Carleton University
School of Mathematics and Statistics
STAT 2509 C - Computational Statistics (Statistical Modeling II)

Term: Winter 2020

Instructor: Agnes Benhin

Office: Room 5218 HP, Tel.: 520-2600 Ext. 8999

E-mail: abenhin@math.carleton.ca

Website: www.math.carleton.ca/~abenhin

Office Hours: Mondays: 2:30pm to 3:30pm or by appointment.

Prerequisites: (i) STAT 2507 and (ii) Grade12 Mathematics (Geometry and Discrete Math)
or
an OAC in Algebra and Geometry, or MATH 0107; or equivalents; or permission of the School.
(If you are not sure about your prerequisites, please see me or the Undergraduate Advisor Mr. Gary Bazdel in 4302C HP).

Text: (i) "Introduction to Probability & Statistics", 12th edition (or 4th Canadian ed.), by William Mendenhall, Robert J.Beaver and Barbara Beaver.
(ii) "Learning SAS Version 8", by Ann Woodside.

Lectures: Tuesday and Thursdays: 13:05 – 14:25, Mackenzie Building 3275

Lab: Lab1: C1 - Wednesday, 8:35 - 9:25, Lab2: C2 - Tuesday, 14:35 - 15:25,
Lab3: C3 - Thursday, 14:35 - 15:25, Lab4: C4 - Monday, 8:35 - 9:25,
Lab5: C5 - Wednesday, 18:05 - 18:55, all the labs will be held in Room 4385 HP

Grades: The course will be made up of 2 parts: Term Work (40%) and Final Examination (60%).

- *Term Work:* 2 tests.....…….. 10% each
4 assignments..... ….5% each

Tests will be held on February 6th and March 5th.

- *Final Examination:* Consists of a three-hour closed book examination of the whole course covered during the term.
In the case of the Deferred Final Examination, the final exam will be written in the Summer term of 2020 and it replaces only the final examination mark of the course grade.

Calculators: You may use any non-programmable calculator for the tests and final exam

***Review of Final Exams**: If you wish to review your exam please email the instructor to set up a convenient time to review the exam. If the instructor is unavailable, contact the associate director to set up an appointment to review your exam. Exams are only available for 3 weeks after the exam has been written. If you wish to review your exam after the three weeks, you must formally request to view your exam from the Registrar office. For more information of this process go to http://www.carleton.ca/registrar/*

***Academic Accommodations**: Should you need special arrangements during the term in order to meet your academic obligations due to disability, pregnancy or religious obligations, please let me know in writing within the first two weeks of class. You may visit the Equity Services website to view the policies and to obtain more detailed information on academic accommodation at http://carleton.ca/equity/accommodation*

Course Outline:

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

- *Multiple Linear Regression:* Least Squares, Inference, ANOVA, Residual Analysis, Multicollinearity, Variable Selection Procedures.

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

- *Categorical Data:* Pearson's Chi-square Statistic; the Chi-square Test of Independence and Homogeneity.

Important Notes:

1. If your final exam mark is less than 40% you will receive an F, regardless of your term mark.
2. In case of being absent from the final exam, if your term work is not satisfactory (i.e. less than 50%), you will receive an F.
3. If your final exam mark is higher than your overall mark, you will receive a grade based solely on your final exam mark.
4. You will receive 0 for each test and assignment you miss. Exception to this rule will be made only if you provide me with a proper documented reason (such as sickness verified by a physician).

Winter Break: **February 17th– February 21st** .

- Last day to withdraw from the course is **April 7th.**

- Students with a disability who require academic accommodations, please feel free to discuss it with me. Students must also contact the Paul Menton Centre to complete the required forms by **March 13th.**

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.

Mathematics and Statistics Learning Assistance Program (MS-LAP): Math & Stats Learning Assistance Program (MS-LAP) supports first year mathematics and statistics courses. This free of charge program helps students in achieving their goals. It provides learning support and solutions to homework questions through assistance videos. **These services are available on cuLearn.**

MS-LAP gives students tools to succeed while explaining step-by-step particular problem strategies and associated theory. The program is for anyone who wants to deepen their understanding at their own pace, and in the comfort and privacy of their home.