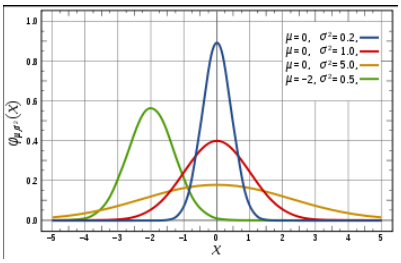
Statistical Methods in Psychology:
Psych 302, Winter 2012



CRN 25196

Lecture: M & W 2:00-3:20 PM, Straub 146, Holly Arrow

Labs (180 Straub): Wed 4-5:20 (Arrow)
Th 8:30-9:50 (Kaehler), Fri 8:30-9:50 (Sage), Fri 2-3:20 (Yee), Fri 4-5:20 (Kaehler)

CRNs: 27608/25195/25197/25198/25203

Professor: Dr. Holly Arrow	**Contact info:** harrow@darkwing.uoregon.edu, 346-1996
Office: 357 Straub	**Office Hours:** Tues 3-4:00 PM, Wed 8-9 AM

Teaching Assistants:		**Office & Office Hours**
Laura Kaehler	lkaehler@uoregon.edu, 346-3936	Straub 383, Mon 10-Noon
Kara Sage	kara@uoregon.edu, 346-8037	Straub 349, Fri 1:30-2:30 PM
Alicia Yee	ayee@uoregon.edu, 346-4924	Straub 328, Thur 8:45-9:45 AM

Office Hour Schedule Summary:
Mon 10-Noon (Laura, Straub 383), **Tues** 3-4 (Holly, Straub 357), **Wed** 8-9 AM (Holly, Straub 357); **Thur** 8:45-9:45 AM (Alicia, Straub 328); **Fri** 1:30-2:30 (Kara, Straub 349)

OVERVIEW OF COURSE STRUCTURE

Course Description: This course introduces you to the descriptive and inferential statistics used in psychological research. You will learn to calculate statistics and analyze data using a computer statistics package, read and interpret the output, and communicate your findings clearly in APA style. You will also develop the ability to select appropriate statistical techniques based on the nature of a data set and the research question being explored. Learning to do this will improve your ability to understand and evaluate statistical information reported both in popular media and primary research articles. This is the first of two foundation courses for psychology majors.

Course Design: The course is designed to promote active learning — through discussion, solving problems, writing responses, and computer exercises. The professor and TAs are guides, cheerleaders, and coaches. The course encourages teamwork among students and between students, professor, and TAs. Group exercises are completed in class in collaboration with others, and students are free to work together on homework. Weekly quizzes will help you master the core concepts and prepare for the two midterms and the final that will test your developing competence in statistics. Labs are the "using statistics" practicum part of the class, and are where you will learn the data analysis skills for tackling homework problems.

Small Groups: Students will organize into small groups of 3-4 people in the same lab section. Group members should sit together during lecture and lab. You will work on problems together and serve as resources for one another. If a group member is absent, please pick up any handouts, pass along announcements, and share notes. If you know you will be absent, alert your group in advance.

COURSE REQUIREMENTS

Overview: Grades will be based on participation, reading responses, homework, quizzes, and exams.

1. Class Participation including iClickers. Participation includes in-class activities that ask you to respond to questions with your iClickers. This will provide quick feedback to you and to me about whether the class is grasping the concepts. You do not need to get the answer right – sometimes getting an answer wrong is the most important step to understanding. **Bring your iClicker to every class to get your participation points! Instructions for registering your clickers are on Blackboard.**

2. Reading Responses. Starting in Week 2, you will turn in a weekly typed response to the assigned reading. Responses must (1) identify what you think were the three most important points in the reading (2) state one specific question or issue you would like clarified. Give page numbers. Example of a SPECIFIC question: "On p. 357, it says that the Scheffe test is extremely cautious. Does this mean it is better than the Tukey test on p. 356? If not, how do we choose?" Example of a VAGUE non-question "I don't understand chapter 13." Specify WHAT you don't understand. Keep responses *short*, *no longer than 1 page &* **put *your* name & *your lab instructor's name* on assignments.**

3. Homework. Ideally, we would like for you to complete your homework for the week by Friday. However, as two of the labs are on Fri afternoon, the deadline will be the following Monday at noon (except for Week 2). Prepare homework as a typed document, with material from computer output copied and pasted into the document. Your Lab Instructor (TA) will provide details about how they want you to submit your homework. **Turn homework in on time!** It is a big hassle for TAs to deal with late homework. Late homework earns *half* credit; *no* credit unless it is turned in by your lab time the same week as the deadline ***unless other arrangements are made in advance with your TA.***

4. Quizzes. Weekly quizzes on Blackboard will cover material from the assigned chapters and lectures for the week, and must be completed by **Friday 6 PM**. After the quiz "closes" for us to tally who completed it by the deadline, it will reopen for new attempts (you can take each quiz as often as you like). Credit will be based on ***completing them by the deadline,*** not on number correct.

5. Exams. Two **midterms** will be completed in class; the **Final** is at **3:15 PM on Wednesday, March 21, 146 Straub** (our regular room). Exams are *open book, open notes, calculator, etc.*, but must be completed individually. On the exams, you must fly using your own wings to demonstrate what you've learned. Quizzes, iClicker questions, and homeworks help you learn material tested on the exams.

6. Texts and other resources. The text is Nolan & Heinzen, *Essentials of Statistics for the Behavioral Sciences*. You will also need a hand-held **calculator** (solar ones are environmentally friendly), and your **iClicker**. Clickers used for previous course can be registered for this class too. **Bring iClicker, Calculator & Text to lecture (won't need clickers in lab).**

SPECIAL NEEDS:

Learning disabilities & athletes. If you need adjustments for a documented learning disability, this will need to be coordinated with Disabilities Services. Let Dr. Arrow know ASAP about this, or if you will miss class for travel with a UO sports team. With advance planning, adjustments are relatively easy. Adjustments at the last minute are problematic and sometimes implausible.

"Repeaters": If you are taking the class for the second (or third) time, please see Dr. Arrow (during office hours or make an appointment) so we can discuss how to ensure you are successful this time through. You are not alone... and your previous experience will help you do better this time.

GRADING

Elements	Percent
Responses:	5%
Quizzes:	5%
Homework:	30%
Participation:	5%
Midterms 1 & 2:	30% (10%, 20%)
Final exam:	25%

Course grades based on percentage of points earned			
A	93-100	C	73-76.9
A-	90-92.9	C-	70-72.9
B+	87-89.9	D+	67-69.9
B	83-86.9	D	63-66.9
B-	80-82.9	D-	60-62.9
C+	77-79.9	NP	< 70
C	73-76.9	P	70 or higher

RULES AND POLICIES

What is and is not allowed in a collaborative learning class? Here are the rules:

Collaborative Learning:

Homework, participation, and studying for exams. Discussing homework with other students, with TAs, and comparing your work with others before turning it in is encouraged. You will sometimes be able to work on homework together in labs. Talking over the problems and reworking them when you discover that others got different answers promotes deeper understanding of concepts and gives you more practice in applying skills. However, each student must submit a separate homework, and you must show your work (no photocopies or word-for-word copying). Many students find that study groups are also useful in preparing for exams. It is also fine to discuss quiz material with other students, but take the quiz on your own to get maximum benefit.

What counts as Cheating [Academic Dishonesty, Misconduct] in this class:

Your work on the **Final Exam** and the **Midterms** must be your own. Copying the work of others on these elements will be considered cheating, and if detected, will earn you an F or N for the course. As required by UO policy, I will report any suspected academic misconduct to the Office of Student Conduct and Community Standards. On exams, you can consult any materials that you have brought to the room, but **you may not consult what others are doing or attempt to contact anyone beside the professor or TAs for assistance during the exams.** Multiple versions of the exams will be created to ensure that copying answers from others will guarantee a poor score, make cheating easy to detect, and thus help protect you against temptation.

TOP FIVE PITFALLS:

1. Passive listening and reading

Write, draw, figure. Think with a pencil to learn. Turn the concepts into something you do. To succeed, you must be able to explain and execute.

2. Spectator overconfidence

Watching someone go through the steps is a starting point only. You have to get in the pool to learn how to swim.

3. Beginner's luck

Doing it right once doesn't mean you can repeat the trick. Get it wrong to understand how the process works. Mistakes help you learn. That's why we give you a chance to make mistakes on iClicker questions and quizzes without penalty.

4. Trying to cram

You can cram content, but skills, like water, don't compress. Don't fall behind; it's too hard to catch up.

5. Giving up because you get stuck

Everyone gets stuck. Try a new tack. *****Ask for help.***** Play around. Learning stats (and other problem-solving skills) is all about getting stuck and unstuck.

THREE WAYS TO DO WELL

1. Keep up and keep trying

Read assigned chapters early and often, come to lecture and lab, start on homework immediately so you will finish early enough to compare notes with others. If you keep up and keep trying, the concepts will eventually sink in. Turn your homework in on time. Slog through those chapters even if you only understand half of what you read. The fog will clear if you just persist. Don't give up!

2. Work hard on understanding material in the first half of the course

If you have a pretty good feel for the concepts in the first half, the second half will deepen your understanding and so what you are learning will make sense rather than being a maze of confusing techniques. If you don't grasp the concepts in the first half, the second half will not make much sense to you. Seek help *early* when you are feeling bewildered or lost.

3. Stay in touch, and speak up

Come to office hours. You have an experienced instructor and three dedicated TAs, and we want to help! Ask questions--in class, in lab, in your responses, on Blackboard. Forming a clear question helps you discover what you do and do not understand, which is vital to mastering this subject.

Don't let us sit alone in our office during office hours – help us feel useful by helping you!

COURSE SCHEDULE for Mon/Wed Lecture, Thurs/Fri Labs

Reading, *Homework, Quizzes, Reading Responses,* **EXAM**

January

Monday – Lecture	Wednesday - Lecture	Thurs/Friday –Labs & Quiz
WEEK 1 9	11	12/13
Introduction	Read Chs. 1-3: Intro, Frequency, Visual Displays of Data	Lab 1: Frequency Dist. & Graphs *Work on Homework 1 - Ch. 1 – 3* *BB Quiz 1 – complete by 6 PM*
WEEK 2 16	18	19/20
Martin Luther King, Jr. Day ****NO CLASS**** *Homework 1 due NOON **Tues** 17 Jan*	Read: Ch. 4. Central Tendency & Variability & Ch. 5. Sampling *Week 2 Reading Resp due in class*	Lab 2: Central Tendency, Sampling *Work on Homework 2 - Ch. 4 & 5* *BB Quiz 2 – complete by 6 PM*
WEEK 3 23	25	26/27
EXAM 1 (Ch. 1-5) Open book, open notes!! *Homework 2 due by NOON…but better to get it done earlier! It covers material to be tested on EXAM 1*	Read: Ch. 6. z-scores & Distribution of means *Week 3 Reading Response due in class*	Lab 3: z-scores *Work on Homework 3 - Ch. 6* *BB Quiz 3 – complete by 6 PM*
WEEK 4 30	Feb. 1	Feb. 2/3
Read: Ch. 7: z-test & Ch 8, pp. 176-186, Confidence intervals, Effect size *Homework 3 due by NOON* *Week 4 Reading Resp due in class*	z-test, Confidence intervals, effect size	Lab 4: z-test, Confidence interval, Effect size activities *Work on Homework 4 - Ch. 7 & 8* *BB Quiz 4 – complete by 6 PM*

February

Monday – Lecture	Wednesday – Lecture	Thurs/Friday –Labs & Quiz
WEEK 5 6	8	9/10
Read: Ch. 9. One sample t & Paired t *Homework 4 due by NOON* *Week 5 Reading Resp due in class*	One sample t & Paired t	Lab 5: One sample t & Paired t *Work on Homework 5 - Ch. 9* *BB Quiz 5 – complete by 6 PM*
WEEK 6 13	15	16/17
Read: Ch. 10. Independent samples t *Homework 5 due by NOON* *Week 6 Reading Resp due in class*	Independent samples t	Lab 6: Independent samples t *Work on Homework 6 - Ch. 10* ***Get done as early as possible*** *BB Quiz 6 – complete by 6 PM*
WEEK 7 20	22	23/24
EXAM 2 (Ch. 6-10) *Homework 6 due by NOON (better if you can get it done earlier--covers material tested on EXAM 2)*	Read: Ch. 11. One-way ANOVA *Week 7 Reading Resp due in class*	Lab 7: One-way ANOVA *Work on Homework 7 - Ch. 11* *BB Quiz 7 – complete by 6 PM*
WEEK 8 27	29	**Mar. 1/2**
Read: Ch. 12. Two-way ANOVA *Homework 7 due by NOON* *Week 8 Reading Resp due in class*	Two-way ANOVA	Lab 8: Two-way ANOVA *Work on Homework 8 - Ch. 12* *BB Quiz 8 – complete by 6 PM*

March

Monday – Lecture	Wednesday – Lecture	Thurs/Friday –Labs & Quiz
WEEK 9 6	8	9
Read: Ch. 13. Correlation *Homework 8 due by NOON* *Week 9 Reading Resp due in class*	Read: Ch. 14. Regression	Lab 9: Correlation & Regression *Work on Homework 9 - Ch. 13 & 14* *BB Quiz 9 – complete by 6 PM*
WEEK 10 13	15	16
Read: Ch. 15. Chi Square (stop at p.417) *Homework 9 due by NOON* *Week 10 Reading Resp due in class*	Chi Square	Lab 10: Chi-Square *Work on Homework 10 - Ch. 15* ***NOTE: To help TAs get Homework graded and available before the final, turn in before Mon deadline if possible***
******FINALS WEEK*******	21	
Holly will hold office hours this afternoon to provide extra help before the final. *Homework 10 due by NOON*	**FINAL EXAM (CUMULATIVE)** **3:15-5:15 PM** Straub 146	

HOMEWORK ASSIGNMENTS

Problems are at the end of each chapter. *NOTE: Scheduling and content of homework assignments are subject to change at the discretion of the instructors.* **Put your name and your TA's name on all homework,** and submit following the method specified by your TA. **Turn homework in on time!** Late homework earns *half* credit; *no* credit unless it is turned in by your lab time the same week as the deadline ****unless other arrangements are made in advance with your TA.**** To earn full credit, *show and explain all work.* For problems completed by hand, show all steps. Material copied and pasted from computer output must be **annotated** to receive full credit. To annotate, highlight the numbers you will use in your APA style sentence summarizing the results, and make other notes as specified by your TA. You must demonstrate that you are able to read and understand what you have produced. The book has answers to odd-numbered problems in the back. Use these for extra practice or to check your work on relevant homework problems.

Homework 1: Intro, Frequency Distributions, Graphs (15 pts)

Ch. 1: Problems **6, 13**, **34c**
Ch. 2: Problem **7, 10, 25**** (**using SPSS)**, 43**
Ch. 3: Problems **2, 9, 14, 16**

Homework 2: Central Tendency and Variability, Sampling (15 pts)

Ch. 4: Problems **10, 38, 40**** (**using SPSS)
Ch. 5: Problems **8, 11, 12, 32, 37, 41, 45**

Homework 3: Distribution of Sample Means and z-Scores (15 pts)

Ch. 6: problems **3, 8, 25, 29a-d**** (**using SPSS), **37a-d, 40, 43**

Homework 4: z-Test, Confidence Intervals and Effect Size (15 pts)

Ch. 7: Problems **9, 11, 29a-d, 40**
Ch. 8: Problems **4, 6, 16, 44**

Homework 5: One Sample and Paired Samples t-Tests (15 pts)

Ch. 9: Problems **10, 12, 15, 40, 41**& 43**** (for 41 & 43, use SPSS, *skip part c*, and give interpretations in full sentences)

Homework 6: Independent Samples t-Test (15 pts)

Ch. 10: Problems **4, 9, 14, 36, 39a-c**, 44 a-c** (use SPSS for a), **52, 54** (**use SPSS to calculate descriptive statistics and t. For part b, include both the statistics and a one-sentence interpretation).

Homework 7: One-Way ANOVA (15 pts)

Ch. 11: Problems **4, 9, 11, 22, 24, 29, 44, 59a-c**, 60** (**use SPSS to run an ANOVA [no contrasts] for 59 and write a brief sentence interpreting the output. Use the output to complete part a.)

Homework 8: Two-way ANOVA (15 pts)

Chapter 12: Problems **6, 9, 16ab, 27.30, 32, 38a-c, 40a-e, 41**** (**Use SPSS to construct table of means, conduct the ANOVA and make the graphs described [make line graphs for part d]. Describe the interaction in APA style)

Homework 9: Correlation and Regression (15 pts)

Chapter 13: Problems 4, 14, 20**, 30ab** (**Use SPSS to complete 20 instead of doing this by hand, and include a sentence interpreting the result; also use SPSS to complete 30ab)

Chapter 14: Problems **8, 13, 14, 29, 31, 50**

Homework 10: Chi-Square (15 pts)

Ch. 15: Problems **4, 6, 22 a-c, 24, 35, 39**, 42****

**Use SPSS to compute the Chi-square for 39 & 42. Copy and paste the descriptives table and the results table into your homework, along with the effect size. For 42e, state the results of the test and include a sentence interpreting the results in the context of the real world question.