

Class Meetings

TT	9am - 11am	Biology-Psychology 1232	
Th	5pm - 7pm	Plant Sciences 1129	Lab

Instructors

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WWW: <http://www.kevin-e-ogrady.umd.edu/psyc602.htm>

Canvas: <http://elms.umd.edu>

Course Description

This course provides a general introduction and overview to the fundamental issues in univariate design and analysis in the behavioral sciences. It is intended to introduce you to the basic concepts of the univariate general linear model, and to the design of research within both the laboratory and the field. Specifically, we will examine simple regression, multiple regression, completely randomized designs, randomized blocks designs, factorial designs, nested designs, split-plot designs, and the analysis of covariance. It is assumed that you have had one other graduate-level statistics course, and/or that you are familiar with the basic concepts of probability, and the terminology of statistics.

Course Objectives

The objectives of this course are threefold. The first purpose is to familiarize you with the basic concepts and principles that underlie the use of the univariate general linear model in the behavioral sciences. The second purpose is to acquaint you with the basic design issues in the planning and conduct of research. The third purpose is to introduce you to statistical analysis on the computer.

Texts

Cohen, J., Cohen, P., West, S. G., & Aiken, L. S. (2003). *Applied multiple regression/correlation analysis for the behavioral sciences* (Third Edition). Taylor & Francis Psychology Press (formerly published by Lawrence Erlbaum Associates). ISBN 978-0-8058-2223-6

Kirk, R. E. (2013). *Experimental design* (Fourth Edition). Sage. ISBN 978-1-4129-7445-5

Class Materials

Outlines of each class lecture can be found in Acrobat Reader format on the class webpages. Annotated copies of past homeworks and exams can also be found on the class webpages, together with various *R*-related handouts.

The lectures that I deliver in this class and course materials I create and distribute, including PDF files, tests, outlines, and similar materials, are protected by federal copyright law as my original works. My lectures are recorded or delivered from written notes in order to ensure copyright protection. You are permitted to take notes of lectures and to use course materials for your educational benefit in this course. Audio-recordings of my lectures will be available on the class Canvas website, and are for your own personal use in this course. They may not otherwise be used without my prior written consent. You are not authorized to reproduce or distribute notes of lectures or my course materials or make any commercial use of them without my express written consent. Individuals who sell or distribute copies or modified copies of course materials or assist another person or entity in selling or distributing such materials may be considered in violation of the University Code of Student Conduct, Part 9(k).

Computer Usage

You are each expected to have access to a computer system able to run *R*. All homework assignments will utilize *R* to conduct various analyses. In addition to the homework assignments, I strongly encourage you to experiment with various data sets, either those data sets I give you for assignment, other data sets you find in your textbooks, and/or others of your own you might have.

I do not expect you to know how to program as a prerequisite for this course. Some time during weekly Discussion sections will be allotted to *R* programming. However, if you aren't familiar with canned statistical packages, please set aside some time early in the semester to introduce yourself to *R*.

For more information about *R*, and to download the most recent version, visit <http://www.r-project.org/>

Assignments

For those of you taking this course for credit, there will be periodic assignments. These assignments will focus primarily on what we have recently discussed or are currently discussing in class, although considerable residual knowledge from prior weeks will be necessary. The assignments will involve both the solution of problems with the computer, hand computations, and

short essay answers. Four assignments will be graded, while the remaining assignments will be ungraded.

Assignment Policies:

- You may seek any and all help from others about how to execute Windows|OS commands.
- All homework will be graded by the class TA.
- If you have questions, please consult your class TAs, or your instructor.

Ungraded Assignments:

- You may collaborate with other individuals, both in and outside the class, in completing any and all ungraded assignments. You must turn in your own work product.
- A late assignment will result in the reduction of one letter grade in a graded assignment.

Graded Assignments:

- *You are expected to complete all graded assignments without the benefit of any aid from anyone other than the instructor or class TAs.*
- A late assignment will be downgraded one letter grade.
- An assignment turned in after the next assignment is due will receive a 0.
- An assignment turned in after the last scheduled exam will receive a 0.
- All assignments must be submitted on Canvas by the time and date listed for the assignment to avoid late penalties. Class assignments must be turned in as knitted .html files and include all code and all output relevant to the assignment. Assignments may be turned in as raw .R or .Rmd files for a single letter-grade penalty.

Exams

- You will be given three exams during the semester. These exams will be open-book, two hours in length, and administered during a regular class period. Each exam will include all material covered since the beginning of the semester.

- There will be no final exam.

- The schedule for the first two exams given in the **Schedule of Assignments** below is approximate.

- If for any reason either of the first two exams cannot be administered during the scheduled class meeting, it will be administered at the next regularly scheduled class meeting. If the third exam cannot be administered at the final class meeting, it will be administered during the regularly scheduled exam period for the class.

- All exams will be graded by the class TA.

Grading

Your grade in this course will be based on a weighted average of your homework assignments and the three exams. Homework will count 40% of your final grade; each exam will count 20% of your final grade. Final grades will be determined as follows:

Letter Grade	Weighted Average
A+	97% and above
A	93%-96%, inclusive
A-	90%-93%, inclusive
B+	87%-89%, inclusive
B	83%-86%, inclusive
B-	80%-83%, inclusive
C+	77%-79%, inclusive
C	73%-76%, inclusive
C-	70%-73%, inclusive
D+	67%-69%, inclusive
D	63%-66%, inclusive
D-	60%-63%, inclusive
F	59% and below

A grade of I (Incomplete) will only be given under extraordinary circumstances, in which the student has completed the majority of the coursework, and is prevented from completing the remainder of the scheduled work due to some unforeseen event, such as a major illness or injury.

Academic Integrity

The University's policy regarding academic integrity is included here by reference to <http://www.studenthonorcouncil.umd.edu/code.html> and to

<http://www.testudo.umd.edu/soc/dishonesty.html>. If you are unfamiliar with the University's policy regarding academic integrity, I urge you to visit both sites and familiarize yourself with this material.

The Department also makes available a summary of Standard Course Policies at <http://umdpsyc.blogspot.com/2012/01/department-of-psychology-standard.html> of which you should be aware. I strongly suggest you familiarize yourself with this material, if you have not already done so.

Schedule of Assignments

Week of	Topic	Kirk	CCWA
Jan 26	Introduction	1, 2	1
Feb 2	Simple Regression		2
	<u>Reading:</u> Farina, A., Fischer, E.J., Sherman, S., Smith, W.T., Groh, T., & Permin, P. (1977). Physical attractiveness and mental illness. <i>Journal of Abnormal Psychology</i> , 86, 510-517.		
Feb 9	Multiple Regression		3, 4, 5, 6
	<u>Reading:</u> Klassen, D. & O'Connor, W.A. (1989). Assessing the risk of violence in released mental patients: A cross-validation study. <i>Psychological Assessment</i> , 1, 75-81.		
Feb 16	Analysis of Variance	3	
	<u>Reading:</u> Middlemist, R.D., Knowles, E.S., & Matter, C.S. (1976). Personal space invasions in the lavatory: Suggestive evidence for arousal. <i>Journal of Personality and Social Psychology</i> , 33, 541-546.		
Feb 23	Analysis of Variance (continued)	4	
Mar 2	Analysis of Variance (continued)	5, 6	
Mar 9	General Linear Models	7	8
Mar 16	<i>/// Spring Break !!!</i>		
Mar 23	Randomized Blocks	8	11
	<u>Reading:</u> Fillmore, M.T., Rush, C.R., & Hays, L. (2006). Acute effects of cocaine in two models of inhibitory control: Implications of non-linear dose effects. <i>Addiction</i> , 101, 1323-1332.		
Mar 30	Factorial Designs	9	9, 7
	<u>Reading:</u> Gute, G., Eshbaugh, E.M., & Wiersma, J. (2008). Sex for you, but not for me: Discontinuity in undergraduate emerging adults' definitions of "Having Sex". <i>Journal of Sex Research</i> , 45, 329-337.		
Apr 6	Factorial Designs (continued)	9, 10	
Apr 13	Factorial Designs (continued)	10	
Apr 20	Hierarchical Designs	11	
	<u>Reading:</u> Jones, R.R. & Burns, W.J. (1970). Volunteer satisfaction with in-country training for the Peace Corps. <i>Journal of Applied Psychology</i> , 54, 533-537.		
Apr 27	Split Plot Factorial Designs	12	
	<u>Reading:</u> Creasey, G. (2002). Associations between working models of attachment and conflict management behavior in romantic couples. <i>Journal of Counseling Psychology</i> , 49, 365-375.		
May 4	Analysis of Covariance	13	
<i>Mid-term exams:</i>	Following week 6 (tentatively) Following week 11 (tentatively) Tuesday, May 12		

The following material is available at the class web pages:

PDFs	http://www.kevin-e-ogrady.umd.edu/over602.htm
CCWA Errata	http://www.kevin-e-ogrady.umd.edu/err602.htm
Reading List	http://www.kevin-e-ogrady.umd.edu/read602.htm
R Primers	http://www.kevin-e-ogrady.umd.edu/prime602.htm
R Examples	http://www.kevin-e-ogrady.umd.edu/ex602.htm
Handouts	http://www.kevin-e-ogrady.umd.edu/hand602.htm
Homework	http://www.kevin-e-ogrady.umd.edu/home602.htm
Answers	http://www.kevin-e-ogrady.umd.edu/ans602.htm

All articles on the reading list are available on the class Canvas site, in the Reading List Articles folder in the Files folder.

All example articles we are discussing this semester can also be found on the class Canvas site, in the Assignment Articles folder in the Files folder.