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# PSYX 120.01: Introduction to Psychological Research Methods

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## Psyx 120 (01) Fall, 2013 Syllabus

**Course:** Introduction to Psychological Research Methods, Psychology 120, Section 01

**Time:** Tuesday - Thursday, 12:40-2, Social Sciences 356

**Course Instructor:** Dr. David Schuldberg

**Phone and voice mail:** x4183

**Office:** Skaggs Building (SB) 206

**Psychology Office:** SB 143

**e-mail:** david.schuldberg@umontana.edu

**Office Hours:** TBA

**Professor's website:** <http://psychweb.psy.umt.edu/www/facultyDetails.aspx?id=714>

**Textbook website (contains useful study aids):**

<http://www.cengagebrain.com/shop/en/US/storefront/US;CMGTJSESSIONID=J0JCQd5Kk1t2h4HXSrF1rfFIP5K1qL2GLJclQPWBNLGvLqBW1pxZ!-1473922472!1534167909?cmd=catProductDetail&entryPoint=storefront&cid=APL1&cid=APL1&ISBN=9781111350741&messageType=catProductDetail>

**Moodle on-line system:** Course announcements and additional class materials will be posted on the Moodle site (<http://umonline.umt.edu/>).

Make sure to use your official UM e-mail address with this system. You will need to have and use a university e-mail address and to check it regularly.

**Moodle information:** <http://umonline.umt.edu/>

**IT Central Help Desk:** 243-4357 (8am-5pm); <http://www.umt.edu/it/support/default.php>; [italk@umontana.edu](mailto:italk@umontana.edu)

**Required Text:** *Research Methods in Psychology*, Elmes, Kantowitz, & Roediger (8<sup>th</sup> or 9<sup>th</sup> edition). Available at for purchase at the UC bookstore and on-line, and on Mansfield reserve. (This syllabus and the course have been set up so that you can use any of these two editions of the text. Instructions for using each edition are provided in class.)

The ISBN-10 numbers for these two editions of the text are as follows: 8<sup>th</sup>, 0534609767; 9<sup>th</sup>: 1111350744.

**Exams:** There will be 3 midterm exams and a comprehensive final exam. All of the exams are worth 60 points and consist of 30 multiple choice or true/false items (1 point each) and 2 short answer essay questions (15 points each).

The lowest exam score of the 4 exams (including the final) will automatically be dropped and the three highest exam scores used for the calculation of your final grade. Both lecture and book material will be covered on each exam. The final examination is optional; if you are satisfied with your grade based on the three midterms, you need not take the final. However, a 5 raw point bonus will be added to your grade for simply taking the final.

There is also a class project, worth 30 points.

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

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 (for example, by leaving a message at x4183 or sending an e-mail).

**Other requirements:** Attendance in class is required; please come to class on time and stay for the entire period. Make sure cell phones and pagers are turned off (or set to vibrate) during class. In general, students need to attend class regularly in order to do well in this class.

**Grade Scale:** The grading in this class uses plus and minus grades. Note that a grade of C or better is needed for required Psychology courses. For this reason, the course will not be using the "C-" grade.

There are 210 total raw points possible (not including bonus for taking final or other bonus points); percentages break down into letter grades as follows:

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

**Course 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 toward the middle of the semester.

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

**Reading and Exam Schedule:**

<u>Dates and Readings</u>	<u>Eighth Edition</u>	<u>Ninth Edition</u>
<b>Week 1. August 27, 29.</b> <b>Overview of psychological research</b>	Chapter 1	Chapter 1

*Objectives:*

- 1) To understand the contributions of research to scientific understanding.
- 2) To be able to recognize testable hypotheses, as well as beliefs that cannot be tested empirically.
- 3) To be introduced to basic processes, pitfalls, and precautions in conducting research.

<b>Week 2. September 3, 5 (Sept. 2 Labor Day).</b> <b>Explanation in scientific psychology</b>	Chapter 2	Chapter 2
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*Objectives:*

- 1) To define the basic “scientific method,” and the development of scientific theories or hypotheses.
- 2) To describe the roles of induction and deduction in the progression of scientific knowledge.
- 3) To be able to recognize and define intervening variables and understand their function.
- 4) To understand and criticize criteria for a “good” scientific theory.
- 5) To be able to define basic and applied forms of research.

<u>Dates and Readings</u>	<u>Eighth Edition</u>	<u>Ninth Edition</u>
<b>Week 3. September 10, 12. Exploring the literature of psychology, and beginning of Observations in psychological research</b>	Chapter 3 & beginning of Chapter 4	<b>Chapter 3 &amp; beginning of Chapter 5</b>

*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.*

<b>Week 4. September 17, 19. Finish Observations in psychological research</b>	Finish Chapter 4	<b>Finish Chapter 5</b>
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*Objectives:*

- 1) *To be able to describe basic types of observational research and the strengths and weaknesses of each.*
- 2) *To be able to define reliability and validity of psychological observations.*
- 3) *To understand basic principles of sampling, as well as pitfalls in obtaining an adequate sample*
- 4) *To understand basic sources of error in observational and survey research, including forms of response bias, as well as procedures for addressing such sources of error.*

<b>Week 5. September 24 - 26. Relational research (First midterm is this week)</b>	Chapter 5	<b>Chapter 6</b>
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*Objectives:*

- 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 chi-squared test of independence.*
- 3) *To be able to define and illustrate the use of the Pearson product-moment correlation coefficient.*

<b><u>(Thursday): Exam I – September 26</u></b>	Exam I -- Chapters 1-4	<b>Exam I -- Chapters 1, 2, 3, 5</b>
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<u>Dates and Readings</u>	<u>Eighth Edition</u>	<u>Ninth Edition</u>
<b>Week 6. October 1, 3. Basics of experimentation</b>	Chapter 6	Chapter 7

*Objectives:*

- 1) *To be able to define an experiment and describe the purposes and advantages of experimental research.*
- 2) *To define “causality” and explain how an experiment attempts to test causal hypotheses.*
- 3) *To know the three types of control used in a psychological experiment.*
- 4) *To be able to design and criticize basic experimental designs.*
- 5) *To define independent and dependent variables.*
- 6) *To understand possible sources of spurious “null results.”*
- 7) *To understand the meaning of “internal validity,” various threats to internal validity, and ways to reduce experimental error.*
- 8) *To understand the concept of “external validity” and know about basic threats to the external validity of an experiment and relevant precautions.*

<b>Week 7. October 8, 10. Validity and reliability in psychological research</b>	Chapter 7	Chapter 8
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*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.*
- 4) *To describe forms of psychometric scaling, especially the use of Likert scales.*

<b>Week 8. October 15, 17. Experimental design</b>	Chapter 8	Chapter 9
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*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.*

<u>Dates and Readings</u>	<u>Eighth Edition</u>	<u>Ninth Edition</u>
<b>Week 9. October 22, 24. Complex design (Second midterm is this week)</b>	Chapter 9	<b>Chapter 10</b>

*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.*

<b><u>(Thursday): Exam II -- October 24</u></b>	Exam II -- Chapters 5 - 8. (Note that Chapter 9 is not included on Exam II.)	<b>Exam II -- Chapters 6-9. (Note that Chapter 10 is not included on Exam II.)</b>
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<b>Week 10. October 29, 31. Small-<i>n</i> experimentation</b>	Chapter 10	<b>Chapter 11</b>
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*Objective:*

- 1) *To understand basic single-case designs, as well as their advantages and weaknesses.*

<b>Week 11. November 5, 7. Quasi-experimentation</b>	Chapter 11	<b>Chapter 12</b>
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*Objectives:*

- 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.”*

<u>Dates and Readings</u>	<u>Eighth Edition</u>	<u>Ninth Edition</u>
<b>Week 12. November 12, 14 (Nov. 11 Veterans day). Conducting ethical research</b>	Chapter 12	Chapter 4

*Objectives:*

- 1) *To know basic information regarding the ethics of human research. To understand the basic principles of informed consent and understand the functioning of Institutional Review Boards.*
- 2) *To understand arguments both for and against research with animals, and to know basic principles regarding the ethical treatment of animals in research.*

<b>Class project (details to be announced) due in Psychology Office (SB 143), Friday, November 15 @ 4:00 PM.</b>		
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<b>Week 13. November 19, 21. Appendices A &amp; B (brief selections only): Descriptive and inferential statistics</b>	Appendices A & B (brief selections only)	<b>Appendices A &amp; B (brief selections only)</b>
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*Objectives:*

- 1) *To be able to define (but not compute) basic summary statistics, both measures of central tendency and measures of dispersion.*
- 2) *To be able to describe the strengths and weaknesses of various measures of central tendency and measures of dispersion.*
- 3) *To learn about significance testing, statistical “power”, and control of Type I and Type II error.*

<b>Week 14. November 26 (Nov. 27 - 29 holiday). Interpreting the results of research</b>	Chapter 13	<b>Chapter 13</b>
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*Objectives:*

- 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.”*

<u>Dates and Readings</u>	<u>Eighth Edition</u>	<u>Ninth Edition</u>
<b>Week 15. December 3, 5. Presenting research results (Third midterm is this week)</b>	Chapter 14	Chapter 14

*Objectives:*

- 1) *To know the basic sections of an APA-style manuscript or article.*
- 2) *To understand the processes of publishing a research article and of giving an oral presentation.*

<b><u>(THURSDAY) Exam III -- December 5</u></b>	<b>Exam III - Chapters 10, 11, 12, 4, and selections from Appendices A and B. (Note that Chapters 13 and 14 are not included on Exam III.)</b>
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**Final Exam: 10:10-12:00 Tuesday, December 10, in the room where class is held.**

Note: The final is optional; and, it is comprehensive, including Chapters 13 and 14.

5 extra raw points are awarded for taking the final.

**Notes:**

- 1) This schedule is subject to change. Students are responsible for knowing about changes in assignments and schedules that may be announced in class or on Moodle.
- 2) Through the first fifteen (15) instructional days of the semester, students may use CyberBear (<http://cyberbear.umt.edu>) to drop courses. For courses dropped by the fifteenth instructional day, no fees are charged and courses are not recorded.
- 3) Wednesday, September 4 is (I think) 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. There will be no exceptions, so please plan accordingly.
- 4) Students with disabilities have the responsibility to declare their disability to the instructor at the beginning of the course if they require accommodations, and they also have the responsibility to arrange for such accommodations with Disability Services for Students (Lommasson Center 154). The instructor will work collaboratively with the student and DSS to provide these accommodations. If examination accommodations are arranged, please advise the professor and confirm the arrangements before each exam.

- 5) Departmental and University policies regarding Incompletes do not allow changing "Incomplete" grades after one year after an "I" has been granted.
- 6) 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.
- 7) The website for the Department of Psychology (<http://www.umt.edu/psych/>) 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, use these links as a starting place for your research on programs.
- 8) Students are expected to practice cell phone and laptop etiquette in class. No cell phone use, texting, use of mp3 players, etc., are permitted during exams.
- 9) 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.
- 10) All students need to be familiar with the Student Conduct Code. The Code is available for review online at [http://life.umt.edu/vpsa/student\\_conduct.php](http://life.umt.edu/vpsa/student_conduct.php).