

## **PSYCH 220: RESEARCH DESIGN AND STATISTICS Winter 2008**

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Email:	altermattw@hanover.edu	Lecture MWF 10:00-10:50
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### **Overview and Course Objectives**

This course is designed to familiarize you with the strategies used to apply the scientific method to psychological questions. In this course, you will learn how to evaluate research to determine whether you can have confidence in its conclusions, and you will apply this knowledge to the design of your own research project.

Your mission in this course is to:

1. Obtain a broad knowledge base of research strategies and techniques.
2. Develop critical-thinking and research skills in the context of psychological questions.
3. Improve your ability to effectively communicate your ideas in writing.

### **Required Text**

American Psychological Association. (2001). *Publication manual of the American Psychological Association* (5<sup>th</sup> ed.). Washington, DC: Author.

*Additional readings can be downloaded from the course website.*

### **Office Hours**

Office hours are the great underutilized resource of the college experience. Looking back over his many years advising students, Richard Light (a Harvard professor) said that the greatest advice that he ever gave to his students was this: Every semester, get to know one faculty member. Please stop by to chat about the course, your plans for the future, or the mysteries of the universe. Talking with students is one of my favorite parts of this job.

### **This Document**

This course description and syllabus describe the theme of the course as well as your responsibilities for the semester and how you will be evaluated. You should consider this document a contract between us – you the student and me the instructor. As with all contracts, you should examine this document carefully to be sure that you find it fair and reasonable. Your registration in this class beyond the drop deadline is your implied agreement to be held to the requirements stated in this document.

### Grading

Project	Points	%	Assignments	Points	%
Brainstorm	3	0.4%	PsycINFO	10	1.4%
First hypothesis	3	0.4%	Cites & refs	10	1.4%
Final hypothesis	3	0.4%	Main effects & Interactions	15	2.1%
7 references w/ILL	7	1.0%			
Hum subjects app	6	0.8%	Article response	10	1.4%
Pilot test	3	0.4%			
Annotated bibliography	14	1.9%	Stats 1: Entering data	3	0.4%
Methods section	19	2.6%	Stats 2: Reliability	4	0.6%
Title page	3	0.4%	Stats 3: Independent t-tests	10	1.4%
References section	10	1.4%	Stats 4: One-way ANOVA	10	1.4%
Results & Discussion	62	8.6%	Stats 5: Two-way ANOVA	10	1.4%
Introduction	54	7.5%	Stats 6: Correlation	10	1.4%
Abstract	5	0.7%	Stats 7: Dependent t-tests	10	1.4%
Poster draft	5	0.7%	Stats 8: Mixed designs	10	1.4%
Poster	20	2.8%			
Powerpoint draft	5	0.7%	TOTAL ASSIGNMENTS	112	15.6%
Oral presentation	25	3.5%			
Contribution	10	1.4%	Quizzes (top 14 @ 5)	70	9.7%
Paper	200	27.8%	Final Exam	80	11.1%
TOTAL PROJECT	457	63.6%	TOTAL POINTS	719	

### Grades

Performance on assignments exists on a continuum from poor to outstanding. **Satisfactory** performance will result in a grade of 75%, **good** performance will receive a grade of 85%, and **truly exceptional** performance will receive a grade of 95% or above. Your final grade will be determined solely by the total number of points you have earned by means of examinations, assignments, projects, and extra credit. Letter grade interpretations are given by the following:

Grade	Points	Grade	Points
A	668	C	524-552
A-	647-667	C-	503-523
B+	625-646	D+	481-502
B	596-624	D	452-480
B-	575-595	D-	431-451
C+	553-574	F	0-430

## Course Project

In this course, you will conduct a research project to test a hypothesis of your choice. You will work in a group of 2-4 classmates to develop the hypothesis, collect background readings, design the study, collect and analyze data, give an oral presentation, write a paper, and present a poster describing your findings. Several days have been set aside for in-class research group meetings. For each unexcused absence at these meetings (one in which you do not notify me before the missed class), your final grade will be reduced by 2%. See the *Project Guidelines* handout for more details on the project.

## Assignments

Throughout the semester you will be given several assignments, some to be completed in class and some to be turned in as homework. Those small-point assignments add up, so don't forget about them! Consult the schedule for deadlines.

*Note:* It will be common to consult with me during class on an assignment, especially a statistics assignment or the design of your oral presentation. When I tell you that an assignment "looks good," I am not implying that it is totally free from error nor that it cannot be improved. The quality of the work you submit is ultimately your responsibility – if I assume responsibility, then I am simply grading my own work.

## Article Response

We will read one article together as a class to give you practice reading articles for understanding. You can download the article from the course website: click on the link labeled "Article." The article is password-protected, so you will need to enter the password I give you in class. The article response is due on the day the article is due: type up a reaction to the article and either email it to me or bring it to class. In your response, answer the following questions: 1) What was the procedure in the study or studies? 2) What were the major findings? and 3) What is your opinion of the article – its problems, its contributions, etc.?

## Extra Credit

You can earn up to 15 points of extra credit by either participating in a psychological study or writing a brief report on an article published in *Current Directions in Psychological Science*. To participate in a study, check the bulletin board outside of SC 147 for signup sheets. These sheets will list available times of studies and you can sign up for a time that fits your schedule. Bring a participation sheet (available on the course website) to the study and get the researcher's signature. After the study, complete the participation sheet thoroughly and submit it to me in class. Some studies are available online, in which case you should print out the debriefing page in lieu of a signature and submit it with your participation sheet. You will receive 2 points for an online study, 3 points for a half-hour study and 6 points for an hour-long study. If you opt for the brief report, choose an article from the journal *Current Directions in Psychological Science*, available in the library. At the beginning of each article is an Abstract, which provides a paragraph description of the article. Use the abstract to help you select an article that interests you. Read the article and write a 500-1000 word (2-4 page) report on the article's main points and what you found interesting or personally relevant about the article. In your report, give the following information about the article: author(s), title, volume of journal, page numbers, and year. Your report must be completely in your own words, with no quotes or borrowed text from the article (especially not from the abstract). Keep in mind that I have electronic access to full-text versions of these articles. Instead of submitting a printed copy, please attach your report to an email and send it to me. A satisfactory report will receive 7 points. All extra credit is due when the final draft of the paper is due.

## Late Penalties

Unless otherwise noted, assignments and papers are due within the first 5 minutes of class. This policy is designed to discourage students from being late to class to complete an assignment. Assignments turned in between 5 minutes late and midnight of the due date will receive a –5% penalty. An additional –10% penalty will be added for each additional day (counted from the following midnights) late.

## Plagiarism

*Collaboration on assignments is encouraged.* I want you to learn from each other. However, you must never simply copy another student's work. One of the central goals of this course is for you to develop your *own* writing skills. On the assignments, *you must do your own writing.* Plagiarism involves taking credit for someone else's work. Typically, it occurs when someone copies another person's writing and submits it as if it were his or her own. Plagiarism is one of the most serious breaches of trust in an academic environment. Evidence of plagiarism will result in a grade of 0 for the assignment, a lowering of your final grade by two letter grades, and a report to the Student Academic Assistance Committee. Make sure you give credit to your sources, placing direct quotes in quotation marks and providing a reference for quotes and ideas that are not your own. When in doubt, ask me.

## Rubrics

Grading rubrics for each assignment are available on the course website through the "Rubrics" link. These can be very helpful in telling you exactly what I will be looking for in every assignment.

## Quizzes

Generally, you will have a quiz on the day after we cover new material. The quizzes are five questions in multiple-choice format. I will drop your lowest quiz grade in the calculation of your grade. There are no make-up quizzes unless you have some kind of family or medical emergency or will be off-campus for a necessary college-sponsored event.

*Cheating on quizzes.* If I see you looking at another student's quiz during the quiz, even if it is by accident, you will receive a zero on the quiz and will lose an additional 5% of your final grade. Second offenses will result in public beheading plus a letter in your permanent record.

## Midterm and Final Exams

The midterm exam will include all the course content that we have covered up to the midterm. The final exam is cumulative and thus will include material from the first half of the semester.

## Special Arrangements

Students with physical or learning disabilities, who may require special arrangements for quizzes or exams, should contact me as early in the semester as possible so that I can make arrangements in advance.

### Class Schedule

The following class schedule should be regarded as tentative and subject to change. Readings refer to articles that can be downloaded from the course website (e.g., “Ethics,” “Article”) and to the APA Publication Manual (designated “APA PM”). The quizzes on between-subjects and within-subjects designs and on repeated-measures designs will be on the topics indicated by one (\*) or two (\*\*) asterisks. After the statistical inference quiz, all quizzes (except the *t*-test and ANOVA quiz) will have one bonus (extra credit) question devoted to the appropriate statistical procedure for a given design.

Date	Day	Topic	Deadlines	Read	Quiz
1/7/2008	M	Introduction			
1/9/2008	W	Science, hypothesis, overview of project		Science & Scientific Method	
1/10/2008	R	LAB: The scientific literature, PsycINFO		The Scientific Literature	Science
1/11/2008	F	Choosing a topic	Brainstorm assignment		Scientific Literature
1/14/2008	M	Qualitative and Quantitative Research	Partner preferences	Evaluating Research, Types of Research	
1/16/2008	W	Construct Validity	PsycINFO	Construct Validity	Evaluating Research, Types of Research
1/17/2008	R	LAB: Method Section, Ethics, Group Work		Method Section, Ethics	Construct validity
1/18/2008	F	Internal Validity	First Hypothesis	Internal Validity	Ethics
1/21/2008	M	Internal Validity, Stats 1 (Data entry, error checking)			
1/23/2008	W	Measurement	Final hypothesis	Measurement	Internal val
1/24/2008	R	LAB: Hum Subj App, Stats 2 (Reliability)	Stats 1	Reliability Analysis	Measurement
1/25/2008	F	Statistical inference		Statistical Inference	
1/28/2008	M	Statistical inference	Human subjects application		
1/30/2008	W	Group work	7 refs with ILL status		Stat inference
1/31/2008	R	LAB: Article, Stats 3: Independent t-tests	Article Response, Stats 2	Article	
2/1/2008	F	Group work: Hum Subj App, Method Section			
2/4/2008	M	External Validity, Questionnaire Design	Hum Subj App Final Draft	External Validity, Questionnaire	

Date	Day	Topic	Deadlines	Read	Quiz
				Design	
2/6/2008	W	Annotated bibliography; Citations & References		APA PM p. 299, 313 ("References")	Ext val, ques
2/7/2008	R	LAB: Stats 4 (1-way ANOVA)	Stats 3, Pilot study report		
2/8/2008	F	Group work	Method section		t-tests, ANOVA
2/11/2008	M	Main effects & interactions	(begin data collection)	Main Effects & Interactions	
2/13/2008	W	Main effects & interactions	Cites and Refs assignment		
2/14/2008	R	LAB: Stats 5 (2-way ANOVA)	Stats 4		
2/15/2008	F	Main effects and interactions, Title page	Annotated Bib, 1st pgs of 7 articles	APA PM p. 296-298, 306 ("Title Page")	
2/18/2008	M	Writing the Results & Discussion sections			
2/20/2008	W	Review for midterm	Main effects & Interactions assignment		
2/21/2008	R	LAB: Stats 6 (Correlation)			Main effects and interactions
2/22/2008	F	<b>Midterm Exam</b>	(end of data collection)		
2/25/2008	M	Winter Break			
2/27/2008	W	Winter Break			
2/28/2008	R	Winter Break			
2/29/2008	F	Winter Break			
3/3/2008	M	Btw-Ss and W/in-Ss designs*			
3/5/2008	W	Threats to internal validity for repeated-measures designs*	Stats 5		
3/6/2008	R	LAB: Analyzing project data	(bring data to class)		Btw-Ss / W/in-Ss*
3/7/2008	F	Analyzing project data	Title page and References		
3/10/2008	M	Analyzing project data			
3/12/2008	W	Writing the Introduction and Abstract, presenting posters and papers			

<b>Date</b>	<b>Day</b>	<b>Topic</b>	<b>Deadlines</b>	<b>Read</b>	<b>Quiz</b>
3/13/2008	R	LAB: Stats 7: Dependent t-test**	Stats 6		
3/14/2008	F	Work on presentation	Results & Discussion		
3/17/2008	M	Work on presentation	Draft of Powerpoint presentation due at end of class		
3/19/2008	W	Work on presentation			
3/20/2008	R	LAB: Practice oral presentations			
3/21/2008	F	Group work			
3/24/2008	M	Group work			
3/26/2008	W	Work on presentation	Introduction and Abstract		
3/27/2008	R	LAB: Stats 8 (W/in Subjects ANOVA)**	Stats 7		
3/28/2008	F	Work on presentation			
3/31/2008	M	Quasi-experimental and Single-subject designs			
4/2/2008	W	Work on presentation			Quasi-exp & SS designs
4/3/2008	R	LAB: Oral Presentations			
4/4/2008	F	Stats Review	Draft of poster due		
4/7/2008	M	Developmental & Time Series designs			
4/9/2008	W	Graduate study in psychology	Stats 8		Dev & Time series designs
4/10/2008	R	LAB: Finish posters			Repeated measures designs**
4/11/2008	F	Poster Session	Contribution grades (emailed to me)		
TBA		Final Exam	Final draft of paper		