

Psychology 211
(Section 211A)

Experimental Methods and Data Analysis I

Spring 2015

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Class meets on M/W (8:55 - 11:10 am) in PPHAC 331/Reeves 212

Office hours:

Monday/Wednesday: 8:30-8:50; 11:15-11:40

Other hours available by appointment—please e-mail me to set up an appointment.

Catalog Course Description

Scientific method as the means through which knowledge advances in the field of psychology. Developing and researching hypotheses, collecting data, testing hypotheses using appropriate statistical techniques, interpreting and reporting statistical results. Research methodology, descriptive statistics, and inferential statistics, as well as use of the computer software Statistical Package for the Social Sciences (SPSS) to analyze psychological data. Students will be responsible for researching a topic and creating a research proposal. Prerequisite: Psychology 120.

Course Overview

This first course in a two-course sequence is designed to introduce you to the scientific method as the means through which knowledge advances in psychology. In it you will learn how to develop and test hypotheses, collect reliable data, use some basic statistical techniques, and to interpret and report the results of statistical tests. You will also begin to learn the skills and tools used by psychologists in their work, including descriptive and inferential statistics, spreadsheets and graphing, the Statistical Package for the Social Sciences (SPSS), and writing in American Psychological Association (APA) format. All students will complete a research proposal for a research project they will conduct during the second course in the sequence. This course is a writing and computing intensive course for the major in Psychology. Prerequisite: PS 120.

Important Course Information: The Department of Psychology implemented a policy stating that students enrolled in PSYC 211 *must earn a grade of C or higher* in order to declare themselves a Major in Psychology and enroll in the companion course, PSYC 212 (Experimental Methods and Data Analysis II). There are no exceptions to this policy. Both PSYC 211 and 212 are required in order for a student to major in psychology at Moravian College. PSYC 211 alone serves as a prerequisite to most of our upper level classes.

Course Objectives

By the end of this course, you should be able to:

1. Appreciate the strengths and weaknesses of scientific method as a way of knowing
2. Understand and apply the APA Principles of Ethical Conduct to the research process
3. Think critically about all phases of the research process in order to critique your own research and the research of others (i.e., recognizing potential design flaws), as well as to become a better consumer of information
4. Use appropriate online (e.g., PsycINFO) and library resources in the research process
5. Design a study to answer a specific question of your own choosing and interest
6. Understand the connection between research design and statistical analysis
7. Use basic statistical procedures appropriately, involving both hand calculation and applying SPSS (Statistical Package for the Social Sciences), to summarize and analyze data, as well as graphing data using SPSS or Excel
8. Write a research proposal following the guidelines set forth by the *American Psychological Association Publication Manual* (i.e., APA format)

See page 9 for required competencies for completing the course.

Required Texts

[**Note:** You will use the same course texts in the Fall 2015 semester as you will in Spring 2015. You **must** purchase both textbooks as they will be used for classroom activities and, perhaps, open-book portions of exams. You should bring both texts to class every day.

Please also be sure to bring a calculator with a square root function to class each day as well. **You may not use your cell phone as a calculator.**]

Davis, S. F., & Smith, R. A. (2005). *An introduction to statistics and research methods: Becoming a psychological detective*. Upper Saddle River, NJ: Pearson.
ISBN: 0-13-150511-4

American Psychological Association. (2010). *Publication manual of the American Psychological Association* (6th ed.). Washington, DC: Author. ISBN: 1-4338-0562-6

Additional readings may be added that are not currently on the class schedule. Such readings would be either handed out during class or made available on the class Blackboard site.

Obtain a calculator. Please purchase an inexpensive (\$5 - \$10), basic calculator for this class, one that has some memory functions and a square root key. Do **not** purchase a sophisticated, statistical or “scientific” calculator for this class. You will be performing simple, straightforward hand calculations using the calculator. Programmed analyses will be performed as we learn to use SPSS (Statistical Package for the Social Sciences).

Expectations for the Course: Preparation and Commitment

1. As a prerequisite for upper level courses in psychology and due to its rigor of combining statistics and methodology, you **must** be willing to give preparation for this course a high priority in terms of your time management.
2. You **MUST** have basic math skills. If you have difficulty with math, you may need to rethink taking this course at this time. Help is available through Learning Services (in Academic Support Center on 1st floor of Monocacy Hall; 610-861-1401).
3. You should allocate a time and place to study for this course. Your studying will not be successful if done in 10- or 15-minute segments, late at night, or at the last minute. I recommend several study sessions of 1 hr per week (in keeping with research on learning), although what is needed may vary from individual to individual. This time is **in addition** to the time required to complete assignments, homework, independent research work, and group study sessions.
4. Form study groups and meet on a regular basis in order to capitalize on different perspectives, levels of understanding, and examples.
5. You **MUST** read before class or you will not fully comprehend the lectures. Your reading and studying goal should go beyond comprehending—you must eventually be able to speak the language of statistics and research.
6. One prerequisite for the course is a basic writing course (FYS, WR100, or equivalent). Therefore, I expect you to display *strong* writing in your assignments and projects. Spelling, grammar, and structure are always relevant, and will therefore be a large component in the grading of assignments and the research project.
7. **USE THE APA MANUAL AND WRITING CENTER AS VALUABLE RESOURCES!** The Writing Center is located on the 2nd floor of Zinzendorf Hall, where you can sign up for an appointment with a tutor or try your luck at a walk-in appointment. If you are unable to access the Writing Center, you can set up an appointment at an accessible location by calling 610-861-1392. Typically, there are Psychology majors who work at the Writing Center—when I get details on this semester’s hours and tutors, I will share them with you.
8. Commit to the policies, procedures, and spirit of the syllabus. Please consult the relevant parts of the syllabus when necessary before discussing concerns with me.

In the spirit of fairness to ALL students, I must be consistent with the policies laid out in this syllabus. I ask you to be familiar with and respectful of those policies.

COURSE REQUIREMENTS

Attendance and Participation

I expect attendance at **all** regularly scheduled class meetings. Success in this class requires constant attendance—missing even 1 class can put you far behind. Missed classes will lower your grade because lectures will cover some material that may not be covered in the assigned readings, and you will be held responsible for this material. The lectures are intended to supplement the readings. As such, the lectures will typically emphasize the most central aspects of the chapter and/or discuss particularly difficult concepts. The lectures will presuppose familiarity with the reading assignment for that lecture.

Participation, too, matters. I strongly encourage you to ask questions at any time during the class to help clarify points. Discussion of any portion of the class materials is encouraged and welcomed.

Excessive absences will be dealt with on an individual basis. If special circumstances arise that will cause you to miss more than one or two classes, you should contact the Learning Services Office. Please make *every* effort to be on time and not to leave early. I will do my best to start and end class promptly. Please do not disrupt the class when you enter or exit.

AVOID cell phones in class!! Research shows that using your cell phone lowers your attention and learning of material in class. Perhaps even worse, it is just as distracting and damaging to your classmates.

Examinations

There will be 3 exams, as noted in the schedule. The first 2 exams are non-cumulative and will be comprised of multiple-choice, definitional, short answer, essay, and/or computational questions. The final exam will have cumulative portions. Portions of exams *may* be open book.

I *dislike* giving makeups. Thus, I expect your attendance on exam days. If unavoidable circumstances (legitimate reasons only) force you to miss an exam, please contact me beforehand or as soon as possible **before the next class meeting**. My goal is to give exams back at the next class period, so makeups should occur quickly. It is possible that I will choose to count your cumulative final twice to make up for a missed exam due to a valid excuse. You may not use the final to replace a missed exam if you skipped an exam without legitimate reason.

HW & Out-of-Class Assignments

There will be some in-class and some take-home assignments due over the term. All take-home assignments—except for calculations—should be typed, proofread for clarity and grammar, spell-checked, etc. Unless otherwise noted, all take-home assignments will be due at the start of class. Late assignments will not be accepted (there are no exceptions to this rule—please don't ask). If you miss an in-class assignment due to an unexcused absence, you cannot make it up. Excused absences will be considered on a case-by-case basis.

Assignments will be announced in class on a day-by-day basis. Assignments will include statistical computation problems, both in-class and out-of-class SPSS laboratories, and short writing assignments. *You can drop your lowest homework grade (missing one means it is dropped).*

The APA Research Proposal

Across the semester, you will be working on a research proposal—a design for an experiment or other empirical investigation—for a project that you will conduct from start to finish next semester (Fall 2015). The proposal has several parts, each building upon the other. Your research proposal, which is due toward the conclusion of this semester and must be written in APA style, will have a title page, abstract page, an introduction, Method section, potential Results section, Reference list (containing *at least* 8 empirical journal article references). [Relevant information on APA style and these paper components is available in the *Publication Manual* and in the We

will discuss APA style in class and it is highlighted in your texts. Portions of your proposal will be submitted in advance and will be ungraded (you will, however, receive comments); other parts will be graded. If you fail to submit a given part of the proposal when it is due, your final grade will be affected. We will also share rough drafts of proposal materials with one another in class.

Late Policy for Course work

Late homework assignments and ungraded portions of the proposal will *not* be accepted. There are no exceptions to this rule. Late papers (i.e., graded portions of the proposal or the proposal itself) will be accepted for no more than three days after the due date. The penalty for a late paper is 1 complete letter grade reduction for each day a paper is late (the first drop in a grade occurs once I collect the assignment, usually at the start of class). After the three days are over, a grade of “0” will be given for the missed assignments. No exceptions will be made to this rule, even in the case of legitimate and documented excuses, technical difficulties (e.g., computer or car), weather issues, and personal problems. *You should be working on your project on an ongoing basis so that you will always have something to submit.* You may *not* e-mail an assignment to me unless we discuss it and I inform you that I will accept it. I want hard copies of all work to be submitted by you in class. For example, I will not accept an assignment that is e-mailed to me while the class is meeting.

Plagiarism and Cheating

The Moravian College faculty has become increasingly concerned by the problem of plagiarism on campus. The Psychology Department's policy on this subject is important for students to understand. Simply put, plagiarism is the intentional misrepresentation of someone else's work as your own. This includes such diverse situations as quoting directly from a published work without giving the author credit, having your roommate write the paper, “borrowing” from fraternity or sorority files, buying a paper from a professional service, and so on. The policy of the department is that the student must keep all note cards and rough drafts on a paper until the grade is assigned. The instructor may request these materials, along with the source materials, at any time. Evidence of plagiarism will be dealt with in accordance with the College policy on academic honesty, copies of which are available at the departmental secretary's desk.

Please visit: <http://www.moravian.edu/studentlife/handbook/academic/academic2.html> to view the policy.

Disability Issues

Students who wish to request accommodations in this class for a disability should contact Ms. Elaine Mara, Assistant Director of Academic Support Services for Academic and Disability Support at the lower level of Monocacy Hall, or by calling 610-861-1401. Accommodations cannot be provided until authorization is received from the Academic Support Center.

Help with Course Material

Doing well in this course is not difficult if you are diligent, organized, and if you spend a reasonable amount of time outside of class reading, doing homework, etc. I am happy to discuss the course material with you, but you must seek me out during my office hours or schedule an appointment. It is your responsibility to let me know if you are having difficulty with the

material. As much as I would like to, I cannot read your mind—you must ask for help or let me know how I can help you. *Don't wait.*

Grading. Final grades will be weighted as follows:

Exams:

In-Class Exams (2 x 15% each)	30%
Cumulative Final	15%

APA Paper:

Possible Research Topics	5%
Outline Draft w/ APA references	5%
Introduction Draft	5%
Method Draft	5%
THE Research Proposal	20%

Other:

HW & Lab Assignments	10%
Attendance & Class Participation	5%

Note: Failure to turn in any of the above assignments on time will result in a grade deduction.

Extra Credit:

You may earn up to 3 points extra credit applied to your final exam grade by participating in research projects through the department's subject pool. One point may be earned for each ½ hour of participation.

I will use the following grading scale for course work:

<i>Letter</i>	<i>Score</i>	<i>Grade Range</i>
A	100	95-100
A-	92	90-94
B+	88	87-89
B	85	83-86
B-	81	80-82
C+	78	77-79
C	75	73-76
C-	71	70-72
D+	68	67-69
D	65	63-66
D-	61	60-62
F	0	0-59

COURSE SCHEDULE

EXPERIMENTAL METHODS & DATA ANALYSIS I

Spring 2015

We will cover the course material according to the schedule below. You are responsible for all material presented in class (we will cover non-text material on many days) and in the text (regardless of whether we cover it in class). In this course, we will focus on psychology research—the scientific study of human behavior—and statistics and those two topics combine and intersect. Readings should be completed before class on the dates noted herein. I reserve the right to alter the syllabus should the need arise.

DS = Davis & Smith

PM = *APA Publication Manual*

Date	Class Topic	Reading Material
M Jan 19	Course Organizational Meeting	
W Jan 21	The Scientific Method	DS Ch 1
M Jan 26	The Scientific Method (cont.)	DS Ch 1
<i>Monday, January 26 Final Day for Course Changes</i>		
W Jan 28	Thinking about Research Topics	DS Ch 2
M Feb 2	Thinking about Research Topics (cont.)	DS Ch 2
W Feb 4	Individual Meetings about Research Topic	Handout material
M Feb 9	Library Research Workshop	Meet in Reeves
W Feb 11	Reading & Writing in Psychology	DS Ch 20/14* PM Ch 1, Fig 2.1 Blackboard article
M Feb 16	Ethics in Psychological Research	DS Ch 3
W Feb 18	Ethics (cont.)	DS Ch 3
M Feb 23	Intro: Statistics & Research Design Refining Research Topics	DS Ch 10
W Feb 25	EXAM 1	

M Mar 2	Reading & Critiquing Research Bring outline w/ APA style refs to class	DS Ch 17
W Mar 4	Experimental Research	DS Ch 5
<i>Friday, March 6 Mid-Term</i>		
<i>Mon/Wed March 9 & 11 SPRING BREAK</i>		
M Mar 16	Experimental Research (cont.)	DS Ch 5
W Mar 18	Frequency Distributions	DS Ch 4 (pp. 66-74)
M Mar 23	DRAFT Proposal Writing Workshop *bring draft of your Introduction to class	DS Ch 20/14* PM Ch 1, Fig 2.1 Blackboard article
W Mar 25	Visual Displays/Graphing	DS Ch 4 (pp. 74-80)
M Mar 30	Central Tendency	DS Ch 4 (pp. 80-88)
W Apr 1	Catch-up Day <i>Submit Introduction</i>	
M Apr 6	EXAM 2	
W Apr 8	Variability	DS Ch 6 (pp. 127-137)
M Apr 13	DRAFT Proposal Writing Workshop *bring rough draft of your Method to class	DS Ch 20/14* PM Ch 1, Fig 2.1 Blackboard article
W Mar 15	Sampling & Probability	DS Ch 9
M Mar 20	Proposal discussion <i>Submit Method</i>	
W Mar 22	z-scores	DS Ch 6 (pp. 137-148)
M Mar 27	More Experimental Issues <i>Final Proposal Due</i>	DS Ch 7
W Mar 29	Catch-up Day/Looking Forward to PSYC212 Course Evaluations	
M May 4	FINAL EXAM (1:30 p.m.)	

The following outcome competencies further specify expectations of student abilities:

Required Competencies for Students Completing PSYC 211

Competency Area 1: Research Methodology

At the conclusion of the course, the student should be able to. . . .

- Understand scientific method as distinct from other ways of knowing
- Identify from an abstract or short description of an empirical study: the relevant theory, hypotheses, independent & dependent variables, operational definitions of variables, study design, potential confounding variables
- Critique a study with respect to its reliability & validity, and suggest potential improvements to a flawed study design
- Distinguish between a population and sample of scores
- Describe the ways of obtaining a random sample & merits of each type of sample
- From the description of a study, identify ethical concerns & suggest potential solutions
- Describe the key points that must be included in the Informed Consent for a study

Competency Area 2: Statistical Concepts

At the conclusion of the course, the student should be able to. . . .

- Identify the scale of measurement used to measure a variable
- Identify and compute the appropriate descriptive statistics for a distribution of scores
- Explain the common terms in a statistical formula
- Understand the distinction between theoretical and computational formulas
- Explain the concept of the standard normal distribution
- Compute & interpret z-scores and understand their use in psychology
- Compute & interpret the strength & direction of a correlation coefficient
- Explain, give an example, & sketch the scattergram for each of the following: positive correlation, negative correlation, nonlinear correlation, no correlation

Competency Area 3: Computer Applications

At the conclusion of the course, the student should be able to. . . .

- Code and enter a multiple variable data set using SPSS
- Compute and interpret SPSS output for Frequencies and Correlation
- Use Microsoft Word to produce APA format documents

Competency Area 4: Writing & APA Format

At the conclusion of the course, the student should be able to. . . .

- Identify & correct errors in APA format for references & citations within the text
- Identify & correct common errors highlighted in the APA Manual in the format, structure, grammar and style of manuscripts