

# **PSYC\*6380, Course Outline: Fall 2015**

## **General Information**

**Course Title: Psychological Applications of Multivariate Analysis**

### **Course Description:**

*This course emphasizes the use of multivariate techniques in psychological research. Both predictive (e.g., regression, canonical correlation, discriminant analysis, MANOVA) and reduction (e.g., factor analysis, multidimensional scaling, cluster analysis) techniques are considered in addition to the use of both observed and latent variable structural models.*

**Credit Weight: 0.50**

**Academic Department (or campus): Department of Psychology**

**Semester Offering: Fall 2015**

**Class Schedule and Location: Wednesday 08:30 – 11:20 a.m.**

## **Instructor Information**

Instructor Name: Scott R. Colwell, PhD

Instructor Email: scolwell@uoguelph.ca

Office location and office hours: Tuesday 11 a.m. – 1 p.m. MINS 202a

## **GTA Information**

GTA Name: N/A

GTA Email: N/A

GTA office location and office hours: N/A

## **Course Content**

### **Specific Learning Outcomes:**

By the end of this course students will:

1. Understand the use of various multivariate techniques within psychological research.
2. Understand when to apply specific multivariate analysis techniques to specific problems.

3. Be equipped to test hypotheses with multiple independent and multiple dependent variables.
4. Be able to assess moderation effects, mediation effects, and moderated mediation effects.
5. Be capable of effectively communicating the results of various multivariate techniques to academic and non-academic audiences.

**Lecture Content:**

This class consists of a one three hour time period each week. This time will be split between lecture material and practicing analytical methods using SPSS and R. If you have a laptop capable of running this software, you may wish to bring it with you to each class. Information regarding the content for each lecture can be found on CourseLink.

**Labs:**

Lab time will be incorporated into the lecture content.

**Seminars:**

N/A

**Course Assignments and Tests:**

Assignment or Test	Due Date	Contribution to Final Mark (%)	Learning Outcomes Assessed
MANOVA	October 21	10%	1, 2, 3
PCA and Factor Analysis	October 28	15%	1, 2, 3
CFA, Reliability and Validity	November 4	15%	1, 2, 3
Multiple Regression	November 11	10%	1, 2, 3
Moderated Mediation	November 18	15%	1, 2, 3, 4
Presentation & Paper	December 7	40%	5

**Additional Notes (if required):**

N/A

**Final examination date and time:**

**Final exam weighting:**

N/A

## **Course Resources**

**Required Texts:** N/A

### **Recommended Texts:**

Brown (2006). *Confirmatory Factor Analysis for Applied Research*. Guilford Press.

Howell (2012). *Statistical Methods for Psychology (8th Edition)*. Sage Publications. Note: Only the 5th edition is available at the library.

Meyers, Gamst, and Guarino (2011). *Applied Multivariate Research: Design and Interpretation*. Sage Publications.

Tabachnick and Fidell (2007). *Using Multivariate Statistics (5th Edition)*. Pearson.

Barlow, Woodman, and Hardy (2013) Great Expectations: Different High-Risk Activities Satisfy Different Motives. *Journal of Personality and Social Psychology*, doi: 10.1037/a0033542.

Berzonsky, Soenens, Luyckx, Smits and Papini (2013) Development and Validation of the Revised Identity Style Inventory (ISI-5): Factor Structure, Reliability, and Validity. *Psychological Assessment* 25(3), 893-904.

Cole, Walter, and Bruch (2008) Affective Mechanisms Linking Dysfunctional Behavior to Performance in Work Teams: A Moderated Mediation Study. *Journal of Applied Psychology* 93(5), 945-958.

Fritz and MacKinnon (2011) Required sample size to detect the mediated effect. *Psychological Science*, 18(3), 233-239.

Graham (2006) Congeneric and (Essentially) Tau-Equivalent Estimates of Score Reliability: What They Are and How to Use Them. *Educational and Psychological Measurement*, 66(6), 930-944.

Harden and Tucker-Drob (2011) Individual Differences in the Development of Sensation Seeking and Impulsivity During Adolescence: Further Evidence for a Dual Systems Model. *Developmental Psychology* 47(3), 739-746.

Kapp, Gillespie-Lynch, Sherman, and Hutman (2012) Deficit, Difference, or Both? Autism and Neurodiversity. *Developmental Psychology* doi: 10.1037/a0028353.

Kim, Koenig Nordling, Yoon, Boldt, and Kochanska (2013) Effortful Control in Hot and Cool Tasks Differentially Predicts Children's Behavior Problems and Academic Performance. *Journal of Abnormal Child Psychology* 41(1), 43-56.

Preacher, Rucker, and Hayes (2007) Addressing moderated mediation hypotheses: Theory, methods, and prescriptions. *Multivariate Behavioral Research* 42(1), 185-227

Raykov (1997) Estimation of composite reliability for congeneric measures. *Applied Psychological Measurement*, 21(2), 173-184

Raykov (2008) Alpha if item deleted: A note on loss of criterion validity in scale development if maximizing coefficient alpha. *British Journal of Mathematical and Statistical Psychology*, 61(2), 275-285.

Schmitt (1996) Uses and abuses of coefficient alpha. *Psychological Assessment*, 8(4), 350-353.

Vollink, Bolman, Dehue and Jacobs (2013) Coping with Cyberbullying: Differences Between Victims, Bully-victims and Children not Involved in Bullying. *Journal of Community & Applied Social Psychology* 23, 724.

**Lab Manual:** N/A

**Other Resources:** N/A

**Field Trips:** N/A

**Additional Costs:** N/A

## **Course Policies**

### **Grading Policies**

This course follows the grading guidelines outlined in the Graduate Calendar:  
<http://www.uoguelph.ca/GraduateStudies/calendar/genreg/genreg-as.shtml>

**Course Policy on Group Work:** N/A

### **Course Policy regarding use of electronic devices and recording of lectures:**

Electronic recording of classes is expressly forbidden without consent of the instructor. When recordings are permitted they are solely for the use of the authorized student and may not be reproduced, or transmitted to others, without the express written consent of the instructor.

## **University Policies**

### **Academic Consideration**

When you find yourself unable to meet an in-course requirement because of illness or compassionate reasons, please advise the course instructor in writing, with your name, id#, and e-mail contact. See the academic calendar for information on regulations and procedures for

Academic Consideration:

[Grounds for Academic Consideration](#)

### **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.

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 [Graduate Calendar](#):

### **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 Centre for Students with Disabilities as soon as possible.

For more information, contact CSD at 519-824-4120 ext. 56208 or email [csd@uoguelph.ca](mailto:csd@uoguelph.ca) or see the website: [Student Accessibility Services Website](#)

### **Course Evaluation Information**

Please refer to the [Course and Instructor Evaluation Website](#) .

### **Drop date**

The last date to drop one-semester courses, without academic penalty, is September 18, 2015. For regulations and procedures for Dropping Courses, see the Academic Calendar:

[Current Graduate Calendar](#)