

Human Behavioral Measurement

Natural World 221
Section NW 221-PS 01
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Robert J. Padgett, Ph. D.
Department of Psychology
Jordan Hall, Room 296
Phone: 940-9239
EMAIL: rpadgett@butler.edu

I. Introduction

This course is designed to give the serious sophomore level student an in-depth look at the field of psychology as a science and way of knowing. Although it's content area concerns the study of human behavioral measurement, the principals are applicable to most any area of scientific inquire. This course is designed to teach many of the concepts needed to understand, conduct, and interpret common experiments as used in psychology and related fields.

This course is designed around several objectives: First, to teach students what it means to explain or understand behavior and how and why psychologists rely on the scientific method for studying human behavior. Second, to expose the student to the varieties of procedures and measures available for the study of human behavior. Finally, and perhaps most importantly, a central objective of this class is to help the student gain an appreciation of psychology, in particular, and of all the sciences, in general, by focusing as much on the discovery process of science as on the results.

Students in this course will be exposed to and ultimately expected to comprehend: 1) basic research methodology; 2) observation and other data collection techniques 3) basic data analytic methods 4) psychophysical methods; 5) measures of perceptual and attentional processes; and 6) measures of memory and basic cognitive processes. As such, this is not a "comfortable" course, but rather one that will at times be time-consuming and psychologically as well as intellectually taxing. However, students who sincerely apply themselves will gain rich rewards. First, they will acquire basic research skills and a deeper understanding of the nature of science and human behavior. Second, sound methodological skills will prove invaluable for later study in psychology, physical sciences, social sciences and they are applicable to practically any vocation. Finally, as research and data based conclusions come to have a greater impact on our everyday lives, students who apply themselves to this course will acquire skills that are valuable for critically evaluating and interpreting such claims.

This course is divided into two parts: the regular class meetings, and a laboratory component. The lecture-discussion sessions will stress research procedures and findings. This will give students an overview of the procedures, methods, and theories predominant in the field. The laboratory sessions will provide the student with in-depth practice in designing, conducting, analyzing, and writing up experiments. The course is designed so that by integrating the components of the course the student will come to understand the complexities and subtleties of research and experimental design.

II. Texts and Other Materials

The required reading and study material will be from several sources including one basic text and a book for theoretical discussion. Additional reading and study material are placed on reserve in the library, or are available in the department.

A. Required Text: The required texts for this class are listed below. The books listed may be purchased at the university bookstore or from a variety of Internet sellers. Most reading assignments listed in Section IV come from these basic texts.

Kantowitz, Barry H., Roediger, Harry L., Elmes, David G. (2015) *Experimental Psychology* (10th Edition). Stamford, CT: Cengage Learning

Martin, Paul and Bateson, Patrick (2007) *Measuring Behaviour: An Introductory Guide*. New York: Cambridge University Press.

B. Supplemental Texts: Several supplemental texts are available from the bookstore, at the library or in the department on its bookshelves or reserves.

American Psychological Association. (2009). *Publication Manual of the American Psychological Association* (6th Ed.). Washington, DC: Author

Kendler, Howard H. (1963) *Basic Psychology*. New York, NY: Appleton-Century-Crofts.

Stanovich, Keith E. (1998). *How to think straight about psychology* (6th Ed.). Glenview, IL: Scott, Foresman, & Company.

Woodworth, R.S. & Schlosberg, H. (1954). *Experimental Psychology*. New York, NY: Henry Holt Co.

C. Other Materials: Several other supplementary materials will be used in this course. Most will be provided by the university at no or minimal cost to the student. Others must be acquired from local vendors. First, the student must purchase a good statistical calculator (usually about \$28.00). The student is responsible for having the manual and knowing how to use their calculator. **If you don't have the manual, you don't have a calculator!** The student should also purchase ruled **non spiral-bound** notebook paper for doing assignments.

The university will provide the student with access to Macintosh® computers and software including Microsoft Word®, Excel®, a web browser (Safari or Google Chrome recommended) and SPSS from IBM Inc. These software packages are all protected by US copyright laws and may not be copied or distributed in anyway. It is a violation of the policies stated in the Butler University Student Handbook to copy these programs. The student is directed to that publication for further information. Many materials for the class will be made available via the course Web site at <http://rpadgett.butler.edu/NW221>. Students should be familiar with how to access materials via the Web.

III. Course Requirements

A. Reading and Study Assignments: Assignments are from the basic text and are listed generally in Section IV of this syllabus. Specific weekly assignments are available on the course main website. It is the student's responsibility to adhere to the prescribed assignments. **The most serious error a student can make in this course is to not meet these assignments on a regular basis.** This means not only reading, but also studying and assimilating the material to the point of thorough understanding. Many of the topics can be tedious and complicated. It cannot be learned well in two or three bursts of work during the semester.

B. Examinations: There will be four examinations during the 16week session. Because a thorough understanding of the science of behavioral measurement requires the integration of many component parts, a **comprehensive final exam** will be given. The exams will be divided into two parts. Part I is always closed book and composed primarily of objective and short answer type questions. Part II is open book and will consist primarily of short answer and computational / computer type items. Expect in class exams to take 1 hour. Longer open-book exams may become take-homes. Exams will

be given on the dates specified in Section IV of this syllabus. Take-home exams will be due at the next class meeting and must be checked in by the instructor, or at his direction, the department secretary. **Take-home exams may not be turned in when the instructor is unavailable.**

C. Homework: Research methodologies and data analysis procedures are learned best by doing, not by just reading. **YOU ARE EXPECTED TO DO EVERY HOMEWORK PROBLEM BY ITS ASSIGNED DATES.** Homework assignments will be given on a regular basis throughout the class and the due dates will be announced in class. Computer assignments can be completed in JH280 or at the Computer Lab located on the second floor of the Holcomb building on campus. Several other computer labs are available on campus. Check at the Computer Center for a complete list. The instructor will be available after class to help in the computer lab. At **RANDOM INTERVALS** some homework problems will be collected at the **BEGINNING OF THE CLASS** without discussion. Students who fail to turn in their homework on time will receive zero points for that assignment. For more information see Section VI of this syllabus. **LATE HOMEWORK ASSIGNMENTS WILL NOT BE ACCEPTED.**

D. Class Attendance: Class **ATTENDANCE** and **PARTICIPATION** is mandatory if the student is to grasp complex concepts and principles. No more than three absences are expected without **SERIOUS GRADE DETERIORATION including failing the course.** Students must attend **all laboratory** sessions. For more information see Section VI of this syllabus. **STUDENTS SHOULD BE PREPARED FOR ALL CLASS SESSIONS.** That is, you should have **completed your homework, read the assignment, and have your calculators, books, and papers with you for all class sessions.** Classroom sessions may not be video or audio recoded without the express written consent of the instructor. Students should be ready to start work immediately at the beginning of class. Students should not be reading newspapers, textbooks, materials for other classes, or otherwise occupied during class time. **STUDENTS USING COMPUTERS DURING CLASS TIME FOR ANYTHING OTHER THAN NW221 MATERIAL AS ASSIGNED BY THE INSTRUCTOR WILL BE REQUIRED TO LEAVE THE ROOM.** Do not come to class and interfere, hold back, or distract students who come to class prepared to learn. **CELLULAR PHONES, PAGERS AND OTHER PERSONAL ELECTRONIC DEVICES MUST BE DEACTIVATED DURING ALL CLASS AND LABORATORY SESSIONS.**

NO MAKE-UP EXAMINATIONS are allowed. If you are unable to attend a scheduled examination, appropriate arrangements must be made with the instructor **IN ADVANCE.** Because of their content, only some laboratories may be made-up. All laboratory make-ups must be completed within **three class days.**

E.. Discussion / Reaction Papers: To help the student better understand the role of science in psychology, a set of three discussion / reaction papers are prescribed. These papers should be **THOUGHTFULLY PREPARED** and **INTEGRATIVE** of what the student has learned. The papers should be **NEATLY TYPED IN DOUBLE-SPACED FORMAT, CAREFULLY PROOFREAD** (very important!) and **CHECKED** for spelling and grammatical errors. Macintosh and Windows computers with Microsoft Word® word processing software and Internet access are available to all students in several locations on campus. Students should make themselves familiar with the location of these resources and their hours of availability in the first week of class. Discussion papers are due at **BEFORE CLASS** on the dates specified in Section IV. As a primary purpose of the paper is to prepare students for the in-class discussion of the topic, papers will not be accepted after the respective due dates and times. Discussion paper topics and submission format requirements are described in Section V.

F. Laboratory Reports: A set of laboratory reports are assigned and typically are due at the end of the laboratory session but may be due at the **BEGINNING OF THE CLASS** following the lab.

Many laboratory reports will be done in groups as part of the weekly lab process. Reports not turned by either the end of lab or (when preapproved) at the beginning of the next class will be considered late. Late laboratory reports will be accepted with a 10 percent (one letter grade) penalty per each 24 hour calendar period. Laboratory report formats are described in Section V.

G. Office Visits: The student is encouraged to **SEEK HELP** whenever he/she runs into problems with this course. For help over and beyond in class questions, get an appointment with the instructor. You can contact the instructor via email or just schedule an appointment by going to <http://rpadgett.butler.edu/sched.html>. Students must use their Butler University assigned email and Google calendar accounts to ensure both delivery and confidentiality. The instructor does not respond to course issues based on emails from off campus sources.

IV. Course Schedule and Assignments

Week	Date	Topic	Lab
1	11-Jan	Course Introduction; Falsification and the basic Philosophy of Science	Classic Psychophysics Method of Limits (Ex. Müller-Lyer)
2	18-Jan	Basic Research Design; Measurement Scales; IV and DVs	School Spirit Lab
3	25-Jan	Within and Between Group Studies	Analysis of School Spirit
4	1-Feb	Hypothesis Testing	Random Assignment Lab
5	8-Feb	Non Statistical Aspects of Design Exam I	Levels of Processing
6	15-Feb	Reliability, Validity and Utility	Data Analysis: Levels of Processing
7	22-Feb	Test and Survey Development	Personality Test Development Lab
8	29-Feb	Behavioral Observations: Event and Time Sampling Methods Exam II	Measuring aggressive behavior Lab
9	7-Mar	Spring Break	
10	14-Mar	Mental Chronometry (Reaction Time Measures)	Sternberg Memory
11	21-Mar	Perception and Attention (Classical Psychophysics)	Implicate Association Test (IAT) Lab
12	28-Mar	Signal Detection Methodologies	Subliminal Perception
13	4-Apr	Scaling Methods	Police Officer's Dilemma Lab
14	11-Apr	Physiological Measures	Lie Detection Lab
15	18-Apr	Exam III Neurophysiological Measurements	Final Lab Write-Ups
16	25-Apr	<i>Final Comprehensive Exam</i>	
Fri, April 29, 8:00-11:00 AM			

V. Laboratory Reports Requirements

The discussion papers (DPs) and laboratory reports (LRs), as described in Section III of this syllabus, at the beginning of class (DPs) or lab (LRs) period on the dates listed in Section IV. The student will find doing these projects very interesting and integrative of what she/he has learned if she/he starts on them early and puts considerable effort and serious thought into them relative to the material covered in the course. The format and content of these reports are precisely prescribed.

A. Format: All papers must be type using Microsoft Word® on a Macintosh or Windows computer and must be written following the guidelines specified by the American Psychological Association's *Publication Manual* 6th Edition. This format will be covered in class and much of the evaluation will be based on how well the format is followed. The Butler University library has a handout of basic information about the format and referencing style that may also be helpful.

B. References: All sources used must be appropriately referenced. Outside references should be referenced as specified in the *Publication Manual*. It is the student's responsibility to be familiar with the College of Liberal Arts and Sciences' policy on cheating and plagiarism, it will be **STRICTLY ENFORCED**. In such cases, the instructor will file a report in the student's record with the Dean of Student Affairs and reserves the right to impose grade penalties, including failing a student in the course, for any violation of the policy.

C. Submission Requirements: Discussion papers and laboratory reports must be bound or stapled, neatly typed in double-spaced format on standard paper. The word count for the document must appear on the first page. Electronic submissions for many assignments may also be required. The instructor may hold submitted papers indefinitely, so students are encouraged to keep a copy of their papers for their own records. Any written work submitted by an enrolled student in fulfillment of a course requirement is subject to review for possible copyright violation and plagiarism. The instructor reserves the right to submit all student work to any and all Internet databases (e.g., Turnitin.com) for review and such work maybe added to their databases for future comparison to other submitted work. A student's enrollment in the class signifies their agreement to these terms and conditions.

E. Discussion Paper Description: In the discussion papers, the student should briefly describe the reading they are assigned. On the occasion where students find their own readings, be certain to give a complete enough description so that others who may not have read the work can understand your topic. Following the description, you should **CRITICALLY EVALUATE IT IN LIGHT OF COURSE MATERIAL**. How is the source related to material presented in the course? What does the source tell you about science, human behavior, or the field of psychology. What was your reaction to the situation? Was the information presented consistent with similar phenomenon as described in class? For example, if your writing about a research study you read, what are the defining measures and procedures used? How was the data analyzed and presented? The exact nature of the discussion and evaluation will, of course, depend on your topic but these general questions should provide some initial guidance. The student should be prepared to **DISCUSS THEIR PAPERS ORALLY IN CLASS** on the due dates. These in-class discussions can make a significant contribution to the student's final participation grade so it is important that you attend these sessions (see section VII for more information).

F. Laboratory Description: The laboratory reports should be "APA style" summaries of the experiments conducted in the lab. The exact nature of the papers required will vary across the semester, but generally all will require a well-written introduction, a detailed description of the methods and results, and an integrative discussion section. The result section must include all statistical analyses performed and any necessary tables and figures. The instructor will provide

significant guidance for all sections, especially on the early reports. Grading of these assignments will be based primarily on content with a significant percentage allotted to APA style formatting. **Students must complete every laboratory project to successfully complete the course.** See Section VII for more information.

VI. Optional Research Participation

All students enrolled in this course may gain extra bonus credit toward their final grade through experimental participation opportunities, if and as they become **AVAILABLE** during the term of enrollment. There are several ends to be gained by experimental participation:

- 1) It gives the student an opportunity to view on-going research to learn more about the nature of psychological research.
- 2) Learning more about conducting research may motivate the student to conduct their own research at a later date.
- 3) The student will be contributing her/his part to the advancement of scientific knowledge in this field.

If Psychology Department approved research is scheduled during your enrollment in this course, you may earn bonus credit for participating. Students who wish to participate in any extra credit opportunities must register for participation on Butler University's Psychology Research Participation System at <http://psych-research.butler.edu>. This system has a listing of available opportunities and information about how you can participate. You will receive credit **ONLY FOR APPROVED** research projects. The description will briefly outline the participant's task in the research and the amount of time the experiment will take. *Do not sign up to participate in an experiment unless you really plan to attend.* Students who fail to show up or do not at least notify their experimenters via the sign-up system IN ADVANCE risk loss of credit. Students may earn 3 bonus points for every hour (maximum of 4) they participate for a total of 2% bonus credit. See Section VII for more information. The system should keep careful track of all studies for which you participated, but students are highly encouraged to keep careful notes about their participation. Computer systems can fail and careful records will ensure your full credit for participation.

VII. Grading

Performance evaluations will be affected by the four exams, homework assignments, discussion group evaluations and lab reports. Class attendance and participation can also have a substantial effect hence truancy may lead to serious grade problems.

A total of 500 points may be earned on the exams. The first three exams are worth 100 points each. The final exam will be worth 200 points. The three discussion paper evaluations are worth a total of 75 points (25 points each). **THE DISCUSSION PAPERS ARE GRADED ON A LETTER GRADE BASIS ONLY.** Letter grades will be converted to point equivalencies. The laboratory reports for will be worth 25 each for all required labs. The exact number may vary, but at least 8 lab reports will be required. Every member of a group will receive the same grade for group laboratory reports unless members of the group discuss with me why this should not be true. An additional 25 points will be allocated across all homework assignments.

Students who do any of the optional research projects will have the points added to their total. An additional 12 points may be earned by research participation. Students with excessive truancy may have their final grade lowered and may be subject to course failure at the instructor's discretion. Final

grades in the course will be based on the following scale:

- A = 90% or more of total points
- B = 80% to 89% of total points.
- C = 70% to 79% of total points.
- D = 60% to 69% of total points.
- F = below 60% of total points.

Students in the upper 2% of a range will receive a + added to their final grade while students in the lowest 2% of a range will have a - added to their final grade. For example 88-89.99% is a B+ and 90-91.99% is an A-. Sorry, the university does not utilize the A+ grade. The instructor reserves the right, at his discretion, not to assign the C- grade.

VIII. Disclaimer

While every attempt was made to ensure that this syllabus is accurate and complete, some errors or omissions may remain. The instructor reserves the right to make any corrections or adjustments to this syllabus if circumstances dictate its necessity. Any such changes will be announced in class.

X. Copyright Notice

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