

Experimental Methods and Data Analysis II
Spring 2011

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Psychology 212

Statistical techniques that build on concepts introduced in Psychology 211. Mastering inferential statistics and nonparametric statistical procedures. Students will carry out the research study outlined in their proposals from Psychology 211 and complete an APA-style research paper. This course must be taken in the semester immediately following Psychology 211 and with the same instructor. Prerequisite: Psychology 211

Relevant Quotes

“The true scientist does not find security in the knowledge which has been accumulated, because s/he knows that any day that knowledge may be contradicted by some new finding. Her/his security lies in the SCIENTIFIC METHOD, a PROCESS of arriving at approximations of the truth.”

C. Rogers

“The real purpose of the scientific method is to make sure that nature hasn’t misled you into thinking you know something you don’t actually know.”

R. Pirsig

“One thing I have learned in a long life: that all our science, measured against reality, is primitive and childlike – and yet it is the most precious thing we have.”

A. Einstein

“We have a society which is built on science and technology and which uses science in every one of the aspects of national life, and in which the public, the executive, the legislature and the judiciary have very little understanding of what science is about. This is a clear disaster signal. It has to be suicidal.” C. Sagan

Course Objectives

1. To have you develop an understanding of, a sophistication with, and an appreciation for the scientific method.
2. To provide you with active experiences in the constructive application and evaluation of research designs in psychology.
3. To stimulate and reinforce divergent thinking in each of you by:

- * establishing a classroom climate that encourages divergent ideas;
 - * communicating an attitude which regards scientific thinking as a creative endeavor;
 - * instilling in each of you a confidence in your ability to solve problems in psychological research design.
4. To have you come to an appreciation of the role of statistics in scientific research and develop an understanding of the proper usage and limitations of each statistical tool and the ability to interpret them correctly.
 5. To have you successfully master perhaps the most vital course in which you will enroll as a Psychology major or minor.

Course Materials

Required

Dunn, Dana S. (2004). *A Short Guide to Writing About Psychology*. N.Y., Pearson.

Heiman, Gary W. (2001). *Understanding Research Methods and Statistics* (2nd ed.). N.Y.: Houghton Mifflin Company.

Publication Manual of the American Psychological Association. (2009). (6th. ed.). Washington D.C.

A good calculator, which I invite you to bring to every class. This calculator should have the ability to do square roots, a summation key, and a memory capacity.

Summary of Grading Criteria

Test 1	15%
Test 2	15%
Test 3	15%
Final	15%
Homework & out of class assignments	10%
Class attendance & participation	10%
Research Project Presentation	5%
Research Project Paper	20%

Grading Mechanics

Our task for this course is to develop a sophisticated awareness of the scientific method and the ability to apply it! Because of the perceived difficulty level of this material the grading structure has been designed to have multiple inputs to give you the best chance to demonstrate mastery of the material. Opportunities for extra credit will also be announced in class.

Tests

The tests will be comprehensive and encompass all assigned reading and material presented in class up to that point in time. As we move further along in the course the second test will primarily focus upon the material covered in that part of the semester. Please note that all later material builds on the preceding content. You need to build a solid foundation early on in the course in order to master the course content. The precise format of each test will be explained to you in class as the test date approaches. Test dates appear on the class calendar.

Final Exam

The comprehensive final exam serves as the last opportunity for you to demonstrate mastery of this material. It is scheduled for Monday, May 2nd at 1:30 pm.. This exam serves as an automatic make-up exam for a test that was missed due to an approved legitimate excuse earlier in the semester. As an additional incentive to perform well on this test if the grade is higher on this final exam than on your lowest test grade it will be used instead of the test grade in computing your final course average. If the final exam grade is lower than your lowest test grade then it will just be weighted at the assigned weight of 15% input into your final grade.

Quizzes

On-line quizzes for most chapters in our primary textbook, *Understanding Research Methods and Statistics*, will be assigned in class. You can earn bonus points on your tests by performing well on these quizzes.

Make-up Tests

It is expected that you will be present for all tests. If you are too ill to take the test, please inform me before the test (Phone numbers are on the first page.) and verify the illness with a written doctor's excuse. You will then plan to take the final exam as a mandatory make-up test.

Homework

One of the best ways to learn and to gain a thorough understanding of this material is to apply it, and therefore homework assignments will occur systematically throughout the semester. Homework assignments are also an excellent way for you to discover areas that you need assistance with in order to master the material. Please feel free to visit me during office hours if you are having difficulty with a particular

assignment. Some of these assignments will be announced in class so make sure that you pair up with a fellow student who can fill you in on that rare occasion where you might miss a class. Some of the homework assignments are deliberately designed to help you in learning how to conduct your own original research and also to learn how to write it up in APA format. I will also use Blackboard as a mechanism for making homework assignments. It is your responsibility to check this class feature on a regular basis.

Class attendance and participation

Attendance and participation at all regularly scheduled classes is both desired and expected. Our class size has been deliberately limited in order to allow our classes to be interactive with you playing an active role in your own learning. We will explore material in class that is not covered in our textbook. In addition, class problems may be assigned as homework. You are expected to have all homework assignments and reading specified on the class calendar done **before** class meets. Missing class is not an acceptable excuse for missed assignments.

In order to earn a superior grade for this component of the course you must demonstrate a consistent high level of engagement with the material during class, i.e. volunteer to participate regularly, contribute regularly to class discussions, come to class prepared, and be willing to help your classmates also master the material. Passive participation, i.e. attending all classes, taking good notes, being alert in class, avoiding sidebar conversations, and demonstrating non-verbal cues that indicate a sincere effort to master the material. Will be reinforced with an above average grade.

Research Paper

This paper, in APA format, is due on 4/14. You will find that appendix C, Empirical research Reports in Psychology, in the Heiman textbook will be very helpful in writing this report. In addition to the Dunn text you will find that the APA Publication Manual will also be especially useful.

NOTE: Late materials will be devalued 10 points for each day late. Assignments must be typed using APA format and style. Grades will be based on content and style. Content refers to the information presented, the use of appropriate references, a demonstrated understanding of the problem studied, the appropriateness of the analysis, and the quality of the discussion. Style refers to how well the content is presented including grammar, punctuation, spelling, and adherence to APA format.

Note:

Please note that it is within the instructor's purview to apply qualitative judgment in determining grades for any assignments and for the course final grade.

Please note while I will try to hold to the flow of the syllabus it is subject to change over the course of the semester.

Students with Disabilities

Students who wish to request accommodations in this class for a disability should contact Mr. Joe Kempfer, Assistant Director of Learning Services for Disability Support, 1307 Main Street (extension 1510). Accommodations cannot be provided until authorization is received from the office of Learning Services.

Human Participants for Psychological Research

There is an approved college wide policy with respect to use of human subjects in research projects. This policy spells out the correct ethical procedures to follow. We will go over this policy in detail in class at the appropriate time in the semester.

In addition, since many of you will be using the departmental participant pool it is important to know and follow the departmental guidelines for their use. Note that some of the below may be modified as a function of the new college wide policy. The departmental guidelines are:

Participants are recruited via sign-up sheets on the bulletin board directly across from the departmental secretary's desk. All sign-up sheets must include: a brief title and description of the project and what will be expected of the subject; the name of the experimenters and how to contact them; the approximate length of time the subject will need to commit (minimum is 30 minutes); the time, date, and place to which the subject will need to report to participate; and the initials of your instructor which certify that the sign-up criteria have been met and that the design meets ethical standards.

Participants who complete your study are given the bottom half of the informed consent form, completed and signed by you, the experimenter. This form is then presented to the departmental secretary with the course noted that the subject is applying the extra credit to. Subjects who fail to report as scheduled should be reported to me and their names will be forwarded to the instructor of their course for appropriate action. Please also keep a master list of all subjects that have participated in the experiment and turn this in with the final project. Those students who delay the data collection process should expect to have to recruit volunteers outside of the subject pool in order to complete their experiments.

Student researchers who fail to be present for a scheduled session with subjects, or who fail to follow the subject pool guidelines, will risk the loss of subject pool privileges.

Blackboard Course Site

We will continue to use Blackboard as the primary mechanism for communicating with one another outside of class. We will also use Blackboard for each chapter quiz.

Policy on Plagiarism

The Moravian College faculty have become increasingly concerned about the occurrence 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 or paraphrasing 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. Students are to keep all notes and rough drafts of 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.

Office Hours

Monday	1:30 – 2:30
Tuesday	10:00 – 11:00
Wednesday	1:30 – 2:30
Thursday	10:00 – 11:00
Friday	by appointment

If you need to see me at some other time, both office and home phone numbers are listed on the first page. My email address is also listed there. Please contact me and we will arrange for a mutually convenient time to get together.

Class Calendar

Our class calendar and assignments will continue to be posted on Blackboard on a weekly basis.

1/18 ___ Review of PS 211 final, return of draft of project,
and review of PS 212

1/20 ___ SPSS workshop and development of personal time line for
project

1/27 **Reading & Homework Assignment** ___ Please read
Chapter 12 - Probability and Making Decisions

about Chance

Events - Due 1/25

Homework: Chap 12 #s 14, 20, 24, & 26 - Due 1/27

Bonus Quiz for Chapter 12 - 1/27

2/1 Reading & Homework Assignment ___ Chapter
13 -

Overview of Statistical Hypothesis Testing: the
Z test -Due 2/1

Homework: Chap 13 #s 12,14, 16, 20, & 24 - Due 2/3

Bonus quiz 2/3

**2/3 Review of materials to be submitted for
HSIRB**

approval ___ In class we will review the
materials that are
required for submission to the HSIRB. These
materials in final
form are due at the start of class on 2/17!

2/8 Reading Assignment - Due 2/8 ___ Please
read Chapter

14: The Single-Sample Study: Testing a Sample
Mean or
Correlation Coefficient .

**2/10 Homework problems for chapter 14 - Due
2/10**

Chap 14 #s 14, 20 & 22 Bonus Quiz for Chap
14 - 2/10

2/15 Test 1 - 2/15 ___

2/17 HSIRB proposal - Due 2/17 ___

2/17 Reading Assignment Due 2/17 ___ Please read
Chapter

15 - The Two-Sample Between-Subjects
Experiment

2/22 Homework Problems - Due 2/22 ___ Chapter 15
#s 16

& 20

Bonus quiz for chapter 15 - 2/22

2/24 Reading Assignment - Due 2/24 ___ Please
read

Chapter 16 The Two-Sample Within-Subjects
Experiment and
the Dependent Samples t-test

- 3/1 Homework Chap 16 - Due 3/1** ___ Chapter 16
#s 18 & 24
Bonus quiz for chapter 16 - 3/1
- 3/3 Chap 17 - Due 3/3** ___ Please read Chapter
17: The One-
Way Between-Subjects Experiment and the One-
Way Analysis of
Variance
- 3/8 - 3/10** ___ No class - Spring Break
- 3/15 Homework for Chapter 17 - Due 3/15**
_ Please
complete problems 21, 22, & 24 in chapter 17.
Bonus Quiz for chapter 17 - 3/15
- 3/17 Test 2 - 3/17** ___
- 3/22 Reading Assignment - Chap 18 - Due 3/22**
Please read and review Chapter 18: The Two-Way
Between
Subjects Experiment and the Two-Way Analysis
of Variance
- 3/24 Homework - Chap 18 - Due 3/24** ___ Please
complete
item #s 13, 24 & 26
Bonus quiz for Chapter 18 - 3/24
- 3/29 Reading Assignments Chap 19 & Dunn - Due
3/29** ___ Please read Chapter 19: Within-
Subjects Experiments
and Other Multifactor Designs.
Please read Dr. Dunn's book on writing up your
results and
discussion sections.
- 3/31 No class due to off-campus review**
- 4/5 Reading Assignment - Chap 20 - Due 4/5**
_ Please
read Chapter 20: Quasi-Experiments and Single-
Subject
Designs.
- 4/7** There will be no formal class on this date. This
time can be

SPSS data devoted to coming in for consultations on your
analysis and for a review of rough drafts of
results and discussion sections of your paper.

4/12 SPSS continued ___

4/14 Reading Assignment - Chap 21 - Due by 4/14
Chapter 21: Chi Square and Other
Nonparametric Statistical
Procedures

4/14 Major Assignment - Paper Due - 4/14 ___

4/19 Homework Problems - Due 4/19 ___ Chapter 21:
Problems 13, 15, & 17 Bonus quiz for Chapter 21
- 4/19

4/21 Test 3 - 4/21 ___

4/26 Presentations of research ___

**4/28 Course feedback & course evaluations &
review
for final**

5/2 212 final at 1:30 pm ___