

1-2014

PSYX 222.01: Psychological Statistics

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PSYX 222: Psychological Statistics (Spring, 2014)
M/W/F 11:10am - 12:00pm, CHEM 123

Course description: Statistical analysis is an important part of all scientific research. The research of psychological phenomena is no exception. This course is designed to introduce you to the concepts and computational steps behind the most widely used statistical techniques. By the end of the semester, you should understand when and why to use different statistics, as well as be able to interpret them. Although mathematical computation will be used to solve statistical problems, this is **NOT a math course**. Understanding the concepts underlying the use of different statistics will play a larger role in final grades than will your math skills.

Instructor: Yoonhee Jang, yoonhee.jang@umontana.edu (the **BEST** way to contact)
Office/office hours: Skaggs Building (SB) 205, T/Th 3:30–4:30pm or by appointment

Teaching Assistant (TA): Benjamin R. Eisenreich, benjamin.eisenreich@umontana.edu
Office/office hours: SB 368, M/Tu 1:00–3:00pm or by appointment

Labs: SB 246, Th (1) 8:10–9:00am; (2) 9:10–10:00am; (3) 12:10–1:00pm; (4) 3:10–4:00pm

Textbook: Gravetter, F. J., & Wallnau, L. B. (2011). *Essentials of Statistics for the Behavioral Science* (7th Ed.). Thomson/Wadsworth. ISBN 0-495-81220-X; available at the bookstore

It is strongly encouraged that students purchase and use a calculator for this course. Calculators may be used on all exams. Even if you use a calculator, however, you will still be required to show all the computational steps involved. Make sure you should bring your own calculator if you would like. The instructor/TA will NOT supply or lend one to you. Anything other than a calculator (e.g., cell phones, laptop computers, etc.) will NOT be allowed during the exams.

Accommodation of students with disabilities: Students with disabilities will receive reasonable modifications in this course. Your responsibilities are to request them from me with sufficient advance notice, and to be prepared to provide verification of disability and its impact from Disability Services for Students. Please speak with me after class or during my office hours to discuss the details. For more information, visit the Disability Services for Students website at <http://www.umt.edu/disability>.

Where to find class materials: <http://moodle.umt.edu>

What you can expect from me:

1. be prepared to teach the appropriate material in a manner that is organized and clear.
2. attempt to answer any questions you have.
3. prepare tests that are a fair evaluation of what you are expected to know.

What I expect from you:

1. be respectful of everybody in the classroom. Do NOT engage in behaviors that will disrupt class, interfere with the learning of other students, or distract me from teaching (e.g., talking, coming late or leaving early **consistently**, having cell phones on, etc.). A failure to meet this expectation will result in you being dismissed from the class.
2. ask questions whenever needed. Simply raise your hand if you have something to share. You are welcome to stop by my office at the office hours bringing any questions. Please speak with me privately if you are being disturbed or encounter unanticipated difficulties in class.
3. comply with the Academic integrity policy and honesty. Academic misconduct is subject to an academic penalty by the course instructor and/or a disciplinary sanction by the University. 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.

e.g., IV-A. Academic Misconduct (refer to pages 6-7)

2. Misconduct during an examination or academic exercise: Copying from another student's paper, consulting unauthorized material, giving information to another student or collaborating with one or more students without authorization, or otherwise failing to abide by the University or instructor's rules governing the examination or academic exercise without the instructor's permission.

3. Unauthorized possession of examination or other course materials: Acquiring or possessing an examination or other course materials without authorization by the instructor.

4. do not apologize for missing classes. Just be responsible for the consequences. You are expected to collect missing information from your classmates. I will not check your attendance, but attending every class meeting is very important not only for you not to lower your grade but also for you to obtain knowledge on course materials.

Grading: Grades will be rounded to the nearest whole %.

e.g., if raw score=89.4xxx%, then grade=B; if raw score=89.5xxx%, then grade=A.

(fill in the blank) if your score is 89.49%, then your grade is _____, and if 89.50%, then _____.

90%=<	A	80-89%	B	70-79%	C
60-69%	D	=<59%	F		

Make sure that I am not giving you a grade: You are earning YOUR grade.

Final grades will be based on the following:

5 exams of 6	70% ($= 5 \times 14\%$)	Your lowest score is dropped; NO make-ups!
final	30%	Comprehensive
experiment participant	up to 4%	Extra credit: <u>by 11:10am, Friday, 5/9/2014</u>
solving problems	up to 3%	Extra credit: <u>by 11:10am, Friday, 5/9/2014</u>
total	up to 107%	

Exams 1 to 6 (14% for each): 70% ($= 5 \times 14\%$), excluding the exam of the lowest score.

Each exam will cover materials from the textbook and lectures since the last exam. It will take the entire class period to complete. Since your lowest score is dropped, **NO make-ups will be given.** **The ONLY exception** is for absences due to university-sponsored events (i.e., choir, band, sports, etc.): you MUST have an official letter/document in order to reschedule, AND you MUST reschedule the exam **well IN ADVANCE** (otherwise, NO make-ups!).

Your first missed test is your drop test. If you miss more than one exam, you will receive 0% for the exams (except for the first one).

Final exam: 30%, **comprehensive** across all materials covered in the course.

Experiment participation: **up to 4% extra credit.** By choosing to participate in Psychology experiments, you may receive **up to 4 credit points.** One experiment credit point is equivalent to 1%. Visit the department webpage, <http://cas.umt.edu/psychology/Undergraduate/default.php>, and then click on **"SONA Research Participation"** to learn how to participate in Psychology experiments. To receive the extra credit, you should earn up to 4 credit points from Psychology experiments **for PSYX 222 by 11:10am (before the class begins), Friday, 5/9/2014.**

If you are under 18 or you would not like the experiment participation, you may read and summarize **up to 4 different research articles** (one paper is equivalent to 1%). Your summary must be submitted **by 11:10am (before the class begins), Friday, 5/9/2014.**

Only hard copies are allowed: NO email attachment will be accepted.

Choose up to 4 different articles in the references of the textbook (pp. 624-627).

To get these articles, go to UM's library, <http://www.lib.umt.edu/research>, and click on "Database A-Z list" → "p" tab → "psychinfo".

At the top of the page, provide the article title, authors, and journal names (also do NOT forget your name, student ID, and course, PSYX 280). Then, provide your summary,

which should contain a minimum of 300 words; and consist of (1) research goals; (2) methods; and (3) results and what you have learned. Do the same things for each of up to 4 research articles.

Your summary should be written in complete, grammatically correct sentences without spelling errors. Do NOT plagiarize! Students found to have committed plagiarism will NOT be given any points. Additional sanctions, per the student code, may also be enforced.

NOTE that you can choose ONLY one of the two options: You CANNOT choose/mix both to earn up to 4% extra credit (i.e., either earning up to 4 experiment credit points or summarizing up to 4 research articles). There will be NO opportunity to make up failing participation/summary beyond that date.

Solving problems: up to 3% extra credit. Solve the problems (below) and hand in by 11:10am (before the class begins), **Friday, 5/9/2014**. **NO email attachment will be accepted.**

Ch. 10: #20-a; #22 (0.5% for each)

Ch. 11: #18; #22 (0.5% for each)

Ch. 13: #18; #22-a (0.5% for each)

To receive the extra credit, your answer must be completely correct. NO partial credit for each answer will be given. There will be NO opportunity to make up the extra work beyond that date.

The secret for success in this course is to keep up with the material. Do not let yourself fall behind. Set a regular schedule for study, and be sure that your questions are answered in class or lab. After each lecture, work on the end-of-chapter problems on your own. The lab session will also help you do so. Even though the problems are not required, they provide a great opportunity for you to succeed. Further refer to the preface, xvi-xviii, of the textbook.

Learning outcomes:

Ch. 1: Know key statistical, measurement, and research terms

Ch. 2: Understand frequency distribution and data presented in a table or graph

Ch. 3: Understand the measures of central tendency

Ch. 4: Understand the measures of variability

Ch. 5: Understand z-scores

Ch. 6: Understand probability and how to read z-tables

Ch. 7: Understand distribution of sampling means

Ch. 8: Understand logic of hypothesis testing and z test

Ch. 9: Know t statistic and perform t test

Ch. 10: Understand and perform independent-measures t test

Ch. 11: Understand and perform repeated-measures t test

Ch. 12: Understand and compute point estimates using t statistic (time permitting)

Ch. 13: Understand and perform analysis of variance (ANOVA)

Ch. 14: Understand and perform repeated-measures and 2-way ANOVAs (time permitting)

Ch. 15: Understand and compute Pearson correlation coefficient and regression equation

Ch. 16: Understand and perform chi-square test (time permitting)

Schedule of classes: subject to changes by instructor! (NO class on F, 3/28)

Date	Chapter	Lab	
M; 1/27	Psychological Statistics: Let's get the ball rolling!		
W/F; 1/29, 31	Ch.1	Th; 1/30	Math review
M/W; 2/3, 5	Ch.2	Th; 2/6	Problems 1, 2
F/M; 2/7, 10	Ch.3		
W/F; 2/12, 14	Ch.4	Th; 2/13	Problems 3, 4
W; 2/19	Ch.5	Th; 2/20	Problems 4
F; 2/21	Exam 1 (Ch.1-4)		
M; 2/24	Ch.5		
W/F; 2/26, 28	Ch.6	Th; 2/27	Problems 5, 6
M/W; 3/3, 5	Ch.7	Th; 3/6	Problems 6, 7
F; 3/7	Exam 2 (Ch.5-7)		
M/W/F; 3/10, 12, 14	Ch.8	Th; 3/13	Problems 8
M/W; 3/17, 19	Ch.9	Th; 3/20	Problems 8, 9
F; 3/21	Exam 3 (Ch.8-9)		
M/W; 3/24, 26	Ch.10	Th; 3/27	Problems 10
M/W/F; 4/7, 9, 11	Ch.11	Th; 4/10	Problems 11
M; 4/14	Exam 4 (Ch.10-11)		
W/F/M/W; 4/16, 18, 21, 23	Ch.13	Th; 4/17, 24	Problems 13
F; 4/25	Exam 5 (Ch.13)		
M/W/F/M; 4/28, 30, 5/2, 5	Ch.15	Th; 5/1	Problems 15
W; 5/7	Exam 6 (Ch.15)		
F; 5/9	Review	Th; 5/8	review
M; 5/12, 10:10-12:10	Final exam (Ch.1-11, 13, & 15)		