

EXP 3082 – EXPERIMENTAL PSYCHOLOGY – 3sh

Course Syllabus by Dr. Jay E. Gould

Spring 2005, January 5 – April 29

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Note: This syllabus contains very important information, and students will be held responsible for knowing and adhering to all its contents.

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Required Books

Gould, J. E. (2002). *Concise Handbook of Experimental Methods for the Behavioral and Biological Sciences*. CRC Press.

Milinki, A.K. *A Cross Section of Psychological Research: Journal Articles for Discussion and Evaluation*. Pyrczak Publishing.

Prerequisite

Students should have completed STA 2023 or an equivalent course in applied statistics. Assignments in the laboratory section of Experimental Psychology will require that students perform appropriate statistical analyses on data collected.

Corequisite

Students enrolled in this course must also be enrolled in a Laboratory Section of Experimental Psychology (EXP 3082L) with the same instructor as for this lecture section--unless the lab was previously completed and the student has permission.

Student-Learning Outcome Objectives

Objectives of this course are that as a result of careful study and fulfillment of the course assignments, students should be able (among other things) to:

1. Describe the *goals, assumptions, and requirements of science*;
2. Describe and distinguish between *descriptive and experimental research*;
3. Describe, in their typical sequence, the several *steps of the scientific method*;
4. Describe and distinguish the *principle variables of research designs*;
5. Describe and explain the relationship between *validity and reliability*;
6. Describe *intervening variables* and their relationship to other variables;
7. Describe the characteristics and functions of *operational definitions*;
8. Describe the functions and mechanisms of *literature surveys*;
9. Describe the functions and components of *research proposals*;
10. Describe the characteristics and functions of *pilot studies*;
11. Describe the functions, desirable qualities, and parts of *research papers*;
12. Describe and identify *ethical research issues* involving humans & nonhumans;
13. Describe the two meanings of *experimental control*;
14. Describe and recognize the various forms of *extraneous variables*;
15. Describe the concept of *variance* and its relation to *good experimental designs*;
16. Describe and recognize the three *general sources of variance*;
17. Describe the three types of *dependent variable variance*;
18. Describe and explain the three *minimax principles of variance*;
19. Describe and recognize the many control techniques for *extraneous variables*;
20. Describe the *components of experimental research designs*, the *determinants for selecting research designs*, and the *criteria for evaluating research designs*;
21. Describe and recognize the various *types of pre-experimental, quasi-experimental, and experimental research designs*, and be able to identify their relative strengths and weaknesses;
22. Describe the concept of *interactions in factorial designs*, and recognize them;
23. Describe *populations vs. samples; sampling reliability, distributions, error and validity; generalization and validity concerns*; and the four *sampling techniques*;
24. Describe and distinguish *research vs. null hypotheses*, possible *outcomes of testing null hypotheses, proof vs. disproof, and Type I vs. Type II Errors*;
25. Describe the *researcher's dilemma when choosing levels of significance*;
26. Describe the concept of *statistical power/sensitivity*; and its *determinants*;
27. Describe and explain *sampling distributions of differences between pairs of means*, and their relationship to *hypothesis testing*;
28. Describe and distinguish between *statistical vs. practical significance*.

In general, then, this course is designed to introduce students to the philosophy, principles, and methods of scientific research in experimental psychology. Non-experimental, descriptive research techniques also will be covered for purposes of comparison and breadth, and because they are often incorporated into experiments. Through the associated Laboratory Section for Experimental Psychology, students will have hands-on experience conducting research using the techniques and apparatus appropriate to experimentation in psychology.

Mechanism

The objectives of this course can be achieved through careful study of the required books listed earlier, attendance at all class meetings, and active participation in class discussions. The *Concise Handbook of Experimental Methods for the Behavioral and Biological Sciences* course textbook is a comprehensive outline elaborating the series of lectures that the instructor developed and refined over the years for this course. The Handbook was written specifically so that students would not have to concentrate on taking detailed notes during class. Instead students can focus on the more intellectually stimulating and rewarding tasks of analyzing and synthesizing information presented during the lectures, raising questions about points that need clarification, and discussing their insights with the rest of the class and the instructor. This is what I believe college classes should be all about.

It may appear that there is an overwhelming amount of information to be mastered, but this is largely because of the way in which the comprehensive outline format of the *Handbook* makes the concepts and their relationships so explicit. The *Handbook* was designed to be relatively concise, and is organized to facilitate rapid understanding of the principles and methods of experimentation, and also to later serve as a handy resource for reference and review, e.g., in graduate school and when working in the profession. When studying for exams, you can test your knowledge by covering the lines below the one being read with a piece of paper, and seeing whether you can recall the information on the following lines and in the text.

When reading the Handbook, you should try to recall from past readings, or think up, additional examples that illustrate important points, and write them down. This active form of reading encourages thought and mastery of the material. I will call for additional examples and ask other questions in class. Hence you will receive feedback, and the class meetings will be more interesting.

Learning is facilitated by an active, dynamic involvement in the instructional process--i.e., learning is not a spectator sport! Therefore, rather than primarily lecturing to you, I will try as much as possible to use the Socratic Method of teaching by asking questions of you. In fact, I will also ask students to try to answer the questions raised by their classmates before I contribute any additional insights. In other words, I want you to learn through actively thinking about, discussing, and contributing to the course material.

Since learning does not occur best when just passively listening, it is strongly recommended that students outline the major points, discussions, and illustrative examples presented during class meetings. This should ensure active processing of the information, and therefore better understanding and learning. **Note: It is not productive or courteous to be reading the *Handbook* during class.**

In order to illustrate the principles and methods of experimentation, as well as other forms of research outlined in the Handbook, during the course we will be reading, analyzing, and discussing several of the journal articles reproduced in "*A Cross Section of Psychological Research.*"

Finally, to further assist students in mastering the subject matter of this course, there is a list later in the syllabus of Additional Recommended Readings found in the Reserve Book Room and Reference Section of the University's Library. Many of these are quite interesting, and all should be helpful. Although it is suggested that some of the additional readings be done in association with specific assignments--see the Calendar of Assignments and Exams--several of these additional readings are relevant to more than one topic or assignment.

I will be very interested in your feedback about the above noted approach to the course. Any recommendations that you might have for improving the course and class meetings will be most appreciated. After all, this course is for your benefit. If you wish, you may leave anonymous notes for me with the Department Secretary.

Evaluation

The review questions at the end of each chapter in the *Handbook* are an important aid to preparing for exams. The review summaries that precede the questions focus on the major points, and can be read as an overview before, as well as after, reading the material of each chapter in the *Handbook*. However, since the answers to the review questions are contained in the correspondingly numbered items of the review summaries, the summaries should not be read just before working on the questions. It should be kept in mind that it is important to be able to define terms and to describe principles with scientific accuracy and completeness. You should be sensitive to the fact that although there might be equivalent words and phrases for communicating information, sometimes alternatives are poorer rather than being equivalent or superior.

There will be three multiple-choice exams. Each will count 30% toward the course grade. Although not designed to be comprehensive, every exam will build on the preceding exams to some extent. Exam I is expected to be primarily a rote-memory test dealing with important fundamental concepts and their definitions presented in Part One of the *Handbook* and class meetings. Exam II is expected to focus somewhat less on rote-memory and more on the ability to apply information presented in Part Two as well as Part One of the *Handbook*. Exam III will cover Part Three of the *Handbook* as well as some material discussed in Parts One and Two.

In addition, during the course there will be written assignments, and possibly unannounced quizzes to provide incentive and feedback. The written assignments and quizzes will count a total of 10% toward the course grade. Examples of assignments are answers to be turned in for the questions at the end of some of the readings in the Milinki book of journal articles, and the writing of an "oath of ethics for psychology researchers" (instructions are at the end of syllabus). See the course Calendar for assignment dates. All of these assignments will be check-off rather than graded assignments (i.e., full credit for reasonable efforts). Standard credit will be one (1) point each, unless otherwise stated. Late assignments will lose 1/3 point per weekday late.

There will also be extra-credit opportunities. One example will be for preparing the best oath of ethics (as judged by classmates), and other opportunities will be for participating in the research of graduate students and faculty, and for attending psychology talks given on campus and in the community (be sure that I have approved these). Except for the ethics oath, a half- to one-page paper must be turned in describing what was learned. Each extra credit award will consist of one-percentage-point addition to the potential 100% course grade earned through exams, quizzes, and assignments. Total extra credit is limited to three (3) points, but that means that the course grade can be raised by a third of a letter grade, e.g., from an "A-" to a solid "A."

The grade on each of the major exams, will be based on the percentage of points earned relative to the best performance in class, with 60-69% being the range of Ds, 70-79% Cs, 80-89% Bs, and 90-100% As. These can be further broken down as follows: 80-82% B-, 83-86% B, 87-89% B+, and similarly for the other letter grades. This system corrects for the difficulty of the tests and imposes no preconceived distribution of letter grades. Using this approach, everyone could earn an "A" or "A-" by simply getting at least 90% of the points of the top score. Adjustments upward in the distribution might be made, when it appears appropriate, using a linear transformation function developed by the instructor. Note: An alternative for computing grades, which is not used in this course, would be to convert/transform the points earned on the tests to standard scores (z scores) for determining percentile rankings. But this would mean that no matter how well students did, those at the low end of the distribution would receive low grades.

Improved exam performance during the term will be taken into consideration, if notable, when the overall course grade is one point below a borderline (e.g., just below the cutoff for a "B." If you do poorly on an exam, talk to the instructor about better study strategies, and put in more effort the next time.

Participation in class discussions will also be taken into account when determining the overall course grade, especially for borderline cases. Participation is based on the quality and quantity of answers given to questions posed by the instructor or other students.

Attendance is important. It is expected that students will regularly come to class and actively participate in discussions and take the quizzes. This is very crucial to mastery of the course material. Moreover, students should arrive on time so as not to disturb other students or the instructor. If for some unavoidable reason you do come to class late, please enter as quietly as possible and take the seat nearest to the door that is available. This should minimize disruption of the class. Also, please turn off all cell-phone, pager, and watch beepers. Vibrators, however, are OK if not distracting.

Note: Don't call if you will be absent or late for class. The instructor, secretaries, and teaching assistants, just like you, are a very busy people and would rather not spend their time listening to explanations and taking messages. It is understood that everyone has a legitimate excuse once or twice a semester, but don't make it a habit.

Don't miss exams. Make-up examinations represent an imposition on the time and energy of the instructor, graduate teaching assistants, and other students. Make-up examinations are based on the instructor's approval and constitute a notable exception

if allowed. Therefore, please be forewarned that having other exams or more pleasant things to do on the same day as a test is not sufficient justification for a make-up exam. On the other hand, a serious illness is sufficient justification (A Dr.'s note is not necessary--I use the honor system). Don't call the instructor or graduate teaching assistant. A written or E-mailed explanation for missing an exam will be required, preferably before the absence occurs.

Note: Instructors cannot post grades or give grades over the phone due to University regulations. Students wishing to learn their grade for the last exam of the term and for the overall course grade before the University processes and posts grades, can give the instructor a self-addressed, stamped envelope for this purpose (with a note sheet listing sequentially: final exam grade and course grade), or send an e-mail request. For confidentiality purposes, the latter should be done only if you are the only one who could read the instructor's e-mail reply, and you state that in your e-mail request.

Special Arrangements for Assistance: Students with special needs who require specific examination-related or other course-related accommodations should contact Barbara Fitzpatrick, Director of Disabled Student Services (DSS), at (850) 474-2387. DSS will provide the student with a letter for the instructor that will specify any *recommended accommodations*. Students should attend to this as early as possible. The instructor is not obligated to accommodate a student's needs unless presented with an official letter from the Office of Disabled Student Services.

Academic Dishonesty: I am very aware that there is a great deal of pressure to do well in college. But that is never an excuse for cheating on an exam, plagiarizing an assignment, or in any other way being academically dishonest. There are severe penalties for such wrongdoing. Do the right thing and be a good citizen--be honest! You should carefully review the Rights & Regulations section of the *UWF Student Handbook*, from which the following was excerpted.

Expectations for Academic Conduct/Plagiarism Policy: As members of the University of West Florida, we commit ourselves to honesty. As we strive for excellence in performance, integrity—personal and institutional—is our most precious asset. Honesty in our academic work is vital, and we will not knowingly act in ways which erode that integrity. Accordingly, we pledge not to cheat, nor to tolerate cheating, nor to plagiarize the work of others. We pledge to share community resources in ways that are responsible and that comply with established policies of fairness. Cooperation and competition are means to high achievement and are encouraged. Indeed, cooperation is expected unless our directive is to individual performance. We will compete constructively and professionally for the purpose of stimulating high performance standards. Finally, we accept adherence to this set of expectations for academic conduct as a condition of membership in the UWF academic community.

Additional Recommended Readings

These are located in the Reserve Book Room of the UWF Library. ART stands for an article as opposed to a book, for which the call number is usually listed. An asterisk (*) indicates that the article contains useful ideas for student research in the Lab Section.

<u>Title</u>	<u>Call Number</u>
American Psychological Association. Ethical Principles in the Conduct of Research with Human Participants	BF200/A46/1982
American Psychological Association Style for Research Paper: Textbook Example	ART
Baumrind. Research Using Intentional Deception	ART
Bem & Honorton. Does Psi Exist? Replicable Evidence for an Anomalous Process of Information Transfer	ART*
Bower. Psychology's Tangled Web: Deceptive Methods May Backfire on Behavioral Researchers	ART
Bower. Remembrance of Things False	ART*
Branscomb. Integrity in Science	ART
Broad & Wade. Science's Faulty Fraud Detectors	ART
Budiansky. Consulting the Oracle (This is an interesting article on survey polls and their problems. It is one of several article that can serve as ideas for your research.)	ART*
Campbell & Stanley. Experimental and Quasi- Experimental Designs for Research	Q175/C23
Caso, A. Three Skeptics' Debate Tools Examined	ART
Corso. Experimental Psychology of Sensory Behavior, Chapter 1: The Philosophy of Science	ART or BF 233/C6
Cooper & Shepard. Turning Something over in the Mind	ART
Creason & Goldman. Varying Levels of Marijuana Use by Adolescents and the Amotivational Syndrome	ART
Cruchfield, et al. Chaos	ART
Diener & Crandall. Ethics in Social and	H62/D53

Behavioral Research

Dodson, Johnson, & Schooler. The Verbal Overshadowing Effect: Why Descriptions Impair Face Recognition	ART*
Domjan. Animal Learning Comes of Age	ART
Goertzel. Myths of Murder and Multiple Regressions	ART
Goodall. A Plea for the Chimpanzees	ART
Gopen & Swan. The Science of Scientific Writing	ART
Good Examples of Research Reports	ART
Gould, S. J. The First Unmasking of Nature	ART
Gould. The Finagle Factor	ART
Harlow. Fundamental Principles for Preparing Journal Articles	ART
Hearst. Psychology and Nothing	ART*
Hecht & Proffitt. The Price of Expertise: Effects of Experience on the Water Level Task	ART*
Hergenhahn. A Self-Directing Introduction to Psychological Experimentation (2nd edition)	BF79/H47/1974
House, et al. Social Relationships and Health	ART
Isaac & Mitchall. Handbook in Research and Evaluation	BF76.5/I8
Josephs, Giesler, & Silvera. Judgment by Quantity	ART*
Jung & Bailey. Contemporary Psychology Experiments: Adaptations for Laboratory (2nd edition).	photocopied
Kerlinger. Behavioral Research: A Conceptual Approach	BF76.5/K39
Kerlinger. Foundations of Behavioral Research	BF76.5/K4/1986
Kling & Riggs. Woodworth and Schlosberg's Experimental Psychology	BF181/K53/1971
Linton & Gallo. the Practical Statistician:	

Simplified Handbook of Statistics

Loftus. Creating False Memories	ART*
Osgood. Method and Theory in Experimental Psychology	BF181/08
Pashler. Doing Two Things at the Same Time	ART*
Rauscher et al. Music and Spatial Task Performance: A Causal Relationshipsip	ART
Rice. The Hawthorne Defect: Persistence of a Flawed Theory	ART
Rubenstein. Psychology's Fruit Flies	ART
Schutz. Not Encounter and Certainly Not Facts	ART
Schwartz. Classic Studies in Psychology	Missing
Schoolar. Verbal Descriptions Dim Sensory Recall	ART*
Seeley. How Honeybees Find a Home	ART
Sidowski. Experimental Methods and Instrumentation in Psychology	BF38.5/S52
Sorensen. Thought Experiments	ART
Pashler (editor). Stevens Handbook of Experimental Psychology (3 rd ed.) Vol. 1-4	BF181/H336/1988
Tong & Gupta. Personal Computers	ART
Walton. How to Watch Monkeys	ART
Warick. Deceptive Research: Social Scientists Ought to Stop Lying	ART
Woodworth & Schlosberg. Experimental Psychology (1954 Revised Edition)	BF181/W6/1954

Note: The Baumrind article, listed above, represents a more sophisticated and deeper discussion of the issue of deception in research than does the Warick article. I highly recommend it, however, to those who relish intellectual stimulation and a more rigorous approach to this important ethical issue.

Reference Section of Library:

Tompkins & Shirley. Serials in Psychology and
Allied Fields (note: journals are described)

Z7203/T65/1976

**OATH OF ETHICS FOR PSYCHOLOGY RESEARCHERS
TAKE HOME PROJECT
EXP 3082**

You are to work with a partner of your own choosing and together prepare (during the #12-13 class-meeting week) an Oath of Ethics for Psychology Researchers. It is to be no more than one page, and may be single-spaced.

You should cover all the ethical concerns discussed in Chapter 6 of the course Handbook, as well as other resources, such as the Internet and APA publications on ethics. You must reference all material used: Do not plagiarize. This is a pass-fail project.

The Oath is to be submitted with only the last four digits of your Social Security Numbers (SS#s) at the bottom as identifiers of the writers. Following each of your SS#s you are to indicate the percentage of the work each partner did relative to the individual who contributed the most. Whoever did the most work would place 100% after their name. If each member of a pair did the same amount of work, then 100% should follow each name.

I will compile all the submissions and make them available to everyone in the class. They will probably be taped to the wall in the hallway upstairs in the Psychology Building (41).

You will all be responsible for voting within one week for the best Oath. You may not vote for your own oath, since if that were permitted, then that is what most individuals would do, and therefore the oaths of others would not be read and the assignment would be less instructional.

The three pairs of individuals receiving the highest number of votes will be given up to one (1) extra credit point (1/10th of a letter grade) in proportion to the percentage of work each did on the project.

THIS PROJECT IS DUE AT THE 14TH CLASS MEETING, AND THE VOTE IS DUE AT THE 16TH CLASS MEETING, USING THE FORM BELOW. BOTH ARE REQUIRED.

I, (print name) _____, vote for the oath with

SS#s _____ and _____ as being the best
Oath of Ethics for Psychology Researchers.