

GEOGRAPHY AND ENVIRONMENTAL STUDIES
Carleton University

COURSE OUTLINE - Winter 2020

COURSE: **Introduction to Quantitative Research — GEOG/ENST 2006A**

PRECLUSIONS: STAT 2507, STAT 2606, BIT 2000, BIT 2100, BIT 2300, NEUR 2002, PSCI 2702

INSTRUCTOR: **Marcus Phillips**
marcus.phillips@carleton.ca

OFFICE HOURS: Loeb B340 — Time TBA

TEACHING ASSISTANTS: TBA

TA OFFICE HOURS: TBA

LECTURE: Mondays 0835–0925 Loeb C264
Wednesdays 0835–0925 Loeb C264

LABORATORY:	Section	Day	Time	Location
A03	Wednesdays	1135–1325	Loeb A200	
A01	Wednesdays	1435–1625	Loeb A200	
A02	Thursdays	1135–1325	Loeb A200	
A04	Fridays	1135–1325	Loeb A200	

COURSE DESCRIPTION (from Carleton University Undergraduate Calendar):

Introduction to solving problems in geography using descriptive and inferential statistical methods. Graphical and numerical tools to describe distributions. Probability, sampling and estimates, and hypothesis testing. Fundamentals of spatial statistics and analysis.

COURSE STRUCTURE AND DELIVERY:

This is a one-term course with lectures, laboratory assignments and an independent assignment completed with the assistance of statistical software, short quizzes, and a final exam.

TEXTBOOK AND READINGS:

Required textbook (also available in the library on 2-hour reserve):

Richard Harris and Claire Jarvis (2010) *Statistics for Geography and Environmental Science*, 1st edition. Routledge, PLACE?. [ISBN 978-1-1381-2888-0]. Available at Carleton Bookstore.

Supplementary reading:

Many students will respond better to an explanation phrased or delivered in a different way. If you find that the class textbook does not work for you, there are about a dozen other books on the

course reserve list in the library. You might have better luck with one of them. I recommend starting with *An Introduction to Statistical Problem Solving* by McGrew and Monroe.

COURSE OBJECTIVES:

The goals of this course are to provide students with a basic understanding of statistics, and to improve the general numeracy and literacy of students. This includes:

1. Understanding the concept of uncertainty and quantifying uncertainty
2. Achieving a reasonable comfort level interpreting equations for basic statistical tests
3. Understanding data types, data description, measurement issues, and common considerations in sampling design
4. Understanding the basic probabilities that underlie statistical theory
5. Understanding the general procedure for hypothesis testing and interpreting the results of statistical tests
6. Learning to choose, use, and interpret parametric and non-parametric tests of difference of means
7. Learning to use and interpret correlation analysis and bivariate linear regression to examine relationships
8. Improving your ability to understand and interpret quantitative information
9. Improving your ability to express and describe quantitative and analytical information in written language

COMMUNICATION:

I am available to answer questions by email, but I commonly won't be available to respond until the evening, so don't wait beside your computer all day for a quick response. I will always try to respond to your email within 48 hours.

I am employed off-campus, so you won't be able to 'drop by' my office. I have set up office hours (see above) during which you will always find me available and happy to help students. If these office hours don't work for you, you can set up an appointment at another time (probably in the evening).

This course relies heavily on cuLearn. It is important that you check it frequently to obtain important course information and updates. You are responsible for keeping up with this information.

SOFTWARE:

Labs and lectures in this course will rely on *Microsoft Excel* and *R* statistical software equipped with the *Rcmdr* package. These can be accessed in computer labs on campus. *R* and *Rcmdr* are open-source software, and you are free to install it on your personal computers. It works well on PC and Linux, and *usually* works on Macs. I will provide basic instructions for installing it, and will help you as much as possible (unfortunately I can't provide any support for Macs), but there are no guarantees. Not being able to get *R* and *Rcmdr* up and running on your personal computer is not a reason for late or incomplete assignments — you always have the computer labs.

LECTURES:

A *tentative* lecture schedule will be provided at the first class. Note that **each lecture builds on the one before**. If you miss a lecture you may be missing important vocabulary and concepts that are

necessary to understand the next lecture. Therefore, **it is very important that you come to each lecture. If you must miss a lecture, please get caught up immediately or you will risk falling behind.**

The lectures for ENST/GEOG 2006 will be recorded and made available for students to review through CUOL's Video-on-Demand (VOD) service. Students may subscribe to the VOD service for this course. This will allow you to stream, or download for off-line viewing, lectures you miss or wish to review. To subscribe, register in the appropriate AOD section in Carleton Central: CRN 15721 for ENST 2006 or CRN 15720 for GEOG 2006. The service fee is \$50 for the entire term. Once registration closes you may add VOD service via the CUOL website <https://vod.cuol.ca/registration>. You may also pay-per-view individual lectures for \$3 each. This allows streaming only (no download) and only for limited-time access. Further information is available at <https://carleton.ca/cuol/access-courses/> or in person at the CUOL Student Centre, D299 Loeb Building. Although VOD is available to you as a value-added option, ENST/GEOG 2006 is not a CUOL offering. As such, this course is not available to off-campus students and **your in-class attendance is expected**. CUOL services, such as after-hours assignment return, off-campus exam arrangements or CUOL Student Centre VOD viewing are not available for this course.

LABORATORY EXERCISES AND TERM ASSIGNMENT

There will be 6 laboratory exercises to be submitted during the term. The best 5 of the 6 laboratory exercises will count toward your final grade. If you complete all laboratory exercises and earn a grade of at least 20% on each one, you will be rewarded with **a bonus of 10% on every lab assignment**. Lab assignments will involve the use of spreadsheet and statistical software available in the computer labs. Teaching assistants will introduce each lab and be available to answer questions. **In order to get a high grade on an assignment you will need to have a well-presented document** in addition to the correct answers.

DEADLINES AND LATE POLICY:

Laboratory exercises and the term assignment will be submitted via cuLearn. Labs will normally be due at 11:59:59 pm on the 6th day following your lab session. The cuLearn system will record the time you submit your document (to the nearest second), which **will be rounded up to the nearest hour** (i.e. whether 5 minutes or 50 minutes late, it will be considered 1 hour late). At the end of the course, your cumulative late times and late penalties will be determined. You will be permitted **72 late hours for the entire course**. Once your late hours are used up, any subsequent late labs will receive a grade of 0 unless you have made specific arrangements with the course instructor (e.g. valid medical reason or other extenuating circumstances). If you require special arrangements, *you must contact the instructor as soon as possible*. Extensions are granted only by the instructor, your TA has no part in enforcing late penalties. Labs that are not submitted will not count against your late hours, but will cause you to forfeit your 10% bonus on each lab. While your 72 late hours are granted with no questions asked, I recommend you save most of it for when you really need it.

It is up to you to keep backups of your work, and to leave sufficient time to upload to cuLearn before the deadline. If there are technical problems submitting your work to cuLearn, you should document the problem to the best of your ability (e.g. screenshot) and submit your assignment to the course instructor via email if possible. Always make sure you are submitting the correct file — only the file that you have submitted will be graded. **Documents should be submitted in Microsoft Word format** unless you have made special arrangements to use another format.

You may discuss your approaches with others during the lab sessions, but you must submit your own, individually-written documents that contain your own analyses and answers to questions. Students who share/copy/post answers will be in breach of the Academic Integrity Policy (see below) and such instances will *always* be forwarded to the Dean's Office for potential punitive action.

QUIZZES AND EXAMINATION:

There will be a short quiz to take on cuLearn after approximately every second week. It will review material covered since the last quiz. Students must complete the quiz within 6 days. Students who miss a quiz for a valid reason must *notify the instructor as soon as possible*. **The best 4 of the 5 quizzes will count toward your final grade.**

BONUS:

If you complete and submit all 6 laboratory assignments, achieving a grade of at least 20% on each one, **you will receive a bonus of 10% on every laboratory assignment grade**. You will not receive this bonus if you fail to submit an assignment or if you use more than your allotment of late hours.

EVALUATION:

Laboratory assignments x 6, lowest mark dropped	35%
Assignment	15%
Quizzes x 5, lowest mark dropped	10%
Final exam	40%

Standing in a course is determined by the course instructor subject to the approval of the Faculty Dean. This means that grades submitted by the instructor may be subject to revision. No grades are final until they have been approved by the Dean.

ACADEMIC ACCOMMODATION:

You may need special arrangements to meet your academic obligations during the term. 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. For more details see the [Student Guide](#)

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. For more details see the [Student Guide](#)

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). After requesting accommodation from PMC, meet with me to ensure accommodation arrangements are made. Please consult the PMC website for the deadline to request accommodations for the formally-scheduled exam (if applicable).

STUDENT CONDUCT:

The University has adopted a policy to deal with allegations of academic misconduct. This policy is expressed in the document Carleton University Academic Integrity Policy, effective July 1, 2006. The policy describes in detail its scope of application, principles, definitions, rights and responsibilities, academic integrity standards, procedures, sanctions, transcript notations, appeal process, and records implications.

The complete policy is available at:

<http://www2.carleton.ca/studentaffairs/student-rights-and-responsibilities/>

PLAGIARISM:

Plagiarism is presenting, whether intentional or not, the ideas, expression of ideas or work of others as one's own. Plagiarism includes 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. Examples of sources from which the ideas, expressions of ideas or works of others may be drawn from include but are not limited to: books, articles, papers, literary compositions and phrases, performance compositions, chemical compounds, art works, laboratory reports, research results, calculations and the results of calculations, diagrams, constructions, computer reports, computer code/software, and material on the Internet.

The University Senate defines plagiarism as "*presenting, whether intentionally or not, the ideas, expression of ideas or work of others as one's own.*" This can 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;
- handing in "substantially the same piece of work for academic credit more than once without prior written permission of the course instructor in which the submission occurs."

Plagiarism is a serious offence that cannot be resolved directly by 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.

(see: <https://carleton.ca/registrar/academic-integrity/> and
<http://www.library.carleton.ca/help/avoid-plagiarism>)