Purpose:
This course provides training in the application of statistical methods. Topics will include descriptive methods, correlation, regression, t-tests, ANOVA, repeated-measures designs, non-parametric methods, and factor analysis. The emphasis will be on the use of R to apply these methods to realistic datasets in the behavioural sciences. We will also explore how similar analyses can be performed with SPSS.

Prerequisites:
PSYC 1010 6.00 or AK/PSYC 2410 6.00, with a minimum grade of C, and PSYC 2020 6.00 or substitute.

Course Credit Exclusion:
KINE 3150 3.00.

Course Format:
Each meeting will begin with a lecture and software demonstration introducing and reviewing key statistical concepts and how they are applied using R, with comparison to how the same ends can be achieved using SPSS. The second portion of the meeting will consist of a hands-on laboratory where you will work individually on problems that require application of these concepts to realistic datasets.

Important Dates:
- Fri, Oct 19  Midterm
- Fri, Nov 9   Drop Date

Text:
- Will be available in the York bookstore
- Available from amazon.ca ($80)

Additional References:
- Will be available in the York bookstore
- Available from amazon.ca ($98)

Lectures
- Lectures will be posted on the course website (elderlab.yorku.ca/~elder/teaching/psyc3031)
- I reserve the right to make changes to the lectures up to the time of the class. Small changes may also be made after class, e.g., to correct errors. I will indicate in each set of slides the date they were last modified: please verify that you have the most recent versions.
Software:
Both R and SPSS will be available for student use in the laboratory. Both can also be downloaded for use on personal computers:
- R is free and can be downloaded from www.R-project.org
- A student license for SPSS can be downloaded from http://computing.yorku.ca/students/software ($55). It can also be accessed free of charge using WebFAS.

Basis of Evaluation:
- Assignments: 30%
- Midterm: 20%
- Final project: 20%
- Final exam: 30%

Assignments
A short assignment worth 3% of the final grade will be assigned each week. You will submit your answers electronically through Moodle, prior to the next week’s meeting. These assignments will be graded, and marks will be returned the following week.

You are permitted to discuss the assignments with fellow students, however the work you submit must be your own. Any evidence of copying will be considered a breach of academic honesty and will be dealt with accordingly (see www.cse.yorku.ca/admin/coscOnAcadHonesty.html for more information).

Late assignments will not be accepted. There are no exceptions.

Policy on Missed Assignments and Tests:
There will be no make-up assignments or midterms. For students who miss an assignment or the midterm due to a medical or non-medical emergency, the final grade will be based upon the other submitted work and final exam. To qualify for this option, the student must contact Prof. Elder in person or by telephone or email within 48 hours of the missed assignment or midterm. Appropriate documentation verifying the circumstances of the emergency must be provided. Failure to provide appropriate documentation will result in a grade of 0 on the missed work.

What is appropriate documentation?

a) medical circumstances – tests or assignments missed due to medical circumstances must be supported by an attending physician’s statement or a statement by a psychologist or counselor. The physician’s statement must include the following:
   i) full name, mailing address, telephone number of the physician.
   ii) state the nature of the illness and its duration (i.e., specific dates covered), and
   iii) an indication of whether the illness and/or medication prescribed would have SERIOUSLY affected the student’s ability to study and perform over the period in question.

   NOTE: the physician's office may be contacted to verify that the forms were completed by the physician.

b) non-medical circumstances – tests or assignments missed due to non-medical circumstances must be supported by appropriate documentation, i.e., death certificates, obituary notice, automobile accident reports, airline/bus ticket/receipt for emergency travel (with date of booking on ticket), etc. Airline/train/bus ticket/receipts for emergency travel must indicate destination, departure, and return dates. Having to work is not considered a valid excuse for missing a test or assignment.
Lecture Schedule (Approximate – subject to revision as the course unfolds):

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<th>Date</th>
<th>Topic</th>
<th>Text</th>
<th>Assignments</th>
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<tr>
<td>Sept 7</td>
<td>Introduction to R</td>
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<td>Sept 14</td>
<td>Distributions</td>
<td>4-5</td>
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<td>Sept 21</td>
<td>Correlation</td>
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<td>A2 Due</td>
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<td>Sept 28</td>
<td>Regression</td>
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<td>Oct 5</td>
<td>t-tests</td>
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<td>Oct 12</td>
<td>ANOVA (GLM 1)</td>
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<td>Oct 19</td>
<td>Midterm</td>
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<td>A6 Due</td>
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<td>Oct 26</td>
<td>ANCOVA (GLM 2)</td>
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<td>Nov 2</td>
<td>Co-Curricular Day</td>
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<td>Nov 9</td>
<td>Factorial ANOVA (GLM 3)</td>
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<td>Nov 16</td>
<td>Repeated-Measures Designs</td>
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<td>A8 Due</td>
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<td>Nov 23</td>
<td>Mixed Designs</td>
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<td>A9 Due</td>
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<td>Review</td>
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<td>A10 Due</td>
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