

Psychology 240, Scientific Inquiry and Reasoning in Health Care**Units:** 4**Spring 2016—Wed,Fri—Time:** 10:00-11:50am**Location:** VPD105**Instructor:** Professor Margaret Gatz**Office:** SGM520**Office Hours:** Thurs 10:30-11:30am SGM520; Fri for 30 minutes after class in VPD lobby; and by appointment**Contact Info:** Email: gatz@usc.edu; office phone number: 213-740-02212**Course Description**

This course addresses the inquiry and reasoning skills that are required to solve scientific problems in human behavior. Although focused on psychology, the material is broadly applicable to the study of behavior, and examples will include medical and other social science research. In order to clarify good design, the course also explains sources of error in common examples of nonscience, pseudoscience, psychobabble, and biobunk. This course is appropriate for pre-health majors.

Learning Objectives

Students will learn to

- Reason about study design and execution of research;
- Identify ethical issues in research;
- Implement data-based and statistical reasoning;
- Apply the logic of evidence-based decision making;
- Be a critical consumer of social science research as it appears in both the academic and popular scientific domains.

Prerequisite(s) or Concurrent Enrollment: none**Course Notes**

All class information will be posted on Blackboard.

Technological Proficiency and Hardware/Software Required

You will be asked to install JASP on your computer for doing statistical analyses.

Required Readings and Supplementary Materials

- Beth Morling. *Research Methods in Psychology: Evaluating a World of Information* (Second Edition). W.W. Norton & Company, Inc.
- Stanovich, K.E. (2013). *How to think straight about psychology* (10th edition). Pearson Education.
- You may be able to purchase books for a lower price by searching in the online marketplace, including used books and eBooks. For the Stanovich book, the prior edition would be essentially equivalent and potentially considerably less costly (I saw used copies of the 9th edition for \$0.75.)
- Additional readings listed on the syllabus are available electronically through the USC library, or available online using the link in the syllabus.

Course Schedule: A Weekly Breakdown

	Topics	Readings and Activities (before class)	Due Dates
Week 1 Jan 13	Course overview, cognitive heuristics, confirmation bias, hindsight bias	http://www.thepsychfiles.com/2009/12/episode-113-interview-with-scott-lilienfeld-on-the-50-great-myths-of-popular-psychology/ (first 25 minutes)	
Jan 15	The scientific method, illusory correlation, working with data (install JASP)	Morling, Chapter 1; Stanovich Chapter 2	
Week 2 Jan 20	Sources of evidence, overlooked cell in 2X2, organizing and describing data	Morling, Chapter 2; Stanovich Chapter 4	
Jan 22	Scientific claims; four types of validity	Morling, Chapter 3; Stanovich Chapter 3	
Week 3 Jan 27	Ethical principles and dilemmas; reading articles	Morling, Chapter 4; Stanovich Chapter 11	
Jan 29			TEST 1
Week 4 Feb 3	Scales of measurement, reliability; sensitivity, specificity	Morling, Chapter 5	
Feb 5	Distributions	Descriptive Statistics, pp 441-452	
Week 5 Feb 10	FREQUENCY CLAIMS Observations; questionnaires; implicit measures	Morling, Chapter 6	
Feb 12	Message framing		
Week 6 Feb 17	Sampling; missing data; incidence, prevalence	Morling, Chapter 7	
Feb 19			TEST 2
Week 7 Feb 24	ASSOCIATION CLAIMS Working with correlations	Morling, Chapter 8; Stanovich Chapter 5	
Feb 26	Graphing data and results	Morling, Descriptive Statistics, pp. 452-456	
Week 8 Mar 2	Regression	Morling, Chapter 9	
Mar 4	Chi square; odds ratio		
Week 9 Mar 9			TEST 3
Mar 11	Longitudinal and cross-sectional		
Spring Break			

Week 10 Mar 23	CAUSAL CLAIMS Experiments, confounding, counterbalancing	Morling, Chapter 10; Stanovich Chapter 6	
Mar 25	Working with t-tests	Morling, Inferential Statistics, pp. 463-479	
Week 11 Mar 30	Experimenter effects; demand characteristics	Morling, Chapter 11; Stanovich Chapter 7	
Apr 1	Working with ANOVA	Morling, Inferential Statistics, pp. 479-486	
Week 12 Apr 6	Working with factorial designs	Morling, Chapter 12	
Apr 8	Sample size; effect size	Morling, Descriptive Statistics, pp. 456-461	
Week 13 Apr 13			TEST 4
Apr 15	Placebo and nocebo effects		
Week 14 Apr 20	Quasi-experimental designs	Morling, Chapter 13; Stanovich Chapters 8 and 9	
Apr 22	Replicability	Morling, Chapter 14; Stanovich Chapter 10	
Week 15 Apr 27	Meta-analysis		
Apr 29	Multi-method research		
FINAL May 9 8-10 AM			

Description and Assessment of Assignments

Grades will be based on (a) in-class research exercises (50%), (b) four tests (40%), (c) a non-cumulative final exam (10%). Research exercises will be graded for completing the work.

Requirements, Assignments and Evaluation: Research exercises are designed for you to achieve the course objectives. We will work on these assignments both in class and as homework. Those assigned for homework will be due during the next class meeting. Tests will evaluate your understanding of the major concepts in the course and will encompass the assigned readings, lecture material, and class discussions of the research exercises. Tests will include both multiple-choice and short essays.

Assignment Submission Policy

Late Assignments, Missed Classes, and Attendance Expectations: In general, 0 will be given for a missed tests or assignments. Late assignments will have points deducted. Make-ups will be offered only in circumstances when the student provides evidence to support the absence, including a telephone number for the person who can verify the reason. Those who know in advance that a class will be missed need to provide documentation in advance so that provision can be made for completing the work.

Additional Policies

Students will be expected to use computers in the classroom.

Grading Breakdown

Assignment	Points	% of Grade
In-class research exercises	25/each	50
Test 1	100	10
Test 2	100	10
Test 3	100	10
Test 4	100	10
Final exam	100	10
TOTAL	1000	100

Total %	92	90-91.9	88-89.9	82-87.9	80-81.9	78-79.9	72-77.9	70-71.9	68-69.9	62-67.9	60-61.9	59
Letter Grade	A	A-	B+	B	B-	C+	C	C-	D+	D	D-	F

Statement on Academic Conduct and Support Systems

Academic Conduct

Plagiarism – presenting someone else’s ideas as your own, either verbatim or recast in your own words – is a serious academic offense with serious consequences. Please familiarize yourself with the discussion of plagiarism in *SCampus* in Section 11, *Behavior Violating University Standards* <https://scampus.usc.edu/1100-behavior-violating-university-standards-and-appropriate-sanctions/>. Other forms of academic dishonesty are equally unacceptable. See additional information in *SCampus* and university policies on scientific misconduct, <http://policy.usc.edu/scientific-misconduct/>.

Discrimination, sexual assault, and harassment are not tolerated by the university. You are encouraged to report any incidents to the *Office of Equity and Diversity* <http://equity.usc.edu/> or to the *Department of Public Safety* <http://capsnet.usc.edu/department/department-public-safety/online-forms/contact-us>. This is important for the safety whole USC community. Another member of the university community – such as a friend, classmate, advisor, or faculty member – can help initiate the report, or can initiate the report on behalf of another person. *The Center for Women and Men* <http://www.usc.edu/student-affairs/cwm/> provides 24/7 confidential support, and the sexual assault resource center webpage sarc@usc.edu describes reporting options and other resources.

Support Systems

A number of USC’s schools provide support for students who need help with scholarly writing. Check with your advisor or program staff to find out more. Students whose primary language is not English should check with the *American Language Institute* <http://dornsife.usc.edu/ali>, which sponsors courses and workshops specifically for international graduate students. *The Office of Disability Services and Programs* http://sait.usc.edu/academicsupport/centerprograms/dsp/home_index.html provides certification for students with disabilities and helps arrange the relevant accommodations. If an officially declared emergency makes travel to campus infeasible, *USC Emergency Information* <http://emergency.usc.edu/> will provide safety and other updates, including ways in which instruction will be continued by means of blackboard, teleconferencing, and other technology.