

## **INSTRUCTOR**

Matt Beckman

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192 Education Sciences Building

Office Hours: Thursdays 5:15-6:15pm (and by appointment)

**Note: Please include EPSY 5261 in the subject line of e-mail correspondence.**

## **ADDITIONAL OFFICE HOURS**

Liz Fry (instructor for sections 002 & 003)

192 Education Sciences Building

Office Hours: Tuesdays 1:30-3:30pm

Jonathan Brown (TA for section 002)

192 Education Sciences Building

Office Hour: Mondays 1:00-2:00pm

Kyungin Park (TA for section 003)

190 Education Sciences Building

Office Hour: Mondays 3:30-4:30pm

## **COURSE WEBSITE**

A Moodle website has been established for this course. You can access Moodle by going to <https://moodle.umn.edu/> Click on Login to enter your U of M username and password. Then click on EPSY 5261 Introductory Statistical Methods (sec 002) Fall 2014 to access the course website.

The syllabus, quizzes, homework assignments, technology resource guides, grades, and other important resources are posted on Moodle. In addition, this is where you will post your weekly discussion questions and upload the course assignments. There is also a general discussion room for you to ask questions of the instructor or your classmates.

## **COURSE DESCRIPTION**

EPsy 5261 is designed to engage students in statistics by first building a conceptual understanding of statistics through the use of simulation methods and then learning about the more traditional methods, such as  $t$ -tests, chi-square tests, and regression. This course uses pedagogical principles that are founded in research, such as daily small group activities and discussion. Upon completion of this course, students should (1) have an understanding of the foundational concepts of data, variation and inference; (2) be able to think critically about statistics used in popular magazines, newspapers, and journal articles; (3) be able to apply the knowledge gained in the course to analyze simple statistics used in research; and (4) be able to formulate an interesting question to

investigate using a large data set, use a statistical software package to analyze the data, and appropriately report the conclusions from this secondary data study.

### **AUDIENCE & COURSE PREREQUISITES**

This course is intended for upper-level undergraduate and graduate students who have completed a high school algebra course.

Although there are no formal prerequisites for this course, students should have familiarity with computers and technology (e.g., internet browsing, Microsoft Word, opening/saving files, etc.).

### **PHILOSOPHY & FORMAT OF INSTRUCTION**

This is *not* a traditional class where you only come each day, listen, watch, and take notes! This class was developed under the inverted classroom model. The *inverted classroom* “inverts” the traditional instructor-centered classroom model and has you, the student, play a more active role in your learning. You will be required to first read about a topic yourself and complete a short weekly quiz and Moodle post. Then, classroom time will be devoted to learning activities and discussions to further develop and help you understand the topic. Finally, you will solve problems on homework related to the topic.

This course makes extensive use of *small group activities and large group discussions* to solidify ideas and content, as well as to deepen your understanding of material encountered in the readings. Your learning experience is thus dependent—to some extent—on your classmates and vice versa. Because of this, *it is essential* that you not only attend class each day and participate in the activities and discussions, but that you show up prepared having completed the reading, preparation quiz, and homework.

Statistics is more than just an application of mathematics or a methodology used in some other discipline. Statistics is a principled way of thinking about the world. In particular, it is a principled approach to data collection, prediction, and scientific inference.

Statistics is itself a unique discipline that has, like many others, undergone a tremendous amount of growth and change in the last two decades. In today’s dynamic and interdisciplinary world, success in confronting new analytical issues requires both substantial knowledge of a scientific or technological area and highly flexible problem-solving strategies.

Internalizing a discipline’s way of thinking about and solving problems is a time consuming process, with the keyword being “process”. It is not something that can be taught to students in a semester, or even year-long, course. Learning statistics takes much more than memorizing formulae or software commands. It requires active participation and questioning both in and out of the classroom. The instructor of this course will provide you with many opportunities to learn the material through class activities, readings, and homework assignments, but in the end, you will have to do all of the hard work of actually learning that material.

## PROFESSIONALISM

Evidence of professional practice on both our parts includes (a) starting and ending on time, (b) being prepared, (c) being physically and mentally engaged, (d) performing at a high level, (e) making sure cell phones are off, and (f) refrain from social networks, e-mail, games, shopping, texting, etc during class. Thank you.

## COURSE MATERIALS

The required textbook for this class is Statistics: Unlocking the Power of Data by Lock, Lock, Lock, Lock, and Lock.

There is also a course packet that will be used on a daily basis in class. This course packet contains the learning activities for the course and can be purchased at the Student Bookstore.

A variety of readings will be provided via the course website throughout the semester. These readings come from different sources—such as journal articles and online resources—and explain terms and concepts, or provide additional information not covered in the textbook. Some of the readings are journal and news articles that report about research studies or data analyses that are related to topics addressed in class activities. These have more detail than you need to know for the course, but they provide real-world examples of the statistical questions and methods you are learning about.

## TECHNOLOGY

This course is taught in an active learning classroom and you are strongly encouraged to *bring a laptop to class on a daily basis*. You will use the computer in class for a variety of things, including working with statistical software and accessing the course website. The classroom is equipped with wireless Internet access, power outlets for each table, and projection capabilities for students as well as the instructor.

**Course Software:** The course requires one of two choices of statistical software: R/RStudio or StatCrunch. Information about how to download and use the software can be found in the technology reference guides on the course website.

To decide which software is best for you for this semester, consider the following questions:

- Do you plan on taking EPsy 5262 (“Intermediate Statistical Methods”), or EPSY 8261/8262? If so, you should use R/RStudio.
- Do you want a program that is free? If so, you should use R/RStudio.
- Do you prefer a program that you can access from *any* computer (or even a tablet)? StatCrunch is web-based, so you only need an internet connection.
- Do you prefer a program that has a spreadsheet-type format and menu-driven (vs. command-driven) interface? If so, you should StatCrunch.

**Mac Users:** If you are using a Mac and seem to have problems downloading the .csv files from the course website, *hold the option-key* while clicking on the link and select Download Linked

File. This should download the file to your Downloads folder. Also, the file downloads work better if you use Firefox or Chrome rather than Safari.

**Email:** Email is the primary source of communication among the instructor and students for this course. As such, you will be expected to check your email frequently (i.e., at least once per day). As per the University policy, “students are responsible for all information sent to them via their University assigned email account. If a student chooses to forward their University email account, he or she is responsible for all information, including attachments, sent to any other email account.” When emailing the instructor **please include EPSY 5261 in the subject line.**

**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>

**Technology Policy:** The course uses technology on a regular basis during both instruction and assessments (e.g., homework assignments, exams, etc.). *Student difficulty with obtaining or operating the various software programs and technologies will not be acceptable as an excuse for late work.* Due to the variation in computer types and systems, the instructor may not be able to assist in trouble shooting all problems you may have.

**Technology and Professionalism:** Evidence of professional practice on both our parts includes (a) making sure cell phones are off, and (b) refraining from sending and receiving e-mail, facebooking, playing solitaire, shopping, texting, tweeting, and twittering during class.

## **COURSE REQUIREMENTS**

**Participation:** Your participation grade, worth **60 points**, will consist of:

- Your performance on 12 weekly preparation quizzes of 4-5 questions each, worth a total of **52 points**. These quizzes consist of preparation questions that you will answer based off of the readings. The preparation quizzes will be taken on the course website and will be due *before class begins* on the day that they are due. You will be allowed two attempts per quiz, and keep the highest score of the two attempts. Each attempt will last 20 minutes. After the quiz is closed at the beginning of class, you will be able to see your grade, results, and correct responses. Therefore, late quizzes are *not* accepted.
- Posting a brief reflection or question regarding the readings on the course website no later than each **Sunday at midnight (CST)** on a Moodle discussion forum. You may also get credit for this by posting a thoughtful response to someone else's question. You must write or respond to one post for 8 different weeks of the semester, with each post worth 1 point for that given week. While posting and responding multiple times per week is certainly encouraged, you will not receive extra points for multiple posts or responses in one week. (E.g., if you post or

respond 8 times in one week, you will still only receive 1 point for that week.) Your Moodle posts will be worth a total of **8 points** of your participation grade. There will be 12 different weeks where you will have an opportunity to post. While you are only required to post for 8 different weeks, you are certainly welcome to post questions or responses on additional weeks if you like.

Although class attendance will not be counted as part of your course grade, you are expected to attend class each day having completed the assigned reading and preparation quiz, and having reviewed any necessary portions of the technology reference guides. You will also be expected to participate in the in-class activities each day, as these are designed to help deepen your understanding of the course material. If you are unable to attend class on a given day, you are still responsible for completing your preparation quiz and Moodle post on time.

**Homework Assignments:** There will be 7 homework assignments, each worth 10 points, which will make up a total of **70 points**. The homework assignments will be retrieved and submitted via the course website.

As a student of statistics, working through all of the homework assignments is an important piece in building a complete understanding of the concepts, as well as allowing you to practice doing statistics.

While students are encouraged to work in groups in the course, *each individual student* needs to turn in a homework assignment with *his/her own independent work*. These assignments should be turned in via the course website before class the day that they are due.

Late submissions of homework assignments are *not* accepted without prior instructor approval. Case-by-case exceptions may be granted in special circumstances and if you contact the instructor *before* the date the assignment is due. You must provide documentation to the instructor explaining your late submission. The instructor will then determine whether an exception is warranted.

**Exams:** There is one midterm exam and one final exam, each worth 50 points, which make up a total of **100 points**. Both of these exams are take-home and are worked through *independently*. In this course, you can use any materials you like to complete exams (e.g., your book, your notes, Internet resources, etc.) but you cannot consult with other people or talk with your peers as you are taking exams. If it is discovered that this has occurred, you will receive a 0 on the exam.

You will have one week to work on each exam outside of class and then submit your work to the instructor via the course website. The exams will involve using statistical software (such as StatKey, StatCrunch or R). More details about the structure of each of these exams will be given in class.

If you cannot complete the take-home exams on the day that they are due, it is your responsibility to notify the instructor with as much advance warning as possible. Late submissions of the exams are *not* accepted. *Case-by-case exceptions may be granted in only extreme cases at the discretion of the instructor.* You *must* provide documentation to the instructor explaining your late submission. The instructor will then determine whether an exception should be granted.

**Semester Project:** There is a course project where you have an opportunity to demonstrate and apply what you have learned throughout the semester. You may work individually or in pairs if you choose. This project will involve formulating an interesting question to investigate using a large data set, using a statistical software package to analyze the data, and appropriately reporting the conclusions from this secondary data study. The project will be submitted in three parts. The first two parts are each worth 10 points, and the final part is worth 30 points, which makes up a total of **50 points**. The parts of the project are described in more detail on the course website.

**Article Critique:** An article critique is another opportunity for you to apply what you have learned throughout the semester. You will be choosing a media article that reports statistical findings, reading the original research article, and critically evaluating the media article’s conclusions based on what you read in the original research article. You will post your critique on Moodle and read and respond to others’ critiques as part of your grade. The article critique is worth a total of **20 points** and is described in more detail on the course website.

**Summary of assignments**

Assignment	# of points
Preparation quizzes & Moodle posts	60
Homework	70
Article Critique	20
Project	50
Midterm exam	50
Final exam	50
<b>TOTAL</b>	<b>300 points</b>

**EVALUATION OF STUDENT PERFORMANCE**

You will be evaluated on the basis of your performance on the homework assignments, two exams, the project, and the article critique. Your final grade will be assessed based on the percentage of total points earned.

Grades will be assigned using the following criteria as a guideline:

Percentage Cutoff	Grade	Percentage Cutoff	Grade	Percentage Cutoff	Grade
92.5%	A	80.5%	B-	59.5%	D
89.5%	A-	76.5%	C+	Below 59.5%	F
86.5%	B+	72.5%	C		
82.5%	B	69.5%	C-		

Shortly after the course, you may access your final grade online at <http://www.onestop.umn.edu>. To access your grade via telephone, call the Gopher Student Line at 612-624-5200. Uncollected assignments will be retained for three weeks of the subsequent semester after the course, and then discarded.

**CALENDAR**

The calendar below lists the tentative dates of the course topics and readings, as well as the due dates for the assignments and exam dates. These dates are subject to change at the instructor's discretion.

<b>Day</b>	<b>Topic (<i>Book Chapters</i>)</b>	<b>Activities</b>	<b>Assignments Due</b>
1 (September 2)	<ul style="list-style-type: none"> <li>• Syllabus</li> <li>• Introduction</li> <li>• Overview of software</li> </ul>		
2 (September 4)	<ul style="list-style-type: none"> <li>• Data collection                             <ul style="list-style-type: none"> <li>• Purpose of statistics (<i>1.2</i>)</li> <li>• Types of studies (<i>1.3</i>)</li> <li>• Sampling bias (<i>1.2</i>)</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Data Collection Articles</li> <li>• Data Collection Jigsaw Activity</li> </ul>	Install R/RStudio
3 (September 9)	<ul style="list-style-type: none"> <li>• Data collection                             <ul style="list-style-type: none"> <li>• Recall types of studies</li> <li>• Scope of conclusions based on type of study (<i>1.3</i>)</li> <li>• Random Assignment</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Purpose of Random Assignment</li> <li>• Association vs. Causation</li> </ul>	<b>Preparation Quiz # 1</b>
4 (September 11)	<ul style="list-style-type: none"> <li>• Data collection                             <ul style="list-style-type: none"> <li>• Recall types of studies</li> <li>• Scope of conclusions based on type of study (<i>1.3</i>)</li> <li>• Random sampling</li> </ul> </li> <li>• Importance of research questions (<i>1.1</i>)</li> </ul>	<ul style="list-style-type: none"> <li>• Sampling Presidents</li> </ul>	

**EPsy 5261: Introductory Statistical Methods: Section 001**

STSS 432a, T/Th 4:00PM – 5:15PM

Fall 2014

<b>Day</b>	<b>Topic (<i>Book Chapters</i>)</b>	<b>Activities</b>	<b>Assignments Due</b>
5 (September 16)	<ul style="list-style-type: none"> <li>• Introduction to confidence intervals</li> <li>• Numerical summaries                             <ul style="list-style-type: none"> <li>• Mean, median, percent, difference in statistics (2.1, 2.2)</li> <li>• Standard deviation (2.3)</li> </ul> </li> <li>• Technology Reference Guides                             <ul style="list-style-type: none"> <li>- Entering Data</li> <li>- Graphs</li> <li>- Descriptive Statistics</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Introduction to Confidence Intervals</li> <li>• Introduction to Numerical Summaries</li> </ul>	<p align="center"><b>Preparation Quiz #2</b></p> <p align="center"><b>Homework 1: Statistics Basics and Data Collection</b></p>
6 (September 18)	<ul style="list-style-type: none"> <li>• Numerical summaries                             <ul style="list-style-type: none"> <li>• Mean, median, percent, difference in statistics (2.1, 2.2)</li> <li>• Standard deviation (2.3)</li> <li>• Resistant statistic (2.2)</li> <li>• Boxplots and outliers (2.4)</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Which Graph has the Larger Standard Deviation</li> <li>• Numerical Summaries 30 Richest Americans</li> </ul>	
7 (September 23)	<ul style="list-style-type: none"> <li>• Confidence intervals using bootstrap techniques (one-sample)                             <ul style="list-style-type: none"> <li>• Sampling variability (3.1)</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Bootstrap Interval M&amp;Ms</li> </ul>	<p align="center"><b>Preparation Quiz #3</b></p> <p align="center"><b>Homework 2: Numerical Summaries</b></p>
8 (September 25)	<ul style="list-style-type: none"> <li>• Confidence intervals using bootstrap techniques (one-sample)                             <ul style="list-style-type: none"> <li>• Measuring sampling variability: standard error (3.1)</li> <li>• Constructing bootstrap confidence intervals (3.3)</li> <li>• Understanding and interpreting confidence intervals (3.2)</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Bootstrap Interval: Body Temp</li> </ul>	<b>Project – Part 1</b>



**EPsy 5261: Introductory Statistical Methods: Section 001**

STSS 432a, T/Th 4:00PM – 5:15PM

Fall 2014

<b>Day</b>	<b>Topic (<i>Book Chapters</i>)</b>	<b>Activities</b>	<b>Assignments Due</b>
9 (September 30)	<ul style="list-style-type: none"> <li>Confidence intervals using bootstrap techniques (one-sample)                             <ul style="list-style-type: none"> <li>Measuring sampling variability: standard error (3.1)</li> <li>Constructing bootstrap confidence intervals (3.3)</li> <li>Understanding and interpreting confidence intervals (3.2)</li> </ul> </li> </ul>	Bootstrap Interval: College Student Debt – Part I	<b>Preparation Quiz #4</b>
10 (October 2)	<ul style="list-style-type: none"> <li>Confidence intervals using bootstrap techniques (paired)                             <ul style="list-style-type: none"> <li>Constructing bootstrap confidence intervals (3.3, 3.4)</li> <li>Understanding and interpreting confidence intervals (3.2)</li> <li>Comparing confidence levels (3.4)</li> <li>When to use percentile vs. regular (3.4)</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Bootstrap Interval: Paired Data (Fasting)</li> </ul>	
11 (October 7)	<ul style="list-style-type: none"> <li>Confidence intervals using bootstrap techniques (two-sample, independent)                             <ul style="list-style-type: none"> <li>Constructing bootstrap confidence intervals (3.3, 3.4)</li> <li>Understanding and interpreting confidence intervals (3.2)</li> <li>Comparing confidence levels (using percentile interval) (3.4)</li> <li>When to use percentile vs. regular (3.4)</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Bootstrap Interval: Comparing Countries (PISA)</li> </ul>	<b>Preparation Quiz #5</b>  <b>Homework 3: Bootstrap intervals: One-sample and paired</b>

**EPsy 5261: Introductory Statistical Methods: Section 001**

STSS 432a, T/Th 4:00PM – 5:15PM

Fall 2014

Day	Topic ( <i>Book Chapters</i> )	Activities	Assignments Due
12 (October 9)	<ul style="list-style-type: none"> <li>• Introduction to hypothesis tests                             <ul style="list-style-type: none"> <li>• Purpose of hypothesis test (4.1)</li> <li>• Null hypothesis and alternative hypothesis (4.1)</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Introduction to Hypothesis Testing</li> </ul>	
13 (October 14)	<ul style="list-style-type: none"> <li>• Hypothesis tests using randomization techniques (one-sample) (4.4, 4.2)                             <ul style="list-style-type: none"> <li>• Intro to p-value</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Randomization test: ESP Study</li> </ul>	<p><b>Preparation Quiz #6</b></p> <p><b>Homework 4: Bootstrap intervals: Two-sample</b></p>
14 (October 16)	<ul style="list-style-type: none"> <li>• Hypothesis tests using randomization techniques (one-sample)                             <ul style="list-style-type: none"> <li>• Conducting randomization tests via applet (4.4)                                     <ul style="list-style-type: none"> <li>• Finding p-values (4.2)</li> <li>• Interpreting p-values (4.2)</li> <li>• Making conclusions (4.3)</li> <li>• Significance (4.3)</li> </ul> </li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Randomization test: Body Temperature</li> </ul>	<p><b>Project – Part 2</b></p>
15 (October 21)	<ul style="list-style-type: none"> <li>• Hypothesis tests using randomization techniques (two-sample)                             <ul style="list-style-type: none"> <li>• Conducting randomization tests via applet (4.4)</li> <li>• Comparing confidence intervals and hypothesis tests (4.5)</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Randomization test: Marijuana Users</li> </ul>	<p><b>Preparation Quiz #7</b></p>

**EPsy 5261: Introductory Statistical Methods: Section 001**

STSS 432a, T/Th 4:00PM – 5:15PM

Fall 2014

<b>Day</b>	<b>Topic (<i>Book Chapters</i>)</b>	<b>Activities</b>	<b>Assignments Due</b>
16 (October 23)	<ul style="list-style-type: none"> <li>• Hypothesis tests using randomization techniques (two-sample)                             <ul style="list-style-type: none"> <li>• Conducting randomization tests via applet (4.4)                                     <ul style="list-style-type: none"> <li>• Type I &amp; Type II errors (4.3)</li> </ul> </li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Randomization test: Phone Survey Incentives</li> </ul>	
17 (October 28)	<ul style="list-style-type: none"> <li>• Review Day</li> </ul>		<p><b>Preparation Quiz #8</b></p> <p><b>Homework 5: Randomization tests</b></p> <p><b>Midterm Exam will be given</b></p>
18 (October 30)	<ul style="list-style-type: none"> <li>• Graphical summaries and descriptive statistics(2.2, 2.3)                             <ul style="list-style-type: none"> <li>• Histograms</li> </ul> </li> <li>• Revisit sampling distributions                             <ul style="list-style-type: none"> <li>• Describing distributions: shape, center, variability</li> <li>• CLT (5.2)</li> <li>• Sample size and sampling variability (3.1)</li> </ul> </li> <li>• Technology Reference Guides                             <ul style="list-style-type: none"> <li>- Review Graphs and Descriptive Statistics</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Matching Histograms</li> <li>• Understanding the Central Limit Theorem</li> </ul>	
19 (November 4)	<ul style="list-style-type: none"> <li>• Normal Distributions (5.1, 5.2)</li> </ul>	<ul style="list-style-type: none"> <li>• Normal Distributions</li> </ul>	<p><b>Preparation Quiz #9</b></p> <p><b>Midterm Exam due</b></p>

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STSS 432a, T/Th 4:00PM – 5:15PM

Fall 2014

<b>Day</b>	<b>Topic (<i>Book Chapters</i>)</b>	<b>Activities</b>	<b>Assignments Due</b>
20 (November 6)	<ul style="list-style-type: none"> <li>• Confidence intervals – traditional (6.1, 6.2, 6.4, 6.5)                             <ul style="list-style-type: none"> <li>• One-sample: means</li> </ul> </li> <li>• Technology Reference Guides                             <ul style="list-style-type: none"> <li>• One sample t-test</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Confidence Interval: College Student Debt – Part II</li> </ul>	
21 (November 11)	<ul style="list-style-type: none"> <li>• Confidence intervals – traditional (6.1, 6.2, 6.4, 6.5, 6.7, 6.8, 6.10, 6.11, 6.13)                             <ul style="list-style-type: none"> <li>• Two-sample independent: means</li> </ul> </li> <li>• Technology Reference Guides                             <ul style="list-style-type: none"> <li>• Two sample t-test/interval</li> <li>• Paired t-test/interval</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Confidence Interval: College Student Debt – Part III</li> </ul>	<b>Preparation Quiz #10</b>
22 (November 13)	<ul style="list-style-type: none"> <li>• Hypothesis tests – traditional (6.3, 6.6, 6.9, 6.12, 6.13)                             <ul style="list-style-type: none"> <li>• Two-sample independent: means</li> <li>• Deciding one- vs. two-tailed situations</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Hypothesis Test: Memory Game</li> </ul>	
23 (November 18)	<ul style="list-style-type: none"> <li>• Chi-square between two variables                             <ul style="list-style-type: none"> <li>• Test (7.2)</li> </ul> </li> <li>• Technology Reference Guides                             <ul style="list-style-type: none"> <li>• Chi-square test</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Chi-Square Test: Anemia and Disabilities</li> </ul>	<b>Preparation Quiz #11</b>  <b>Homework 6: Traditional Confidence Intervals and Hypothesis Tests</b>
24 (November 20)	<ul style="list-style-type: none"> <li>• Chi-square between two variables                             <ul style="list-style-type: none"> <li>• Test (7.2)</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Chi-Square Test: Junk Food Study</li> </ul>	

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Fall 2014

<b>Day</b>	<b>Topic (<i>Book Chapters</i>)</b>	<b>Activities</b>	<b>Assignments Due</b>
25 (November 25)	<ul style="list-style-type: none"> <li>• Regression: Descriptive                             <ul style="list-style-type: none"> <li>• Scatterplots (2.5)</li> <li>• Correlation (2.5)</li> </ul> </li> <li>• Simple linear regression equation (2.6, 9.1)</li> <li>• Prediction and residuals (2.6)</li> <li>• Technology Reference Guides                             <ul style="list-style-type: none"> <li>• Correlation and simple linear regression</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Regression: Baseball</li> </ul>	<p align="center"><b>Preparation Quiz #12</b></p> <p align="center"><b>Article Critique Posted</b></p>

**November 27: NO CLASS: HAPPY THANKSGIVING!**

26 (December 2)	<ul style="list-style-type: none"> <li>• Regression: Descriptive                             <ul style="list-style-type: none"> <li>• Simple linear regression equation (2.6, 9.1)</li> <li>• Prediction and residuals (2.6)</li> </ul> </li> <li>• Regression: Inference                             <ul style="list-style-type: none"> <li>• Slope (9.1)</li> <li>• Assumptions (9.1)</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Regression: Happy Planet Index, Parts I and II</li> </ul>	<b>Article Critique questions posted</b>
27 (December 4)	<ul style="list-style-type: none"> <li>• <b>Review Day</b></li> </ul>	<ul style="list-style-type: none"> <li>• <b>Which Method?</b></li> </ul>	<b>Homework 7: Chi-square tests and simple linear regression</b>
28 (December 9)	<b>Poster Presentations</b>		<b>Project – Part 3</b>
29 (December 16)	Take-Home Final Exam Due; Class does not meet		<b>Take-home Final Exam due at 6:00 PM</b>

## STUDENT RESOURCES

**Computer Labs:** The University of Minnesota has multiple computer labs that you can visit. This website lists computer labs as well as which ones have R installed on them.

<http://www.oit.umn.edu/computer-labs/software/index.htm>

**Technology Support:** The University Academic and Distributing Computing Services (ADCS) offers and supports a wide range of information technology-related services, functions, and processes through their website (<http://www1.umn.edu/adcs/help>). While most support is free to the University community, selected services or extensive consulting may be offered on a fee basis.

**Writing Support:** The University Center for Writing provides free writing instruction for all University of Minnesota students at all stages of the writing process. For more information, or to set up an appointment, visit their website (<http://writing.umn.edu>).

**Disability Accommodations:** The University is committed to providing quality education to all students regardless of ability. Determining appropriate disability accommodations is a collaborative process. You as a student must register with Disability Services and provide documentation of your disability. The course instructor must provide information regarding a course's content, methods, and essential components. The combination of this information will be used by Disability Services to determine appropriate accommodations for a particular student in a particular course. For more information, please reference Disability Services: <http://ds.umn.edu/Students/index.html>.

**Mental Health Services:** 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>.

## MISSION STATEMENTS

### ***Quantitative Methods in Education (QME)***

The Quantitative Methods in Education (QME) track offers educational opportunities in both quantitative and qualitative methods with a broad array of introductory and advanced coursework. Students who choose QME as their track within educational psychology may specialize in any of four areas: *measurement, evaluation, statistics, and statistics education*. The goal of QME is to provide students with broad but rigorous methodological skills so that they may conduct research on methodologies, may help to train others in methodology, or will have the skills necessary to conduct research in related fields.

***Psychological Foundations of Education Program Mission Statement***

To apply and generate knowledge of psychological processes and methodological procedures involved in learning and teaching for the betterment and improvement of humans in a wide range of situations.

***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. *Adopted by the Dept. of Educational Psychology faculty October 27, 2004.*

***College of Education & Human Development Mission Statement***

The new 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.

**POLICIES AND PROCEDURES**

***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 (Geoff Maruyama; [geoff@umn.edu](mailto:geoff@umn.edu)), your adviser, the associate dean of the college (Kenneth R. Bartlett; [bartlett@umn.edu](mailto:bartlett@umn.edu)), or the Vice Provost for Faculty and Academic Affairs in the Office of the Provost (Arlene Carney; [carne005@umn.edu](mailto:carne005@umn.edu)).

***Respecting Intellectual Property:*** Students may not distribute instructor-provided notes or other course materials, except to other members of the same class or with the express (written) consent of the instructor. Instructors have the right to impose additional restrictions on course materials in

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

accordance with copyright and intellectual property law and policy. Students may not engage in the widespread distribution or sale of transcript-like notes or notes that are close to verbatim records of a lecture or presentation.

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

***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://www1.umn.edu/regents/policies/administrative/Equity\\_Diversity\\_EO\\_AA.html](http://www1.umn.edu/regents/policies/administrative/Equity_Diversity_EO_AA.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://www1.umn.edu/regents/policies/academic/Student\\_Conduct\\_Code.html](http://www1.umn.edu/regents/policies/academic/Student_Conduct_Code.html)) 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.

***Senate Academic Workload Policy:*** One conventional credit is hereby defined as equivalent to three hours of learning effort per week, averaged over an appropriate time interval, necessary for an average student taking that course to achieve an average grade in that course. It is expected that the academic work required of graduate and professional students will exceed three hours per credit per week or 45 hours per semester.

***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://www1.umn.edu/regents/policies/humanresources/SexHarassment.html>.



**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://www1.umn.edu/regents/policies/academic/Student\\_Conduct\\_Code.html](http://www1.umn.edu/regents/policies/academic/Student_Conduct_Code.html).

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.”

**University Grading Standards:** The University of Minnesota’s grading policy can be found at <http://www.fpd.finop.umn.edu/groups/senate/documents/policy/gradingpolicy.htm>

1. 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:

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/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)

I	Incomplete	was not completed and there was no agreement between the instructor and the student that the student would be awarded an I (see also I). Assigned at the discretion of the instructor when, due to extraordinary circumstances, e.g., hospitalization, a student is prevented from completing the work of the course on time. Requires a written agreement between instructor and student.
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An incomplete for this course will be given on a case-by-case basis and require a written agreement between the student and instructor. The University's Senate Committee on Educational Policy states, the I (inc`omplete) shall be assigned “at the discretion of the instructor when, *due to extraordinary circumstances* (e.g., hospitalization), a student is prevented from completing the work of the course on time.” Note the italicized phrase in the previous sentence. The most valid reason for an incomplete is an unforeseen event that gravely interferes with a student’s ability to perform at an adequate level. Incompletes will not be given for avoidable problems such as unwise planning. The complete language covering the incomplete can be found online at <http://www.fpd.finop.umn.edu/groups/senate/documents/policy/gradingpolicy.html>.

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

The University of Minnesota is an equal opportunity employer and educator.