

General Information

	<u>Instructor</u>	<u>Teaching Assistant</u>
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College of Education & Human Development Mission Statement

The College of Education and Human Development is a world leader in discovering, creating, sharing, and applying principles and practices of multiculturalism and multidisciplinary scholarship to advance teaching and learning and to enhance the psychological, physical, and social development of children, youth, and adults across the lifespan in families, organizations, and communities.

Department of Educational Psychology Mission Statement

Educational psychology involves the study of cognitive, emotional, and social learning processes that underlie education and human development across the lifespan. Research in educational psychology advances scientific knowledge of those processes and their application in diverse educational and community settings. The department provides training in the psychological foundations of education, research methods, and the practice and science of counseling psychology, school psychology, and special education. Faculty and students provide leadership and consultation to the state, the nation, and the international community in each area of educational psychology. The department's scholarship and teaching enhance professional practice in schools and universities, community mental health agencies, business and industrial organizations, early childhood programs, and government agencies.

Quantitative Methods in Education Mission Statement

To prepare students to become high quality professionals in educational measurement, evaluation, statistics, and statistics education, through excellence in teaching, research, and service; and through investigating and developing research methodology in education.

Required Texts: *Statistical Methods for Psychology (8th ed)* by David C. Howell.
Belmont, CA: Duxbury Press (At Coffman Union Bookstore)

Class Hours: T & Th 1:00 – 2:15 pm **125 Burton Hall**

About the Course

EPsy 8251 is the first course of the Ph.D. level statistics sequence in Educational Psychology. You will learn about statistical analysis methods that are used in studies with a quantitative dependent variable and one or more grouping (categorical) variables as independent or predictor variables (see the topic list on the next page). The course is applied, meaning the focus is on conceptual understanding of the methods used in data analysis rather than on the mathematical bases of the methods. Though the mathematics will be deemphasized, it is assumed that the student has a working knowledge of high school-level algebra. In addition, it is assumed that the student has had at least one undergraduate-level or masters-level introductory statistics course. If a student feels nervous about mathematics and has never had a statistics course, it is recommended that the student drop this course and enroll in the masters-level course sequence EPsy 5261 & 5262.

Grading:

Your grade will be based on your performance on the labs and three exams according to the following distribution of points:

All Labs Combined	25%
Exam #1	25%
Exam #2	25%
Exam #3	25%

Final course grades will be assigned according to the following scheme:

Cutoff Total Points	Grade	Cutoff Total Points	Grade
92.5%	A	73.5%	C+
87.5%	A-	69.5%	C
83.5%	B+	66.5%	C-
80.5%	B	62.5%	D+
77.5%	B-	59.5%	D
		below 59.5%	F

If you are taking the course S/N, you must receive at least a C to earn the grade of S.

How to Access Your Grades

Go to myU (<https://www.myu.umn.edu/>) and click on the Academics link, or go to OneStop (<http://onestop.umn.edu/>), click on the MyU: Academics link on the right side under Quick Links, and scroll down to Academics.

Instructions for Installing R

R is a software program that you can download for free from the Internet. Instructions for downloading and installing R (Install_R.pdf) can be found at the Moodle course website in the **Install-R** folder.

Course Materials

Course Materials are available on the Moodle course website. You will need Adobe Acrobat Reader or another PDF reader (e.g., Preview in Mac OS X) to read and print all the materials. A link is provided at the course website to a free version of this product.

Lab assignments, data files for lab assignments, and handouts are available for you to download at the Moodle site for this course. The handouts are organized by week of the course, with the files (PDF, .csv and .R files) for each week listed in the respective folders. Note that there is not a folder for each week of the course. For example, the **WEEK 8** folder contains the handouts that I plan to cover in weeks 8 and 9, so the next folder is **WEEK 10**.

If you run into problems when downloading files, it may be the browser you are using; try using **Firefox** or **Chrome**.

Course Schedule

Date	Topic	Assigned Reading	Assignment Due
Sept. 6	Syllabus; Getting to Know R; Summation Notation; Boxplots	Chpt 1, 2	
Sept. 8	Normal Distribution; High School Dropout Rates; Expected Values	Chpt 2, 3	
Sept. 13	Central Limit Theorem; Expected Values	Chpt 3	Lab 1
Sept. 15	Sampling Distributions for Skewed Populations; Kurtosis	Chpt 4	
Sept. 20	Hypothesis Testing: Where's the Goat	Chpt 4	Lab 2
Sept. 22	One Sample Hypothesis Tests; Effect Size	Chpt 7	
Sept. 27	Confidence Intervals and Effect Size, One Sample	Chpt 7	
Sept. 29	Matched Pairs	Chpt 7	Lab 3
Oct. 4	Two Sample Hypothesis Tests, Heterogeneity of Variance	Chpt 7	
Oct. 6	Confidence Intervals and Effect Size, Two Independent Samples	Chpt 8	Exam 1
Oct. 11	Power for One- and Two-Sample Situations	Chpt 8	
Oct. 13	One-Way ANOVA Model, Assumptions, and Calculations	Chpt 11	Lab 4
Oct. 18	Violations of Assumptions, Unequal Sample Sizes, Transformations	Chpt 11	
Oct. 20	Magnitude of Experimental Effect	Chpt 11	Lab 5
Oct. 25	One-Way ANOVA and Power Calculations	Chpt 11	
Oct. 27	Testwise Error Rates; Linear and Orthogonal Contrasts	Chpt 12	Lab 6
Nov. 1	Testwise Error Rates; Linear and Orthogonal Contrasts	Chpt 12	
Nov. 3	One-Way ANOVA Post Hoc procedures	Chpt 12	
Nov. 8	2 x 2 ANOVA: Intro, Notation	Chpt 13	Lab 7
Nov. 10	2 x 2 ANOVA: Effects	Chpt 13	
Nov. 15	2 x 2 ANOVA: Unequal n	Chpt 13	Exam 2
Nov. 17	2 x 2 ANOVA: Simple Effects	Chpt 13	
Nov. 22	2 x 2 ANOVA: Heterogeneity of Variance	Chpt 13	
Nov. 24	THANKSGIVING – NO CLASS		
Nov. 29	Higher Order ANOVA: Intro, notation	Chpt 13	Lab 8
Dec. 1	Higher Order ANOVA: multiple comparisons	Chpt 12, 13	
Dec. 6	Higher Order ANOVA: multiple comparisons	Chpt 12, 13	
Dec. 8	Chi-Square Analysis; One-Way and Two-Way Classifications	Chpt 6	Lab 9
Dec. 13	Chi-Square Analysis; Assumptions, Likelihood Ratios, Measures of Association	Chpt 6	
Dec. 19	Exam 3 due in my office (168 EdSciB) by 5 PM		Exam 3

Lab Assignments - NOTE: Lab assignments will not be accepted after the designated due date without prior arrangements.

There are nine (9) graded computer lab assignments to be worked outside of class using the R software package. In working the lab assignments, you are expected to pull together the material from lecture, the text, and the supplemental notes where applicable. You are allowed to consult with one another about the lab material, but each student must hand in original work. Please see the section on plagiarism below. The lab data sets are available from the Moodle course website.

Here are some general rules for turning in the Lab Assignments:

1. Turn in your lab assignment directly to me (do not turn in a lab assignment to the TA).
2. A lab is due by the end of the class period (3:45 PM) on the designated due date.
3. I expect everyone to attend class and to hand in a paper copy of their assignment. The assignment should be bound in some way (e.g., stapled). Your full name should be at the top of the first page. The assignment should contain the questions, your responses to the questions, and relevant syntax and output from R.
4. I do not want students to turn in assignments by email. It would take a considerable amount of my time to print out the responses and R output for even a small number of students. Turning in an assignment by email is an exception, not the rule.
5. If you cannot attend class on a day when a lab is due, **CONTACT ME IN ADVANCE** and make other arrangements to turn in the assignment.

Exams - NOTE: Exams will not be accepted after the designated due date without prior arrangements.

In addition to the graded labs, you will be required to take a total of three take-home exams. Each exam will be available one week before its due date. The exams are not cumulative in the traditional sense, but the course material is somewhat cumulative by nature. You MUST work on the exams independently (in other words, by yourself, without the help of anyone else). In contrast to the labs, you may NOT consult with one another regarding the exams. TAs CANNOT help you produce output for the exams. You can, of course, ask the instructor or the TAs to clarify any questions that you have about an exam. The output for the exams will be similar to that produced in the labs. Finally, be careful not to violate the plagiarism guidelines discussed below.

A suggested study strategy for the exams is to review the Lab Assignments and make sure you understand any mistakes that you made. You can also work the exercises in the back of the Howell chapters. Answers are provided for odd numbered problems starting on page 735.

Student Conduct Code

The University seeks an environment that promotes academic achievement and integrity, that is protective of free inquiry, and that serves the educational mission of the University. Similarly, the University seeks a community that is free from violence, threats, and intimidation; that is respectful of the rights, opportunities, and welfare of students, faculty, staff, and guests of the University; and that does not threaten the physical or mental health or safety of members of the University community. As a student at the University you are expected adhere to Board of Regents Policy: Student Conduct Code.

To review the Student Conduct Code, please see:

http://regents.umn.edu/sites/default/files/policies/Student_Conduct_Code.pdf.

Note that the conduct code specifically addresses disruptive classroom conduct, which means "engaging in behavior that substantially or repeatedly interrupts either the instructor's ability to teach or student learning. The classroom extends to any setting where a student is engaged in work toward academic credit or satisfaction of program-based requirements or related activities."

Use of Personal Electronic Devices in the Classroom

Using personal electronic devices in the classroom setting can hinder instruction and learning, not only for the student using the device but also for other students in the class. To this end, the University establishes the right of each faculty member to determine if and how personal electronic devices are allowed to be used in the classroom. For complete information, please reference:

<http://policy.umn.edu/Policies/Education/Education/STUDENTRESP.html>.

Scholastic Dishonesty

You are expected to do your own academic work and cite sources as necessary. Failing to do so is scholastic dishonesty. Scholastic dishonesty means plagiarizing; cheating on assignments or examinations; engaging in unauthorized collaboration on academic work; taking, acquiring, or using test materials without faculty permission; submitting false or incomplete records of academic achievement; acting alone or in cooperation with another to falsify records or to obtain dishonestly grades, honors, awards, or professional endorsement; altering, forging, or misusing a University academic record; or fabricating or falsifying data, research procedures, or data analysis. (Student Conduct Code: http://regents.umn.edu/sites/default/files/policies/Student_Conduct_Code.pdf) If it is determined that a student has cheated, he or she may be given an "F" or an "N" for the course, and may face additional sanctions from the University. For additional information, please see:

<http://policy.umn.edu/Policies/Education/Education/INSTRUCTORRESP.html>.

The Office for Student Conduct and Academic Integrity has compiled a useful list of Frequently Asked Questions pertaining to scholastic dishonesty: <http://www1.umn.edu/oscai/integrity/student/index.html>. If you have additional questions, please clarify with your instructor for the course. Your instructor can respond to your specific questions regarding what would constitute scholastic dishonesty in the context of a particular class-e.g., whether collaboration on assignments is permitted, requirements and methods for citing sources, if electronic aids are permitted or prohibited during an exam.

Makeup Work for Legitimate Absences:

Students will not be penalized for absence during the semester due to unavoidable or legitimate circumstances. Such circumstances include verified illness, participation in intercollegiate athletic events, subpoenas, jury duty, military service, bereavement, and religious observances. Such circumstances do not include voting in local, state, or national elections. For complete information, please see: <http://policy.umn.edu/Policies/Education/Education/MAKEUPWORK.html>.

Appropriate Student Use of Class Notes and Course Materials

Taking notes is a means of recording information but more importantly of personally absorbing and integrating the educational experience. However, broadly disseminating class notes beyond the classroom community or accepting compensation for taking and distributing classroom notes

undermines instructor interests in their intellectual work product while not substantially furthering instructor and student interests in effective learning. Such actions violate shared norms and standards of the academic community. For additional information, please see:
<http://policy.umn.edu/Policies/Education/Education/STUDENTRESP.html>.

University Senate Grading Policy (required on all syllabi)

For additional information, please refer to

<http://policy.umn.edu/Policies/Education/Education/GRADINGTRANSCRIPTS.html>.

The University utilizes plus and minus grading on a 4.000 cumulative grade point scale in accordance with the following:

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| A | 4.000 - Represents achievement that is outstanding relative to the level necessary to meet course requirements |
| A- | 3.667 |
| B+ | 3.333 |
| B | 3.000 - Represents achievement that is significantly above the level necessary to meet course requirements |
| B- | 2.667 |
| C+ | 2.333 |
| C | 2.000 - Represents achievement that meets the course requirements in every respect |
| C- | 1.667 |
| D+ | 1.333 |
| D | 1.000 - Represents achievement that is worthy of credit even though it fails to meet fully the course requirements |
| S | Represents achievement that is satisfactory, which is equivalent to a C- or better. |
| F (or N) | Represents failure (or no credit) and signifies that the work was either (1) completed but at a level of achievement that is not worthy of credit or (2) was not completed and there was no agreement between the instructor and the student that the student would be awarded an I. |
| I | There will be a symbol I (incomplete) awarded to indicate that the work of the course has not been completed. The I will be assigned at the discretion of the instructor when, due to extraordinary circumstances (as determined by the instructor), the student who has successfully completed a substantial portion of the course's work with a passing grade was prevented from completing the work of the course on time. The assignment of an I requires a written agreement between the instructor and student specifying the time and manner in which the student will complete the course requirements. In no event may any such written agreement allow a period of longer than one year to complete the course requirements. |

Sexual Harassment

"Sexual harassment" means unwelcome sexual advances, requests for sexual favors, and/or other verbal or physical conduct of a sexual nature. Such conduct has the purpose or effect of unreasonably interfering with an individual's work or academic performance or creating an intimidating, hostile, or offensive working or academic environment in any University activity or program. Such behavior is not acceptable in the University setting. For additional information, please consult Board of Regents Policy: <http://regents.umn.edu/sites/default/files/policies/SexHarassment.pdf>

Equity, Diversity, Equal Opportunity, and Affirmative Action

The University will provide equal access to and opportunity in its programs and facilities, without regard to race, color, creed, religion, national origin, gender, age, marital status, disability, public assistance status, veteran status, sexual orientation, gender identity, or gender expression. For more information, please consult Board of Regents Policy: http://regents.umn.edu/sites/default/files/policies/Equity_Diversity_EO_AA.pdf.

Disability Accommodations

The University of Minnesota is committed to providing equitable access to learning opportunities for all students. Disability Services (DS) is the campus office that collaborates with students who have disabilities to provide and/or arrange reasonable accommodations. If you have, or think you may have, a disability (e.g., mental health, attentional, learning, chronic health, sensory, or physical), please contact DS at 612-626-1333 to arrange a confidential discussion regarding equitable access and reasonable accommodations. If you are registered with DS and have a current letter requesting reasonable accommodations, please contact your instructor as early in the semester as possible to discuss how the accommodations will be applied in the course. For more information, please see the DS website, <https://diversity.umn.edu/disability/>.

Mental Health and Stress Management:

As a student you may experience a range of issues that can cause barriers to learning, such as strained relationships, increased anxiety, alcohol/drug problems, feeling down, difficulty concentrating and/or lack of motivation. These mental health concerns or stressful events may lead to diminished academic performance and may reduce your ability to participate in daily activities. University of Minnesota services are available to assist you. You can learn more about the broad range of confidential mental health services available on campus via the Student Mental Health Website: <http://www.mentalhealth.umn.edu>.

Academic Freedom and Responsibility

Academic freedom is a cornerstone of the University. Within the scope and content of the course as defined by the instructor, it includes the freedom to discuss relevant matters in the classroom. Along with this freedom comes responsibility. Students are encouraged to develop the capacity for critical judgment and to engage in a sustained and independent search for truth. Students are free to take reasoned exception to the views offered in any course of study and to reserve judgment about matters of opinion, but they are responsible for learning the content of any course of study for which they are enrolled.*

Reports of concerns about academic freedom are taken seriously, and there are individuals and offices available for help. Contact the instructor, the Department Chair, your adviser, the associate dean of the

college, or the Vice Provost for Faculty and Academic Affairs in the Office of the Provost. *[Customize with names and contact information as appropriate for the course/college/campus.]*

* Language adapted from the American Association of University Professors "Joint Statement on Rights and Freedoms of Students".

This publication/material is available in alternative formats upon request. Please contact the Educational Psychology Department, 250 Education Sciences Building, 612-624-6083.