

PSYCHOLOGY 292: BASIC DATA ANALYSIS Winter 2005

In this course you will learn the basics of using descriptive and inferential statistics in the analysis of psychological data. The course emphasizes understanding of fundamental statistical principles rather than “cookbook” application of statistical formulas. These principles provide a foundation for more advanced statistical techniques that you may study in later courses. An appreciation of basic statistical principles, furthermore, can help you to be a more critical “consumer” of reported research findings.

Instructor:

Dr. Derek Koehler (PAS 4050; dkoehler@watarts.uwaterloo.ca)

TAs: Imran Ansari (PAS 4048; iransari@watarts.uwaterloo.ca)
Roy Ferguson (PAS 4048; ra2fergu@watarts.uwaterloo.ca)
Ada Law (PAS 3007; akwlaw@watarts.uwaterloo.ca)
Beth Lee (PAS 3265; w23lee@watarts.uwaterloo.ca)
Mihailo Perunovic (PAS 3259; mperunov@watarts.uwaterloo.ca)
Chris White (PAS 4221; cm2white@watarts.uwaterloo.ca)

Course website: Please see the course website (<http://watarts.uwaterloo.ca/~dkoehler/psych292/>) for announcements, lecture notes (username: xxxxxx; password: xxxxxx), office hours information, etc.

Lectures: Tuesdays/Thursdays 10:30 a.m. - 12:20 p.m. in AL 116

Tutorials

Section 101:	Tuesdays	4:30 p.m. - 5:50 p.m.	PAS 1241	(TA: Mihailo Perunovic)
Section 102:	Wednesdays	4:30 p.m. - 5:50 p.m.	PAS 1241	(TA: Ada Law)
Section 103:	Tuesdays	1:00 p.m. - 2:20 p.m.	AL 208	(TA: Beth Lee)
Section 104:	Wednesdays	6:00 p.m. - 7:20 p.m.	PAS 1241	(TA: Roy Ferguson)
Section 105:	Tuesdays	4:30 p.m. - 5:50 p.m.	AL 124	(TA: Chris White)
Section 106:	Wednesdays	8:30 a.m. - 9:50 a.m.	PAS 1241	(TA: Imran Ansari)

Text: Howell, *Fundamental Statistics (5th Edition)*. Belmont, CA: Brooks/Cole.

Evaluation

Assignments	10%	(1% each for 10 of the 11 sets of weekly target exercises)
Quizzes	60%	(4 in-class quizzes, collectively worth 60% of final mark)
Final exam	30%	(held during final exam period as scheduled by registrar)

The course is divided into four parts. An in-class quiz is scheduled at the end of each, covering the material from that part. In this sense, the quizzes are non-cumulative, but topics covered in this course naturally build on one another. For example, to carry out a t-test (covered in Part C), you need to know how to calculate a standard deviation (covered in Part A). All quizzes are closed-book, but a sheet with relevant statistical formulas will be provided so you won't have to memorize them. For the final exam, which is cumulative, you can use your textbook and notes.

The four quizzes, taken together, will account for 60% of your final mark. Your highest quiz score will count for 20% and your lowest for only 10%, with the two intermediate scores counting 15% each. This should help to offset, at least somewhat, the effects of a having “bad day” on one of the quizzes. In the interest of fairness, the instructor cannot offer any further changes in the weighting of the quizzes and final exam, or additional work for extra credit.

A set of “target exercises” (drawn mainly from the Howell text), announced in advance on the course web page, will be covered in tutorial each week. You will be asked to hand in the week's set of target exercises at the end of each Thursday lecture. There will be a total of 11 such assignments, of which you may miss one. The remaining 10 will count 1% each toward your final mark; the assignments will not be graded but simply checked for completion. No credit will be given for late assignments.

Exams and quizzes will be rescheduled only in the case of a medical or family emergency; documentation will be requested in these cases.

Exercises

The key to learning statistics is practice. There is a set of exercises at the end of each chapter of the Howell text. Answers to the odd-numbered problems can be found at the back of the book. You should try to solve all these problems—it's the best way to test whether you've completely understood the material covered in each chapter. As an incentive to try all the exercises, not just those that will be handed in each week, at least one exercise drawn from the textbook will appear on each quiz. We will provide additional practice problems for Part B of the course, where the lectures will depart somewhat from the textbook. The TAs will answer questions and work through the "target exercises" in the tutorials each week. You will find the tutorials to be much more helpful if you have attempted to solve the problems for yourself prior to each meeting. *Note:* Tutorials will not be held the first week of class.

Here are some additional things you can do to more effectively learn the material and enjoy the course:

- carefully read the assigned chapters from the Howell text each week *before* the lecture
- take the publisher's web quiz to test your understanding of the material covered in each chapter (linked from the CD included in the text, or from the course webpage)
- ask questions, in lectures and tutorials, if you don't understand something
- see your TA during office hours if you need additional help

For the exercises, quizzes, and final exam, you will find it helpful to have a calculator, ideally with basic statistical functions (e.g., standard deviation). Please bring your calculator to every class meeting.

Schedule

week	topic	chapter(s)
<i>Part A</i>		
1 (Jan. 4, 6)	measurement, displaying data	1-3
2 (Jan. 11, 13)	central tendency and variability	4, 5
3 (Jan. 18, 20)	normal distribution	6
<i>Part B</i>		
4 (Jan. 25 , 27)	probability	7
5 (Feb. 1, 3)	sampling distributions	8.2, 12.1
6 (Feb. 8, 10)	confidence intervals	12.7
<i>Part C</i>		
7 (Feb. 15 , 17)	hypothesis testing, one-sample t-test	8, 12
8 (Mar. 1, 3)	two-sample t-tests	13, 14
9 (Mar. 8, 10)	power	15
<i>Part D</i>		
10 (Mar. 15 , 17)	correlation	9
11 (Mar. 22, 24)	regression	10
12 (Mar. 29, 31)	chi-square	19
13 (April 5)	<i>quiz and review session with TAs</i>	21

Quiz dates (held in class, covering most recent part of course) are listed in bold.

Note on avoidance of academic offences: All students registered in the courses of the Faculty of Arts are expected to know what constitutes an academic offence, to avoid committing academic offences, and to take responsibility for their academic actions. When the commission of an offence is established, disciplinary penalties will be imposed in accord with Policy #71 (Student Academic Discipline). For information on categories of offences and types of penalties, students are directed to consult the summary of Policy #71 which is supplied in the Undergraduate Calendar (section 1; on the Web at http://www.adm.uwaterloo.ca/infoucal/UW/policy_71.html). If you need help in learning how to avoid offences such as plagiarism, cheating, and double submission, or if you need clarification of aspects of the discipline policy, ask your TA or course instructor for guidance. Other resources regarding the discipline policy are your academic advisor and the Undergraduate Associate Dean.