

**PSY 301 (01) Introduction to Experimental Psychology
(Special Two-Semester 300-301 Integrated Section)**

Instructors: Prof. Charles E. Collyer and Prof. Theodore A. Walls,
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Class meetings: Mon/Wed, 10 am in Quinn 209
Mon/Wed, 11 am in Quinn Computer Lab

This course provides an introduction to research and statistics in behavioral science. This section of the course is a continuation of PSY 300 (03) from Fall 2005. The primary goal of the combined course is to enable you to read, participate in and report on behavioral scientific research.

The objectives of this course include the presentation of a variety of experimental and quasi-experimental approaches to the study of research problems in psychology, and the development of skills indispensable to the research process. Some of these skills are formulation of a problem and hypotheses; review of relevant literature; identification and control of confounding variables; implementation of a research design; and statistical analyses, among others. The course is designed around six full cycles of the scientific method, three each semester. This semester, we are working in the middle phases of the scientific method for modules 4 and 5 (see diagram). Your projects will facilitate a full rotation of the scientific method, or module 6.

Laboratory experience in analyzing data, interpreting research results and using APA style will be offered. The use of computers in behavioral scientific research will be emphasized. *R* is a statistical computer program that we will be using in the lab. It provides an environment in which you can perform statistical analysis and produce graphics. *R* is also FREE; you can download it from the web using the instructions at the end of this syllabus. If you are registered for this course, you should be automatically registered for the lab. The lab section is required for all students for credit for PSY301. If you did not attend lab last semester, you will need to work with other students who already have some background.

Textbooks:

Hinkle, D.E.; Wiersma, W.; & Jurs, S.G. (2003). *Applied Statistics for the Behavioral Sciences*. (5th Edition). Boston: Houghton Mifflin.

Hinkle, D.E.; Wiersma, W.; & Jurs, S.G. (2003). *Applied Statistics for the Behavioral Sciences: Applying Statistical Concepts Workbook*. (5th Edition). Boston: Houghton Mifflin.

Martin, D. W. (2004). *Doing Psychology Experiments*. (6th Edition). Upper Saddle River, NJ.: Prentice

Recommended:

American Psychological Association. (2001). *Publication Manual of the American Psychological Association*. (5th Edition). Washington, DC: Author

Cohen, B. H. & Lea, R. B. (2003). *Essentials of Statistics for the Social and Behavioral Sciences*. New York: Wiley.

Course Requirements

1. Class Attendance

Attendance will be critical to your success in this class. We do not recommend skipping classes because statistical and research concepts build on one another. If you do miss class due to illness or other unavoidable situation, it is essential that you contact a peer in the class and catch up right away. *It is not acceptable to approach a teaching assistant or an instructor and ask for notes or a private lecture.* Because students who do not attend class often wonder why they perform poorly on exams, we take attendance. Generally full credit is awarded for satisfactory participation, but points are deducted for poor attendance or inappropriate participation.

2. Grading

We will assign grades for your performance on two tests and a final for a total of 75% of the grade. Homework assignments, quizzes and class participation will be worth 25 % of your grade; this includes lab work and presentations. We will offer a few extra credit assignments during the semester by which you can raise your grade by a half letter grade.

3. Course Help, Instructor Office Hours and Contact Information

Your best option for quick support is working with other members of the class. For additional assistance with studying and assignments, please see Marimer Santiago, the graduate assistant who is assigned to the course. See Professor Walls for help with statistical analysis and with using R. See Professor Collyer for help with research design questions.

There are also great resources for tutoring on campus:

<http://www.uri.edu/aec/> or <http://www.math.uri.edu/Info/tutoring/>

If you need special accommodations due to documented disabilities please work with disabilities services at <http://autocrat.uri.edu/dss.html> and keep Dr. Walls informed.

How to reach your instructors:

Prof. Theodore Walls:

Telephone: 401-874-2105 (rarely answered, prefer email)

Email: walls@uri.edu

Office Location: 15 West CPRC

(This is the shingled building beside Chafee Hall, toward Flagg Road.)

Office Hours: M-W 11-12. Please make an appointment by email.

Prof. Charlie Collyer

Telephone: 401-874- 4227 email: collyer@uri.edu

Office Location: 312 Chafee

Office Hours: Please make an appointment by email.

Teaching assistant: Marimer Santiago

Telephone: 401-874-4291

Office email: smarimer@mail.uri.edu

Office Location: 130 Chafee

Office Hours: Tues 10-12/ Thurs 2-4

PSY 300- Lecture Schedule Spring 2006

Module (1-6)	Unit (1-8)	Day	Topic	Reading Assignments
4	3-4	(M) Jan 23 Collyer	Introduction and Ethics II - Roles and responsibilities of researchers <u>in research design and data collection.</u>	Martin: Chapter 5 (pp 98-111)
Module 4	Unit 3 & 5	(W) Jan 25 Collyer	Two Ways of Manipulating an Independent Variable - Simple between-subjects and within-subjects experiments; advantages and disadvantages of each approach; introduction to the statistical strategy for each approach.	Martin: Chapter 8 (pp 150-173)
Module 4	Unit 5	(M) Jan 30 Walls	Hypothesis Testing - Two Sample Case for the Mean	HWJ: Chapter 11
Module 4	Unit 4	(W) Feb 01 Collyer/Santiago	Data Collection Activity – Revisiting the Solomon Data, Collecting your own data	Martin: Chapter 3-4
Module 4	Unit 5	(M) Feb 06 Walls	Analyzing your own data with an independent groups t-test.	HWJ: Chapter 11
Module 4	Unit 5	(W) Feb 08 Walls	Statistical Power and Sample Size (Overview)	HWJ: Chapter 13
Module 4	Unit 6	(M) Feb 13 Collyer	Working from Published Literature I: Baseline Designs, Survey Research, and Meta-Analysis- Examples of typical RCT studies, baseline experiments (advantages and disadvantages), Evaluating the evidence: design, analysis and interpretation. [Brief Exam review]	Martin: Chapter 3; T-test Interpretation Handout
		(W) Feb 15 Collyer	Test 1	
		(M) Feb 20	No class meeting Presidents' Day	

Module 4	Unit 5	(W) Feb 22 Collyer	Factorial Design and Interaction Effects - factorial designs, main effect, simple effect, interaction effect, interpretation of tables and graphs. Problems with multiple t tests, the variables in ANOVA, concepts underlying ANOVA	Martin: Chapter 9 (pp 182-188) Chapter 12 (pp 258-262)
Module 4	Unit 5	(M) Feb 27 Walls	Hypothesis Testing, K-Sample Case /Analysis of Variance, One Way Classification - Testing the null hypothesis, a measure of association, determining the sample size, the relationship of ANOVA to the t test, simple repeated measures, assumptions for repeated-measures ANOVA	HWJ: Chapter 14
Module 5	Unit 5	(W) Mar 01 Walls	Hypothesis Testing - Two Sample Case for the Mean - (cont'd)	HWJ: Chapter 14
Module 5	Unit 5	(M) Mar 06 Walls	Hypothesis Testing, K-Sample Case/ Analysis of Variance, One Way Classification (cont.) Post-hoc and Planned comparisons	HWJ: Ch 15
Module 5	Unit 5	(W) Mar 08 Walls	Applied Analysis of Data from Three Groups with One Way ANOVA	HWJ: Ch 14-15
		(M) Mar 13 (W) Mar 15	*N/A- Spring Break	
Module 5	Unit 5	(M) Mar 20 Walls	ANOVA “Extra Day”	
Module 5	Unit 5	(W) Mar 22 Collyer	Special Topic: Multifactorial Analysis of Variance	Martin: Chapter 10 (pp 207-229), Chapter 12 (pp 266-267)

Module 5	Unit 5	(W) Mar 27 Walls	ANOVA Review	HWJ: Chapter 16
		(M) Mar 29 (No Class unless requested)	Test 2 (As promised, a take home exam in which you propose an experiment, simulate data for it, report results and answer a sheet of questions about it.)	
Module 5	Unit 4	(M) Apr 03 Collyer	Special Topic: Graphical Presentations of Data- constructing graphs for comparing experimental conditions and groups, constructing graphs for examining relationship between variables (correlations, linear and nonlinear effects) [Supports development of Group Presentations]	Martin: Chapter 12, Handout on graphs
Module 5	Unit 5	(W) Apr 05 Walls	Special Topic: Correlation- the meaning of correlation and the correlation coefficient, computing the Pearson r , factors affecting the size of the Pearson r , interpreting the correlation coefficient, Spearman rho (ρ), correlation and causality	HWJ: Chapter 5
Module 5	Unit 6	(M) Apr 10 Collyer	Working from Published Literature II: Statistical power, individual vs. grouped data, research (adv. and disadv.), meta-analysis	Martin: Chapter 3
Module 5	Unit 7	(W) Apr 12 Collyer	Scientific Revolution	Thomas Kuhn Introduction
Module 5	Unit 8	(W) Apr 17 Collyer	APA (Citation Style) research reports of research and graphical presentations of data (tables figures), citation and references, structure, format	Martin: Chapter 13
Module 5	Unit 8	(M) Apr 19 Collyer	APA (Writing) Summarize your Study and Findings (One page)	Martin: Chapter 13
Module 6	Unit 8	(M) Apr 24	Group Project Presentations & Discussion (includes	

		Collyer	Written Summary)	
Module 6	Unit 8	(W) Apr 26 Collyer	Group Project Presentations & Discussion (includes Written Summary)	
Module 6	Unit 8	(M) May 01 Santiago	Review	

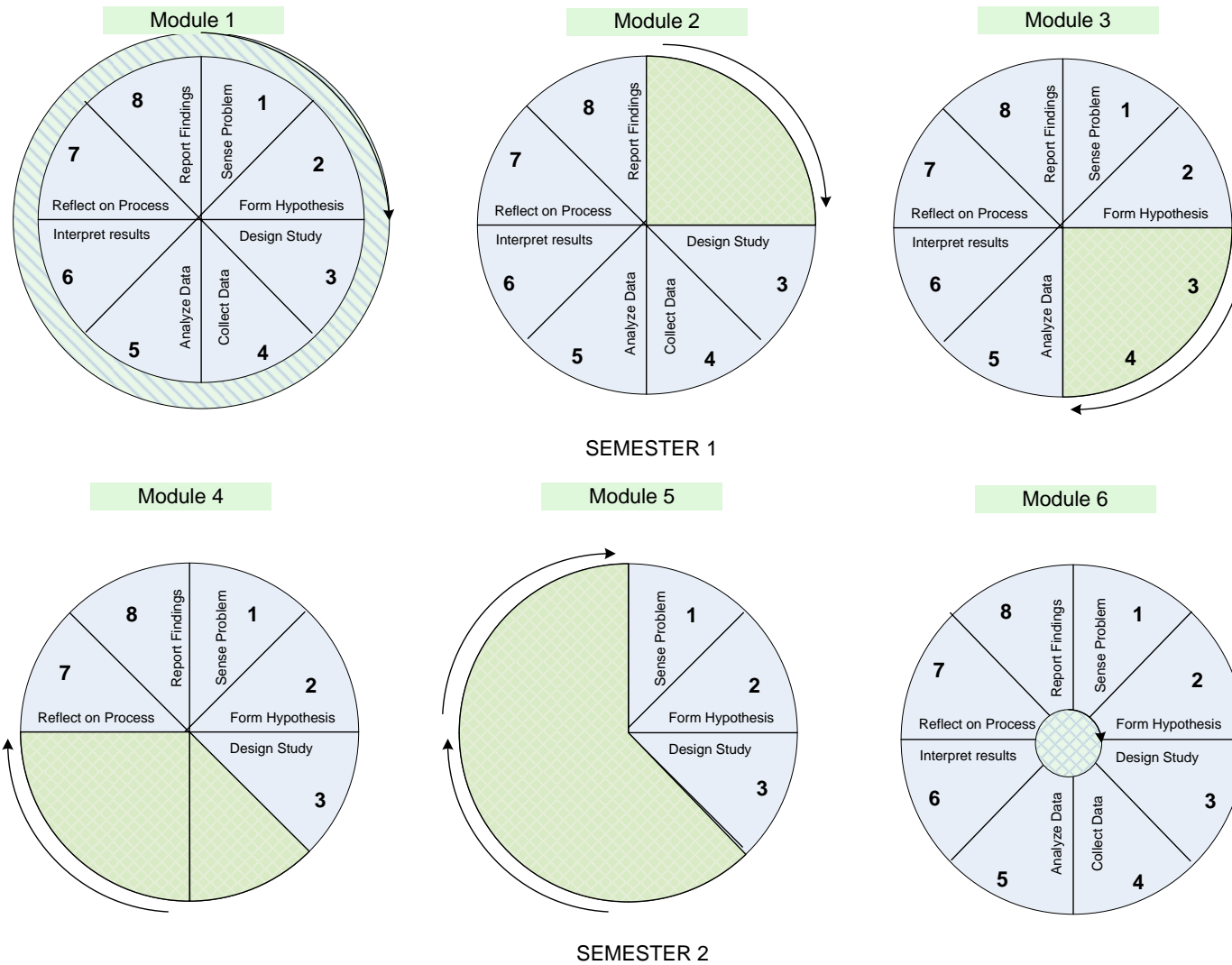


Figure 1: Course Design Diagram