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PSYX 120.02: Research Methods I

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Introduction to Psychology Research Methods (Research Methods I)

Psyx 120, section 02

Spring, 2017

Course Location and Time

Forestry 206

Tuesday-Thursday, 11:00 AM-12:30 PM

Instructor Information

Instructor: James Michael Brennan

Office: Skaggs Building (SB) 360

Main Psychology Office: SB 143

Email: jamesmichael.brennan@umontana.edu

Office Hours: Monday 11:00 AM-12:30 PM, Thursday 12:30-2:00 PM

Required Text (one of the following editions)

Research Methods in Psychology, Elmes, Kantowitz, & Roediger (**9th edition**), ISBN-10: **1111350744**. Available at for purchase at the UC bookstore and online, and on Mansfield reserve.

OR

Research Methods in Psychology, Elmes, Kantowitz, & Roediger (**8th edition**), ISBN-10: 0534609767. Available at for purchase at the UC bookstore and online, and on Mansfield reserve. (This syllabus and the course have been set up based on the 9th Edition. If you choose to use the 8th Edition, let me know and I can give you a translator for which chapters we will be covering through the semester.)

The text will serve as a reference for most of the topics covered in class. It will also serve as a resource for definitions for some of the key terms tested in the key terms quizzes. Definitions will be provided explicitly in class.

There will be supplemental readings as well, all of which will be provided on Moodle.

Moodle On-line System

Course announcements, additional class materials, and discussion forums will be on the [Moodle](#) site. There you will find a copy of this syllabus, additional readings, all materials needed to complete extra credit assignments, and a discussion board for posing/answering questions about the class. I will also post suggestions for optional readings if you are interested in further information about a particular topic, as well as relevant websites and other resources. [IT Central Help Desk](#): 243-4357 (8am-5pm).

Be sure to use your official UM e-mail address with Moodle. You will need to have and use a university e-mail address and to check it regularly; students must use a university e-mail address in electronic correspondence for this course.

[Textbook website \(contains useful study aids\)](#)

Grading

Your grade in this course is based on a total of 270 points. This is made up for 180 points from your three exams, worth 60 points each; 60 points for 12 Key Term Quizzes, each worth 5 points; and a class project, worth 30 points. There will also be occasional brief in-class exercises that provide extra credit.

Grade Scale

The grade scale in this class uses “plus” and “minus” grades. Note that a grade of C or better is needed for required Psychology courses.

Grade	Percentage \geq	Points for GPA computation
A	93	4.0
A-	90	3.7
B+	87	3.3
B	83	3.0
B-	80	2.7
C+	77	2.3
C	70	2.0
D	60	1.0
F	59 or lower	0

Key Terms Quizzes

There will be a weekly quiz most Tuesdays (for a total of 12 quizzes) on key terms from the previous week’s lectures. Each quiz will be worth five points, for a total of 60 points toward your final grade. Key Terms lists will be posted on Moodle and definitions will be an explicit part of the lectures. You will be expected to provide definitions for key terms.

Exams

There will be 2 midterm exams and a final exam covering the final third of the course. All of the exams are worth 60 points and consist of multiple-choice and fill-in-the-blank questions around key terms and concepts and at least 2 short answer essay questions. The information tested on exams will draw heavily from lectures as well as from the readings.

There are no make-up examinations for individual exams except in cases of true, documentable emergencies. Arrangements to miss an exam must be made before the time of the exam.

Class project

There is also a class project, worth 30 points. Details will be forthcoming later in the semester.

Lecture Topics

Lectures will frequently derive from student questions and supplemental materials. Discussion forums will be available on Moodle. E-mail questions to me the evening before class or use the forum on Moodle if there is a topic from the chapter that you would like for me to highlight or discuss in class. Notes from each week's lecture will be posted on Moodle.

Extra Credit

A number of extra, bonus points will be awarded for attendance and in-class activities.

Course Goals and Objectives

One of the goals of the course is to help the student understand how psychology fits into the larger enterprise of science. We will start with an examination of some of the important characteristics of science: induction and deduction, the importance of theories, the necessity for empirical observations, and the social aspect of science.

We will consider the main methods that psychologists use to gain information about psychological concerns. We will discuss the experimental method, the correlational (relational) method, and some quasi-experimental methods. You will be expected to know the advantages and disadvantages of each method. A technical vocabulary goes with each, and you will be expected to be very well acquainted with the meaning of these terms. Concepts such as internal and external validity, independent and dependent variables, and confounding are used all the time in psychological research, and an understanding of the meaning of the words and how they are applied is essential.

Three widely used experimental designs will be discussed; the between-subjects, the within subjects, and mixed designs. The course will also cover "complex" (multi-factorial) designs. You will be expected to be familiar with the characteristics of each and their advantages and disadvantages. You will be expected to be able to construct a graph that represents data in a meaningful way and to know how to interpret graphs of data from both single variable and factorial experiments.

Statistics are an integral part of the research process and you will be exposed to the very basics of descriptive and inferential statistics. Since this is not a course in statistics, you will not be required to memorize formulae or computed values. But you will be expected to know what these statistical tools do for us and how they help us make rational decisions about data.

Most of the course will be devoted to how to do psychological research, but an equally important question is whether to do the research. Is this research ethical? We will consider ethical issues in research throughout the semester. This is an essential aspect of becoming a critical consumer of research. In addition to ethical considerations, this course aims to enable you to understand and assess the value of psychological research. In order to develop these skills, the course will present ample examples of current psychological research and we will engage this research with a critical eye.

Your mastery of the topics described above will be assessed on tests using a multiple-choice and short-answer format, as well as on the basis of class participation in daily discussions of clinical topics. The questions will tap your knowledge of the meaning of technical terms and your ability to apply these terms in particular situations.

Course Guidelines and Policies

Attendance

Attendance in class is expected. Regular participation in class discussions and engagement in lecture material is necessary to do well in this class. Material tested on key terms quizzes and exams will primarily come from lecture material. Please come to class on time and stay for the entire period. You are responsible for all announcements made in class.

Cell Phones and related technology

Students are expected to practice cell phone and computer etiquette in class. Make sure cell phones and pagers are turned off (or set to silent) during class. Please do not engage in excessive texting or online activity during class; nevertheless, looking something important up and sharing it with the class is still considered somewhat cool. Cell phones use, texting, use of mp3 players, etc. are not permitted during in-class exams.

Schedule Changes

This schedule is subject to change. Students are responsible for knowing about changes in assignments and schedules that may be announced in class, on Moodle, or via e-mail.

Disability Modifications

The University of Montana assures equal access to instruction through collaboration between students with disabilities, instructors, and [Disability Services for Students](#). If you think you may have a disability adversely affecting your academic performance, and you have not already registered with Disability Services, please contact Disability Services in Lommasson Center 154 or call 406.243.2243. I will work you and Disability Services to provide an appropriate modification.

All materials in this course are intended to be accessible. If you have any trouble with accessing any course material, please let me know, or you can contact [Disability Services for Students](#).

Add/Drop

Through the first fifteen (15) instructional days of the semester, students may use [CyberBear](#) to drop courses. For courses dropped by the fifteenth instructional day, no fees are charged and courses are not recorded. Monday, September 19 is the last day to drop, change a section, or change grading options without a drop/add form. After this date, a grade of “WP” or “WF” will appear on the transcript. Petitions to drop will be granted only in documentable emergency cases. Note that course failure, in and of itself, does not constitute an emergency. Please plan accordingly.

Incompletes

Departmental and University policies regarding Incompletes do not allow changing “Incomplete” grades after one year after an “I” has been granted.

Academic Honesty

All students must practice academic honesty. Academic misconduct is subject to an academic penalty by the course instructor and/or a disciplinary sanction by the University.

Plagiarism or cheating of any kind will not be tolerated. Plagiarism is stealing or passing off the ideas or words of another as one's own without properly crediting the source. This behavior is unethical and a violation of the [Student Conduct Code](#). Evidence of either plagiarism or cheating may result in an automatic “F” for that assignment and a deduction of 40 points from the final grade. The instructor also reserves the right to assign an “F” as a final grade if either cheating or plagiarism occurs.

Student Conduct Code

All students need to be familiar with the [Student Conduct Code](#).

Psychology Department Information

The website for the [Department of Psychology](#) has important information pertaining to psychology major and minor requirements, admission requirements, Psych 100, supervised research, etc. If you are a psychology major, or are thinking about becoming one, this is important information for you to review. In addition, the website provides links to sites with information on graduate school admissions, graduate programs, and careers in psychology. If you are at all interested in pursuing graduate study or employment in psychology, you can use these links as a starting place for your research on programs.

Course Schedule

Date	<u>Ninth Edition</u>
Week 1. January 24th and 26th. Overview of Syllabus, An Introduction to Psychological Research	Chapter 1
<p><i>Objectives:</i></p> <p>1) <i>To understand the contributions of research to scientific understanding.</i></p> <p>2) <i>To be able to recognize testable hypotheses, as well as beliefs that cannot be tested empirically.</i></p> <p>3) <i>To be introduced to basic processes, pitfalls, and precautions in conducting research.</i></p>	
<p>First Key Term Quiz - January 31st. The Key Term List is available on Moodle.</p>	
Week 2. January 31st and February 1st. Explanation in Scientific Psychology	Chapter 2
<p><i>Objectives:</i></p> <p>1) <i>To define the basic “scientific method,” and the development of scientific theories or hypotheses.</i></p> <p>2) <i>To describe the roles of induction and deduction in the progression of scientific knowledge.</i></p> <p>3) <i>To be able to recognize and define intervening variables and understand their function.</i></p> <p>4) <i>To understand and criticize criteria for a “good” scientific theory.</i></p> <p>5) <i>To be able to define basic and applied forms of research.</i></p>	
<p>Second Key Term Quiz - February 7th. The Key Term List is available on Moodle.</p>	
Week 3. February 7th and 9th. Conducting Ethical Research.	Chapter 4
<p><i>Objectives:</i></p> <p>1) <i>To know basic information regarding the ethics of human research.</i></p> <p>2) <i>To understand the basic principles of informed consent and understand the functioning of Institutional Review Boards.</i></p> <p>3) <i>To understand arguments both for and against research with animals, and to know basic principles regarding the ethical treatment of animals in research.</i></p>	
<p>Third Key Term Quiz - February 14th. The Key Term List is available on Moodle.</p>	
Week 4. February 14th and 16th. Basics of Experimentation.	Chapter 7
<p><i>Objectives:</i></p> <p>1) <i>To be able to define an experiment and describe the purposes and advantages of experimental research.</i></p> <p>2) <i>To define “causality” and explain how an experiment attempts to test causal hypotheses.</i></p> <p>3) <i>To know the three types of control used in a psychological experiment.</i></p> <p>4) <i>To be able to design and criticize basic experimental designs.</i></p> <p>5) <i>To define independent and dependent variables.</i></p> <p>6) <i>To understand possible sources of spurious “null results.”</i></p> <p>7) <i>To understand the meaning of “internal validity,” various threats to internal validity, and ways to reduce experimental error.</i></p> <p>8) <i>To understand the concept of “external validity” and know about basic threats to the external validity of an experiment and relevant precautions.</i></p>	
<p>Fourth Key Term Quiz - February 21st. The Key Term List is available on Moodle.</p>	
Week 5. February 21st and 23rd. Constructs and the Measurement of Constructs.	Lecture
<p><i>Objectives:</i></p>	

<p>1) To define what a construct is and how it is operationalized. 2) To understand how constructs are used in psychological research. 3) To understand how constructs are measured. 4) To identify and critique constructs.</p>	
<p>Fifth Key Term Quiz - February 28th. The Key Term List is available on Moodle.</p>	
<p>Week 6. February 28th and March 2nd. Exploring the literature of psychology.</p>	<p>Chapter 3</p>
<p>Objectives: 1) To know basic strategies and procedures for searching the social science literature. 2) To understand the basic sections of a scientific article and to know how to approach and criticize these sections.</p>	
<p>(Tuesday): Review for Exam 1 - February 28th (Thursday): Exam I – March 2nd</p>	<p>Exam I -- Chapters 1, 2, 4, 7 and Constructs.</p>
<p>Sixth Key Term Quiz - March 7th. The Key Term List is available on Moodle.</p>	
<p>Week 7. March 7th and 9th. Validity and reliability in psychological research</p>	<p>Chapter 8</p>
<p>Objectives: 1) To know the basic kinds of validity and reliability; to know the difference between validity and reliability 2) To learn basic concepts of psychological measurement: Operationalization, and the assessment of the reliability and validity of a measure. 3) To describe psychological measurement scales, including very basic techniques of psychophysical scaling. To describe forms of psychometric scaling, especially the use of Likert scales.</p>	
<p>Seventh Key Term Quiz - March 14th. The Key Term List is available on Moodle.</p>	
<p>Week 8. March 14th and 16th. Experimental design.</p>	<p>Chapter 9</p>
<p>Objectives: 1) To define and provide examples of basic between-subjects and within-subjects designs, and to describe strengths, weaknesses, and precautions relevant to each. 2) To understand the terms “levels” and “treatments.” 3) To understand the procedures and purposes of random assignment and matching in between-subject designs. 4) To understand the necessity for and techniques for dealing with order effects in within-subjects designs.</p>	
<p>Week 9. March 21st and 23rd. Spring Break - No Class</p>	
<p>Eighth Key Term Quiz - March 28th. The Key Term List is available on Moodle.</p>	
<p>Week 10. March 28th and 30th. Complex design.</p>	<p>Chapter 10</p>
<p>Objectives: 1) To be able to describe and identify “factorial” designs using both between- and within-subjects methodologies. 2) To understand and be able to explain examples of interactions of independent variables. 3) To be able to identify and define “mixed designs” and “multivariate” research.</p>	
<p>Ninth Key Term Quiz - April 4th. The Key Term List is available on Moodle.</p>	
<p>Week 11. April 4th and 6th. Small-n experimentation.</p>	<p>Chapter 11</p>
<p>Objectives:</p>	

1) To understand basic single-case designs, as well as their advantages and weaknesses.	
Tenth Key Term Quiz - April 18th. The Key Term List is available on Moodle.	
Week 12. April 11th and 13th. Confounds.	Lecture
<p><i>Objectives:</i></p> <ol style="list-style-type: none"> 1) To be able to describe what quasi-experimentation is, as well as its importance and drawbacks. 2) To understand research with "subject variables" or "quasi-independent variables." <p>To understand methods of strengthening quasi-experiments, including the use of "nonequivalent control groups."</p>	
(Tuesday): Review for Exam II - April 11th (Thursday): Exam II - April 13th	Exam II -- Chapters 8, 9, 10, 11.
There is no Key Term Quiz for this Week.	
Week 13. April 18th and 20th. Confounds (continued). Observations in Psychological Research and Relational research.	Chapter 5 & 6
<p><i>Objectives:</i></p> <ol style="list-style-type: none"> 1) To be able to describe relational research, and the strengths and weaknesses of this kind of research. 2) To be able to describe and illustrate the use of contingency tables in relational research, and to describe the use of the <u>chi-squared</u> test of independence. 3) To be able to define and illustrate the use of the Pearson product-moment correlation coefficient. 	
Class project (details to be announced) due via e-mail or in Psychology Office (SB 143), Friday, April 21st @ 4:00 PM. There will be time in Class on Tuesday and Thursday to work on your projects and ask questions.	
Eleventh Key Term Quiz - April 25th. The Key Term List is available on Moodle.	
Week 14. April 25th and 27th. Quasi-Experimentation.	Chapter 12
<p><i>Objectives:</i></p> <ol style="list-style-type: none"> 1) To be able to describe what quasi-experimentation is, as well as its importance and drawbacks. 2) To understand research with "subject variables" or "quasi-independent variables." 3) To understand methods of strengthening quasi-experiments, including the use of "nonequivalent control groups." 	
Twelfth Key Term Quiz - May 2nd. The Key Term List is available on Moodle.	
Week 15. May 2nd and 4th. Interpreting the results of research and presenting research results.	Chapter 13 & 14
<p><i>Objectives:</i></p> <ol style="list-style-type: none"> 1) To be able to define and give examples of scale attenuation and regression artifacts. 2) To learn the importance of replication and to be able to describe different types of replication. 3) To define "converging operations." 	
(THURSDAY): Final Exam Review -- May 4th.	Final Exam III - Chapters 5, 6, 12, 13, and 14, and Confounds.
Exam Week, Monday, May 8th - Friday, May 12.	
FINAL EXAM, Tuesday, May 9th, 8:00 AM - 10:00 AM.	
(Same room as class)	