

GEOGRAPHY AND ENVIRONMENTAL STUDIES
Carleton University

COURSE OUTLINE - Winter 2016

COURSE:	Introduction to Quantitative Research GEOG/ENST 2006A			
PRECLUSIONS:	STAT 2507, STAT 2606, ECON 2200, ECON 2201, ECON 2202, PSYC 2002, PSCI 2702			
INSTRUCTOR:	Joshua Thienpont, PhD, FRCGS Room B340, Loeb Building Email: joshua.thienpont@carleton.ca Phone: 613-520-2600 ext: 8741			
OFFICE HOURS:	Friday 11:30 – 12:30 or by appointment.			
TEACHING ASSISTANTS:	Beth Mburu - beth.mburu@carleton.ca Marcus Phillips - marcus.phillips@carleton.ca Jill Rajewicz - jill.rajewicz@carleton.ca Ronald Saper - ronald.saper@carleton.ca			
PASS FACILITATOR:	Iain Burnett - iain.burnett@carleton.ca			
LECTURE:	Fridays	12:35 – 14:25	AT 101	
LABORATORY:	Lab	Day	Time	Place
	A1	Fridays	14:35 – 16:25	Loeb A200
	A3	Mondays	11:35 – 13:25	Loeb A200
	A2	Tuesdays	9:35 – 11:25	Loeb A200
	A4	Tuesdays	14:35 – 16:25	Loeb A200

Note that labs will run after the lecture in this order: A1, A3, A2, and A4

COURSE DESCRIPTION:

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. (*from Carleton University, Undergraduate Calendar*).

COURSE OBJECTIVES:

The aim of this course is to provide students with a basic understanding of statistics. This means:

1. Describing and presenting data appropriately
2. Learning about probability and how this underpins statistical theory
3. Stating a hypothesis, designing a sampling scheme and carrying out an appropriate statistical test

4. Examining the relationship between two different variables
5. Knowing that there is always uncertainty in data and considering this while interpreting results
6. Being aware of why you are doing something – not just cranking numbers through a formula
7. Being on your toes when you check your results or come across statistics in the future (BS detection)

In addition to these goals, you will gain experience by calculating ‘longhand’ and by using a spreadsheet and more advanced software. This way, you will have a solid grounding for more statistics learning in the future (on your own or in another class).

COMMUNICATION:

This course uses cuLearn, Carleton’s learning management system. To access your courses on cuLearn go to <http://carleton.ca/culearn>. For help and support, please refer to <http://www.carleton.ca/culearnsupport/students/>. Any unresolved questions can be directed to Computing and Communication Services (CCS) by phone at 613-520-3700 or via email at ccs_service_desk@carleton.ca

Private correspondence with the Instructor and Teaching Assistants should be through Carleton’s Connect email. *If you have questions of a general nature, please post it to the discussion board on cuLearn* so that others can benefit from the answers. The Instructor will check email and cuLearn every 24 hours and will endeavour to respond to queries within 48 hours.

Information on cuLearn or sent via email will be considered to have been provided to all students within 24 hours of posting and students will be fully responsible for reading and responding appropriately to this information.

COURSE STRUCTURE:

A one term course with lectures, laboratory assignments, tests and exam.

TEXTBOOK/READINGS:

Required textbook:

Harris R. and Jarvis, C. 2011. Statistics for Geography and Environmental Science. Prentice Hall. London. pp 262. ISBN: 978-0-13-178933-3
[Available at Haven Books; will retail for \$76.94]

Supplementary reading:

If you are interested in other perspectives on the material presented in this course there are many suitable textbooks in the library or online resources that may help your understanding. You are encouraged to look beyond what is delivered in this course but realize that mathematical formulas and notation may be presented in a slightly different manner from the lecture/textbook. There are several textbooks on reserve. Other materials (articles, etc.) that may be highlighted during the lectures may be linked to on cuLearn.

LECTURES:

A tentative schedule is provided below. Note **that each lecture builds on the one before.** Therefore, it is **imperative that you come to *each* lecture. If you miss a lecture, please get caught up immediately or you risk falling behind!**

LABORATORY EXERCISES AND TERM ASSIGNMENT:

There will be 7 laboratory exercises to be submitted during the term. The best 6 of the 7 laboratory exercises will count toward your final grade. These will involve the use of spreadsheets and statistical software and will be held in computer labs. Lab assignments must be typed and are to be **uploaded on cuLearn** (unless otherwise stated) by their due date (labs will be nominally due at 9 pm on the 6th day following each lab session). You will be permitted to upload late assignments and the time you do so will be recorded by cuLearn. **The time you are late (recorded to the nearest minute) will be rounded up to the nearest day.** At the end of the course, your cumulative late times and late penalty will be calculated. You will **be permitted 3 late days for the entire course.** Once these late days are used up, **subsequent late labs will receive a grade of 0** unless you have a valid medical reason or there are other extenuating circumstances and *notify the instructor by email or phone as soon as possible.*

Students are *responsible for creating and managing external backups of their computer files* and stopping their work far enough in advance to upload their assignments before they are due. **You will be expected to provide proof** (a screen shot) if you are not able to upload your work to cuLearn.

Laboratory exercises serve to reinforce and solidify concepts from the lectures. You are encouraged to learn from each other and discuss your approaches with others during the lab sessions, but please submit your own individually-written lab reports that contain your own analyses and answers to questions to ensure that you actually learn from these exercises. Discussions (in the lab sessions, on cuLearn or otherwise) are for gaining guidance and clarity on a topic. Students sharing/posting/copying answers will be in breach of the Academic Integrity Policy (*see below*).

SOFTWARE:

For labs and in lecture the following software packages will be used: Microsoft Excel and R statistical software. These can be accessed on campus computers in the public labs and R can be downloaded for your own use free of charge. Instructions on this will be forthcoming.

TESTS AND EXAMINATION:

There will be a short test to take on cuLearn after approximately every second lecture that will review material covered since the last test. Students must complete the test **within 6 days.** Students who miss the test for a valid medical reason or other extenuating circumstances must notify the instructor as soon as possible. The best 4 of the 5 tests will count toward your final grade.

The final exam (3 hours) will be held during the scheduled exam period at the end of term and will be based on the material covered in the *entire term.*

PARTICIPATION BONUS:

A bonus of up to 4% will be applied to your final grade and will be calculated as follows.

- If you submit all 7 lab assignments and score at least 20% on them all (to ensure that you put in some effort) you will get a bonus of 2%
- You will get a bonus of 1% for each 'boot camp' you attend (and remain until the end).

EVALUATION:

Laboratory exercises x 7, lowest mark dropped	36%
Assignment	8%
Tests x 5, lowest mark dropped	16%
Final exam (during the exam period)	40%
Participation bonus	4%

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 visit the Equity Services website: <http://www2.carleton.ca/equity/>

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 visit the Equity Services website: <http://www2.carleton.ca/equity/>

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) at <http://www2.carleton.ca/pmc/new-and-current-students/dates-and-deadlines/>

You can visit the Equity Services website to view the policies and to obtain more detailed information on academic accommodation at <http://www2.carleton.ca/equity/>

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/>

Academic Integrity/Plagiarism:

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 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.

(see: <http://www2.carleton.ca/studentaffairs/academic-integrity> and <http://www.library.carleton.ca/howdoI/plagiarism.html>)

Other Important Locations on Campus:

Paul Menton Centre (500 Unicentre) for students needing accommodation
 Academic Writing Centre and Writing Tutorial Service (4th Floor, Library, 613-520-6632)
 Student Academic Success Centre (SASC, 302 Tory, 613-520-7850)
 The Learning Commons (4th Floor, Library, 613-520-2600, ext.1125)

Useful Safety Websites:

Carleton Foot Patrol: www.cusaonline.com/footpatrol
 Carleton Safety Programs: www.carleton.ca/safety/programs/index.html
 Carleton Working After Hours Program Brochure:
www.carleton.ca/safety/publications/_pdfs/Working-After-Hours.pdf

CLASS SCHEDULE, TOPICS AND READINGS
(Subject to modification!!)

Date(s)	Lecture/Lab	Topic	Readings
Jan 8	Lecture 01	Course policies / introduction to statistics	Chapter 1
Jan 8, 11, 12	Boot camp	Microsoft Excel and Word	
Jan 15	Lecture 02	Data, measurement and data display	Chapter 1
Jan 15, 18, 19	Lab 1	Data entry, manipulation and display	
Jan 22	Lecture 03	Central tendency and variation	Chapter 2
Jan 22, 25, 26	Lab 2	Descriptive statistics	
Jan 29	Lecture 04	Distributions and probability	Chapter 2
Jan/Feb 29, 1, 2	Boot camp	R and Rcmdr	
Feb 5	Lecture 05	The normal distribution	Chapter 3
Feb 5, 8, 9	Lab 3	Probability, distributions and z-scores	
Feb 12	Lecture 06	Sampling and inference	Chapter 4/5
Feb 15-19		Reading week – no classes / labs	
Feb 26	Lecture 07	Hypothesis testing	Chapter 6
Feb/Mar 26, 29, 1	Lab 4	Testing hypotheses and confidence intervals	
Mar 4	Lecture 08	Tests of differences	Chapter 6
Mar 4, 7, 8	Lab 5	Testing differences	
Mar 11	Lecture 09	Relationships	Chapter 7 (1 st half)
Mar 11, 14, 15	Lab 6	Associations and correlations	
Mar 18	Lecture 10	Regression	Chapter 7 (1 st half)
Mar 18, 21, 22	Lab 7	Regression	
Mar 25		Good Friday – no classes / labs	
Apr 1	Lecture 11	Analysis of variance and test assumptions	Chapter 6
Apr 1, 4, 5	Assignment	Choose your own stats adventure!	
Apr 8	Lecture 12	Spatial considerations / Review	Chapter 8 (1 st half)

TIMES/LOCATIONS

Activity	Day	Time	Place	Leader
Lecture	Fridays	12:35 – 14:25	AT 101	Josh
Lab A1	Fridays	14:35 – 16:25	Loeb A200	Ron
Lab A3	Mondays	11:35 – 13:25	Loeb A200	Beth
Lab A2	Tuesdays	09:35 – 11:25	Loeb A200	Marcus
Lab A4	Tuesdays	14:35 – 16:25	Loeb A200	Jill
PASS	Mondays	14:35 – 15:55	DT 1006	Iain
PASS	Wednesdays	16:05 – 17:25	DT 1006	Iain