Department of Mathematics and Statistics

STAT 2509A: INTRODUCTION TO STATISTICAL MODELING II

Fall 2019

Instructor: Mr. Fares Said
Email: fares.said@carleton.ca
Office: 4220 HP
Office Hours: 16:00-18:00 on Tue or by appointment

Course Pages:
1. https://www.carleton.ca/culearn/
2. https://students.carleton.ca/

Objectives: This course is primarily designed for undergraduate students. It covers basics of experimental design, analysis of variance, simple and multiple linear regression and correlation, nonparametric procedures.

Prerequisite(s): STAT 2507 or STAT 2606 or STAT 3502; or permission of the School. If you are not sure about your prerequisites, please see me or the Undergraduate Advisor Mr. Kyle Harvey in 4302C HP.


Statistical Software: The statistical software SAS version 9.4 will be used. For more information https://support.sas.com/documentation/

Labs: Herzberg building (HP) room 4385. One-hour compulsory computer lab per week. Switching labs will not be allowed. Labs will start on Sept 16, 2019. Lab schedules are as follows:

<table>
<thead>
<tr>
<th>Lab</th>
<th>TA name</th>
<th>TA email</th>
<th>Time</th>
<th>Room</th>
</tr>
</thead>
<tbody>
<tr>
<td>A1</td>
<td>Yi Zhou</td>
<td><a href="mailto:yizhou5@carleton.ca">yizhou5@carleton.ca</a></td>
<td>Tue: 18:35-19:25</td>
<td>HP 4385</td>
</tr>
<tr>
<td>A2</td>
<td>Yi Zhou</td>
<td><a href="mailto:yizhou5@carleton.ca">yizhou5@carleton.ca</a></td>
<td>Tue: 17:35-18:25</td>
<td>HP 4385</td>
</tr>
<tr>
<td>A3</td>
<td>Melissa Van Bussel</td>
<td><a href="mailto:melissavanbussel@carleton.ca">melissavanbussel@carleton.ca</a></td>
<td>Thu: 18:35-19:25</td>
<td>HP 4385</td>
</tr>
<tr>
<td>A4</td>
<td>Melissa Van Bussel</td>
<td><a href="mailto:melissavanbussel@carleton.ca">melissavanbussel@carleton.ca</a></td>
<td>Thu: 17:35-18:25</td>
<td>HP 4385</td>
</tr>
</tbody>
</table>

Calculator: You may use non-programmable, non-graphing calculators for the tests and the final exam. I reserve the right to disallow any calculator.

Grades: The course will be made up of 2 parts: Term Work (50%) and Final Examination (50%).

Assignments: There will be four assignments with specific due dates to be announced in class. All of them will be counted towards the term mark. Late assignments will not be accepted.

Tests: There will be two 90-minute closed-book tests held on Oct 10 and Nov 7 in the class.

Final: 3-hour final exam is a closed-book exam of the whole course covered during the term, to be held during the exam period (Dec 9-21). Ensure that you DO NOT schedule flights or other departures during the exam period. The format includes long-questions.
<table>
<thead>
<tr>
<th>Grade Distribution:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Assignments</td>
<td>20% (5% each)</td>
</tr>
<tr>
<td>Test</td>
<td>30% (15% each)</td>
</tr>
<tr>
<td>Final Exam</td>
<td>50%</td>
</tr>
</tbody>
</table>

- If you miss any test you will receive a zero unless you provide your instructor with a proper documented reason (e.g., medical), in which case the weight of the midterm test will be shifted to the final exam. **The same rule applies to each assignment.**

- Students wishing to see their final examination papers must make an appointment within one week of the examination to do this. Please note that we do not change your grade on the basis of your needs (such as scholarships, etc).

- Selected exercises, mainly from the text, will be assigned for your practice. These exercises are not to be handed in and will not be graded. However, to succeed in the course it is absolutely essential that you do the exercises on a regular basis.

- Students who miss the examination may be eligible for a deferred exam. Application for a deferral exam must be made, with appropriate documentation, to the Registration Office within five working days after the examination. Please note that the deferred exam for this course will be the final exam for the January 2020 term course.

**Academic Accommodations:** 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/accommodation/](http://www2.carleton.ca/equity/accommodation/)

**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/accommodation/](http://www2.carleton.ca/equity/accommodation/)

**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 +1613-520-6608 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).
COURSE OUTLINE

The weekly coverage might change as it depends on the progress of the class. However, you must keep up with the reading assignments.

1. **Simple Linear Regression (SLR):**
   - Method of Least Squares, Inference, Analysis of Variance (ANOVA), Correlation, Test for Lack of Fit and Residual Analysis, Data Transformation.

2. **Multiple Linear Regression (MLR):**

3. **Experimental Design:**
   - Completely Randomized Design (CRD), Randomized Block Design (RBD), Multiple Comparisons, Non-parametric Tests.

4. **Categorical Data:**
   - Pearson’s Chi-square Statistic; the Goodness-of Fit Test; the Chi-square Test of Independence and Homogeneity.

**Important Dates:**

- September 5 ......................................................... First class
- September 17 ........................................................ Last day for registration
- September 30 ................................................. Last day to withdraw from winter term with full fee adjustment
- October 10 ...............................................................Test 1
- October 14 ........................................................ Statutory holiday
- October 21-25 .................................................. Fall break. Classes are suspended
- November 7 ...............................................................Test 2
- November 8 ........................................................ Exam accommodation request
- December 6 ........................................................... Last day to withdraw from the course
- December 6 ........................................................ Last day of classes
- December 9 – 21 ...................................................... Final Exam

For more information please visit

http://carleton.ca/registrar/registration/dates-and-deadlines/