GEOG*2460 Analysis in Geography
DEPARTMENT OF GEOGRAPHY, ENVIRONMENT AND GEOMATICS
COURSE OUTLINE- Fall 2020

1. Instructor
Ben DeVries

2. Email
bdv@uoguelph.ca

3. Office Hours
Wednesdays 11am – 12:30pm or by appointment

4. Prerequisite
0.50 credits at the 1000 level in Geography

5. Course Description
This course will introduce analytical techniques commonly used in geography and other natural and social sciences. It will emphasize the use of quantitative information in geography, including data collection and analysis. Analytical procedures will include graphical presentation of data, descriptive statistics, application of probability and sampling theory, inferential statistics and spatial statistics. The course will focus on when and why these tools should be applied, how analytical procedures are conducted and the interpretation of the results. Computers and data analysis software will be used.

6. Learning Objectives
• To develop and strengthen intuition about statistical methods;
• To learn how to use quantitative tools for the description and analysis of geographic data;
• To develop critical analytical skills for the evaluation of geographic research; and
• To learn how to undertake statistical analyses using the R programming language.

7. Course Organization and Presentation
Lectures for GEOG*2460 are scheduled for Tuesdays and Thursdays at 10:00AM-11:20AM as AD-S. The lectures will comprise a mixture of recorded, synchronous remote sessions (via Zoom video conferencing) and asynchronous, pre-recorded lectures to be posted regularly. There is a Courselink page for pre-recorded lectures, class announcements, the reading list, incomplete lecture notes, grades and weblinks. A discussion forum will be set up on the Courselink where you can communicate and exchange ideas with your classmates. You will need your central account ID and password to access this resource. This is the same login ID and password that is used to access your University of Guelph GryphMail and WebAdvisor.

Students are expected to take their own notes in class to supplement the posted lecture material. Lectures may include occasional guest lectures and selected multimedia material.

8. Textbook
There is no required textbook for this course. Lecture notes will be posted to the Courselink site for this course in advance of each topic. The notes are written to accompany the lectures, but do not cover all
the material that will be discussed in lectures. You are expected to supplement these notes with your own notes during lectures.

9. **Method of Evaluation**
- Labs 30%
- Quizzes 15%
- Mid-term 25%
- Final Exam 30%

Lab assignments are due at the beginning of the scheduled lab session. The late penalty for labs is 10% per day, so it is best to get them in on time! If you have a legitimate reason for an extension you must contact your GTA and make arrangements for a new deadline before your assignment is due. The mid-term and final exams may contain one or more question that covers the laboratory material.

10. **Lectures and Lab Topics**
A tentative schedule of lecture and lab topics by week is shown below:

<table>
<thead>
<tr>
<th>Week</th>
<th>Date (start of week)</th>
<th>Tuesday</th>
<th>Thursday</th>
<th>Lab</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2020-09-07</td>
<td>No lecture</td>
<td>Introduction to the course</td>
<td>No lab</td>
</tr>
<tr>
<td>2</td>
<td>2020-09-14</td>
<td>Introduction (continued)</td>
<td>Descriptive Statistics</td>
<td>Intro to R and RStudio (vid + tutorial)</td>
</tr>
<tr>
<td>3</td>
<td>2020-09-21</td>
<td>Descriptive Statistics</td>
<td>Probability</td>
<td>Lab 1: Descriptive Stats</td>
</tr>
<tr>
<td>4</td>
<td>2020-09-28</td>
<td>Probability</td>
<td>Probability Distributions</td>
<td>Lab 2: Probability; Lab 1 due</td>
</tr>
<tr>
<td>5</td>
<td>2020-10-05</td>
<td>Sampling and Confidence Intervals</td>
<td>Confidence Intervals</td>
<td>Lab 3: Confidence Intervals; Lab 2 due</td>
</tr>
<tr>
<td>6</td>
<td>2020-10-12</td>
<td>No lecture (Fall Break)</td>
<td>Confidence Intervals</td>
<td>Lab 3 cont'd</td>
</tr>
<tr>
<td>7</td>
<td>2020-10-19</td>
<td>Hypothesis Tests</td>
<td>No lecture; Midterm Exam</td>
<td>No labs; Lab 3 due</td>
</tr>
<tr>
<td>8</td>
<td>2020-10-26</td>
<td>Hypothesis Tests</td>
<td>Hypothesis Tests</td>
<td>No labs</td>
</tr>
<tr>
<td>9</td>
<td>2020-11-02</td>
<td>ANOVA</td>
<td>ANOVA</td>
<td>Lab 4: Hypothesis tests</td>
</tr>
<tr>
<td>10</td>
<td>2020-11-09</td>
<td>Chi-squared Tests</td>
<td>Chi-squared Tests</td>
<td>Lab 5: ANOVA + Chi-squared tests; Lab 4 due</td>
</tr>
<tr>
<td>11</td>
<td>2020-11-16</td>
<td>Correlation</td>
<td>Linear Regression</td>
<td>Lab 6: Linear Regression; Lab 5 due</td>
</tr>
<tr>
<td>12</td>
<td>2020-11-23</td>
<td>Linear Regression</td>
<td>Linear Regression</td>
<td>Lab 6 cont'd</td>
</tr>
<tr>
<td>13</td>
<td>2020-11-30</td>
<td>Review</td>
<td>Review</td>
<td>No labs; Lab 6 due</td>
</tr>
<tr>
<td>14</td>
<td>2020-12-07</td>
<td>No lectures; Final Exam</td>
<td></td>
<td>No labs</td>
</tr>
</tbody>
</table>

Lectures will be largely asynchronous, meaning I will post pre-recorded lectures for you to view on your own time via the Courselink site for this course. I will then be available during regularly scheduled lecture times to answer any questions you may have. Lecture topics highlighted in yellow indicate tentative synchronous lectures via Zoom. These lectures will be held via Zoom and will involve some level of participation in “real-time”. Any changes to this plan will be announced in lectures and on the Courselink site for this course.

Lab assignments will cover material discussed in lectures. In some cases, additional concepts may be introduced to build upon topics discussed in lectures. All assignments will be done using R and RStudio, which is free software specially designed to carry out statistical analysis. Assignments are due at the
beginning of lab sessions the week after they are assigned. Material covered in labs may also be included in the mid-term and final exams (but not the quizzes).

11. Meeting Times
Lectures are officially scheduled on Tuesdays and Thursdays from 10am to 11:50am. Any synchronous lectures held on Zoom will be scheduled during these time slots only. Asynchronous lecture will be posted to Courselink in advance of these lecture times.

The lab schedule by course section is as follows:

- Section 0101: Mondays, 3:30pm – 5:20pm
- Section 0102: Tuesdays, 3:30pm – 5:20pm
- Section 0103: Wednesdays, 8:30am – 10:30am
- Section 0104: Wednesdays, 2:30pm – 4:20pm

During scheduled lab meetings, graduate teaching assistants (GTAs) will present the lab assignments, clarify some of the material in them and be available for questions from students. GTAs will announce further details when the labs begin on the week of September 14th.

12. Quizzes and Exams
There will be one mid-term and one final exam in this course. The official dates for Mid-term is Thursday, September 29th, and the Final exam is scheduled for the week of December 7th. The format of the exams is described below. In addition to exams, periodic, short quizzes will be assigned. The dates and formats of the quizzes will be announced throughout the course. The mid-term and final exams may cover some material included in the labs. Quizzes will only be based on material covered in lectures.

The mid-term and final exams will be assigned as “take-home”, open-book exams. A “window” of approximately 3 days (exact timing to be confirmed closer to the date of the exams) will be scheduled. During this window, you may decide when to begin the exam, which will be hosted on the Courselink site for this course. Once you begin, you will have a specific time limit to finish and submit the exam. You will only be allowed one attempt to write the exams and you may not stop and start the exam once you begin. You are expected to do your own work and you will not be allowed to collaborate with your classmates or anyone else when writing the exam. Each exam will be unique, with questions drawn from a pool of questions. Quizzes will follow a similar format, but will be significantly shorter than the exams.

13. Final Exam Date
The final exam will be assigned as a take-home exam. The exam will be made available on Monday, December 7th and must be written and submitted via Courselink by 5pm on Friday, December 12th. Further instructions will be given ahead of the final exam during lectures.

14. Disclaimer
Please note that the ongoing COVID-19 pandemic may necessitate a revision of the format of course offerings and academic schedules. Any such changes will be announced via CourseLink and/or class email. All University-wide decisions will be posted on the COVID-19 website [hyperlink to the website] and circulated by email.
15. Illness
The University will not require verification of illness (doctor's notes) for the fall 2020 or winter 2021 semesters.

16. Territorial Acknowledgements
We acknowledge that the University of Guelph resides on the ancestral lands of the Attawandaron people and more recently, the treaty lands and territory of the Mississaugas of the Credit. We recognize the significance of the Dish with One Spoon Covenant to this land and offer our respect to our Anishinaabe, Haudenosaunee and Métis neighbours as we strive to strengthen our relationships with them.

Today, this gathering place is home to many First Nations, Métis and Inuit peoples and acknowledging them reminds us of our important connection to this land where we learn and work.

17. E-mail Communication
As per university regulations, all students are required to check their e-mail account regularly: e-mail is the official route of communication between the University and its students.

18. When You Cannot Meet a Course Requirement
Late assignments will be assessed a penalty of 10% per day (not including weekends). After the assignment has been handed back to the class no grade can be assigned on late work.

When you find yourself unable to meet an in-course requirement because of illness or compassionate reasons, please advise the course instructor (or designated person, such as a teaching assistant) in writing, with your name, id#, and e-mail contact. See the undergraduate calendar for information on regulations and procedures for Academic Consideration.

19. Drop Date
The last date to drop one-semester courses, without academic penalty, is November 29, 2019. For regulations and procedures for Dropping Courses, see the Undergraduate Calendar.

20. Copies of out-of-class assignments
Keep reliable back-up copies of all out-of-class assignments: you may be asked to resubmit work at any time.

21. Accessibility
The University of Guelph is committed to creating a barrier-free environment. Providing services for students is a shared responsibility among students, faculty and administrators. This relationship is based on respect of individual rights, the dignity of the individual and the University community's shared commitment to an open and supportive learning environment. Students requiring service or accommodation, whether due to an identified, ongoing disability or a short-term disability should contact the Student Accessibility Services (SAS) as soon as possible.

For more information, contact SAS at 519-824-4120 ext. 56208 or email csd@uoguelph.ca or see the website.

22. Academic Misconduct
The University of Guelph is committed to upholding the highest standards of academic integrity and it is the responsibility of all members of the University community – faculty, staff, and students – to be
aware of what constitutes academic misconduct and to do as much as possible to prevent academic offences from occurring. An example of academic misconduct that might occur in this course is a student copying an answer or using a map/image from another student. Students must create their own digital files for computer-based exercises. University of Guelph students have the responsibility of abiding by the University's policy on academic misconduct regardless of their location of study; faculty, staff and students have the responsibility of supporting an environment that discourages misconduct. Students need to remain aware that instructors have access to and the right to use electronic and other means of detection.

Please note: Whether or not a student intended to commit academic misconduct is not relevant for a finding of guilt. Hurried or careless submission of assignments does not excuse students from responsibility for verifying the academic integrity of their work before submitting it. Students who are in any doubt as to whether an action on their part could be construed as an academic offence should consult with a faculty member or faculty advisor.

The Academic Misconduct Policy is detailed in the Undergraduate Calendar.

23. Recording of Materials
Presentations which are made in relation to course work—including lectures—cannot be recorded or copied without the permission of the presenter, whether the instructor, a classmate or guest lecturer. Material recorded with permission is restricted to use for that course unless further permission is granted.

24. Resources
The Academic Calendars are the source of information about the University of Guelph's procedures, policies and regulations which apply to undergraduate, graduate and diploma programs.