required for this course. All assignments must represent individual work that is completed independently. Any form of plagiarism will be treated as a serious instructional offence in accordance with university policy (see below).

Students should attend the online "lecture" and laboratory sessions, having done the required readings and ready to participate in discussions or lab activities.

The introduction, explanation and submission of laboratory assignments will adhere to the schedule that is posted on Brightspace. *Please note that there will be no laboratory session the first week of class* - your first official laboratory session will be during the week of January 11th. Please review the class schedule carefully. The topic associated with a laboratory assignment will be introduced through the weekly assigned resources. Next, the assignment will be explained in the online laboratory session. Finally, students will be expected to submit their completed assignments online in accordance with the assigned due dates.

Submission and Grading of Assignments

Assignments instructions will be distributed on Brightspace in .PDF format, with detailed instructions. Answers will be submitted entirely online for each assignment. Each question in assignment .PDF will be numbered and duplicated in the online version of the assignment in Brightspace, where you will be required to enter your responses (e.g. numeric, multiple choice, or written answer). Each assignment must be completed and submitted by Sunday evening on the week that they are due as indicated in the course schedule.

For written answers being submitted directly online, it is highly recommended that you enter your answers into a word processor first, not only to serve as a backup but also to make use of the spell-checker. Poor writing and grammatical/spelling errors will be penalized. TAs will mark your responses to the questions, and grades will be posted on the course's Brightspace site. Students are responsible for

checking their assignment grades on Brightspace. Any questions regarding assigned grades must take place in written form (i.e., email) **within ten days** after the day that the assignments are returned. Students who fail to meet the above-outlined course requirements may be assigned an FND grade. Final grades are subject to the Dean's approval.

VIII. Instructional and Conduct Offences

Carleton University has clear and firm policies regarding instructional and conduct offences. Instructional offences include among other activities cheating, contravening examination regulations, plagiarism, and disrupting classes. Conduct offences apply in areas of discrimination and sexual harassment. Further information about the University's Academic Integrity Policy can be found at:

<https://carleton.ca/secretariat/wp-content/uploads/Academic-Integrity-Policy-2021.pdf>

Plagiarism is one kind of instructional offence. Examples of plagiarism include:

- reproducing or paraphrasing portions of someone else's published or unpublished material, regardless of the source, and presenting these as one's own without proper citation or reference to the original source;
- submitting a take-home examination, essay, laboratory report or other assignment written, in whole or in part, by someone else;
- using ideas or direct, verbatim quotations, or paraphrased material, concepts, or ideas without appropriate acknowledgment in any academic assignment;
- using another's data or research findings;
- failing to acknowledge sources through the use of proper citations when using another's works and/or failing to use quotation marks;

Plagiarism is a serious offence which cannot be resolved directly with the course's instructor. The Associate Dean of the Faculty conducts a rigorous investigation, including an interview with the student, when an instructor suspects a piece of work has been plagiarized. Penalties are not trivial. They can include a final grade of "F" for the course.

For more information on how to cite sources, refer to the library web page "*Citing Your Sources*", available at <http://www.library.carleton.ca/help/citing-your-sources>.

Academic Accommodation:

You may need special arrangements to meet your academic obligations during the term. You can visit the Equity Services website to view the policies and to obtain more detailed information on academic accommodation at <http://www.carleton.ca/equity/>. For an accommodation request, the processes are as follows:

Pregnancy obligation: write to me with any requests for academic accommodation during the first two weeks of class or as soon as possible after the need for accommodation is known to exist.

Religious obligation: write to me with any requests for academic accommodation during the first two weeks of class or as soon as possible after the need for accommodation is known to exist.

Academic Accommodations for Students with Disabilities: "The Paul Menton Centre for Students with Disabilities (PMC) provides services to students with Learning Disabilities (LD), psychiatric/mental health disabilities, Attention Deficit Hyperactivity Disorder (ADHD), Autism Spectrum Disorders (ASD), chronic medical conditions, and impairments in mobility, hearing, and vision. If you have a disability requiring academic accommodations in this course, please contact PMC at 613-520-6608 or pmc@carleton.ca for a formal evaluation. If you are already registered with the PMC, contact your PMC coordinator to send me your Letter of Accommodation at the beginning of the term and no later than two weeks before the first in-class scheduled test or exam requiring accommodation (if applicable). Requests made within two weeks will be reviewed on a case-by-case basis. After requesting accommodation from PMC, meet with me to ensure accommodation arrangements are made. Please consult the PMC website (<https://carleton.ca/pmc/>) for the deadline to request accommodations for the formally scheduled exam (if applicable). Please note – if you do not meet with your instructor to discuss your letter of accommodation, we cannot guarantee your required accommodation. *It is your responsibility to approach us about this.* You can visit the Equity Services website to view the policies and to obtain more detailed information on academic accommodation at <https://carleton.ca/equity/>.

Carleton University has suspended the need for a doctor's note or medical certificate until further notice when requesting academic accommodation related to COVID-19. Students should complete the self-declaration form available on the Registrar's Office website to request academic accommodation for missed course work, including exams and assignments. Here is the link to the form: <https://carleton.ca/registrar/wp-content/uploads/self-declaration.pdf>.

For more information about deferrals for final exams/take-home exams, please see these websites: <https://carleton.ca/registrar/deferral/> and <https://stuapps.carleton.ca/sarms/registrar/deferral>. Please note that students may also submit a COVID-19 self-declaration form instead of a medical note for these deferrals.

Students are encouraged to connect directly with their instructors to discuss required accommodations arising from the COVID-19 situation. Equity and Inclusive Communities and Academic Advisors can also be reached if students are unable to reach out to instructors directly.

Campus Resources for Students

Student Experience Office <http://www.carleton.ca/seo/>
Health and Counselling Services <http://www.carleton.ca/health>
International Student Services Office <http://www.carleton.ca/isso>
Academic Advising <https://carleton.ca/academicadvising/>
Career Services <https://carleton.ca/career/>