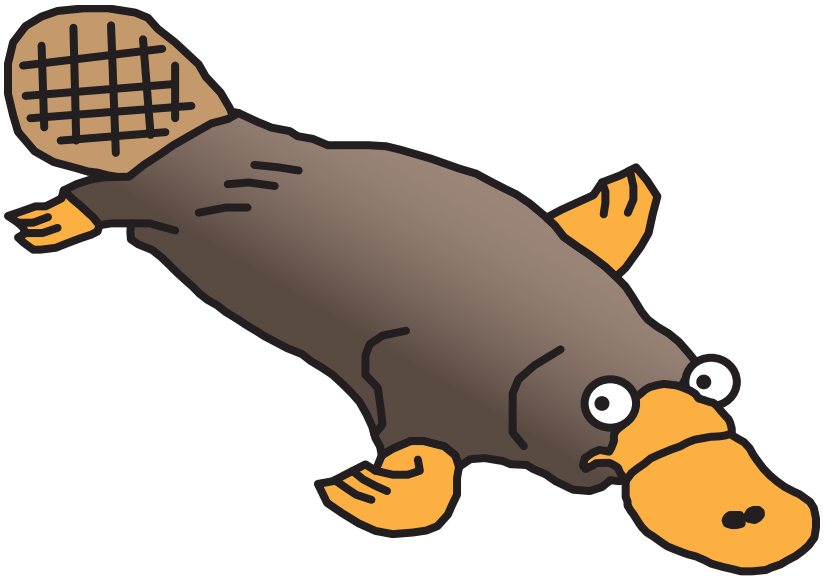
Psychology 2030n:
Methods and Statistics
Fall 2019



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Psychology 2030 is intended as a *gentle* introduction to the scientific methods and statistical techniques commonly used in psychological research. Emphasis is on these methods and statistics as ways of thinking about observations and phenomena, rather than on the blind application of research designs and mechanical aspects of calculation. An ability to read and to understand the original scientific literature is the ultimate goal; comprehension of research designs and statistical methods as tools as opposed to virtuosity with a hand calculator/computer program and mystical equations is the proximate goal. To that end, lectures and discussion will critically examine statistical thinking in the context of quotidian (or spectacular) claims in medicine (e.g., the benefits of "screening", interpreting test results, claims for the efficacy of "alternative" medicine, etc.), epidemiology, law (e.g., the reliability of fingerprint identification, DNA "fingerprinting", the effectiveness of airbags or bicycle helmets, etc.), and so on. Many may find that these discussions challenge one or another of their core beliefs, or even the medical regimen of a relative, friend, or themselves. How to mount these challenges and to engage in critical thinking about such everyday claims represent the fundamental "take-home" messages of the course.

Textbook

The other critical aspect of the course is the introduction to statistics as used by experimental psychologists. As such, the emphasis is on the use of statistical techniques as actually occurs in experimental psychology, rather than on an introduction to statistics as a mathematical discipline. All of the materials for this aspect of the course, and some others (e.g., writing in APA style, using spreadsheets for computing statistics), have been collected into a book by John R. Vokey and Scott W. Allen, entitled *Thinking With Data (Seventh Edition –Revised)*, and we will cover the material more or less in the order in which it occurs there. This book is available at the cost of printing and distribution from the bookstore (in a nicely-bound, double-sided format). The latest, hyperlinked, digital version of the book is always *freely* available in portable document format (pdf) on the web at: http://people.uleth.ca/∼vokey/pdf/thinking.pdf, and changes as whimsy hits us (or students uncover errors or infelicities of prose). The printed version also has a Simpsonized™ cartoon of a platypus on the cover (a slightly mocking tribute to O'Reilly Books)—what could be more cool than that?

Spreadsheets—*Optional*

A popular approach to handling data and computing statistics is to use a computer *spreadsheet*; indeed most of the commonly-used statistical techniques—and certainly all that will be covered in this course—typically may be found as pre-defined *functions* in computer spreadsheets, or are easily programmed. A feature of the course is that it includes instruction on how to use computer

spreadsheets in general, and for computing common statistics in particular, and a brief tutorial on using computer spreadsheets is available as Appendix A of *Thinking With Data (Seventh Edition–Revised)*. Although such instruction will occur during class time, it is an *optional* component of the course. That is, although the use of computer spreadsheets should ease the computational burden and reduce errors for the student (and is a skill worth acquiring in its own right), *nothing* in the course requires their use.

If you do not currently have access to a computer spreadsheet, there are many open-source and *free* programs available for most computer operating systems (OS X, Linux, and Windows), including tablets and smart-phones (IOS, Windows, and Android). Of these, we have found the spreadsheet app, Calc, in *LibreOffice* to be quite effective, but as they all work more or less the same way (differing mostly in where different options may be found and in function names), feel free to use which ever one you are most comfortable with.

Class Times

Classes are scheduled from September 4, 2019 to November 27, 2017 for 6:00–8:50 PM, Wednesday in PE 275.

Evaluation

Evaluation will consist of three *take-home exams*, each worth 1/3 of your final grade, and made available via the Moodle web-page for the course and e-mail. Each take-home exam will consist of ten, short-answer questions, of which you choose six to answer. The values shown in the conversion Table 1 will be used as a guideline to convert scores out of 100% to minimum letter-grades, although the instructor reserves the right to adjust individual grades upward to reflect such aspects of performance as a marked improvement over the semester.

The first of take-home exam will be made available *Thursday, September 26, 2019* to be submitted no later than the following class, *Wednesday, October 2, 2019*; the next will be made available on *Thursday, October 24, 2019* to be submitted the following class, Wednesday, October 30, 2019; and the final will be made available *Thursday, November 28, 2019* to be submitted no later than *Wednesday, December 4, 2019*.

You *must* submit a *paper* copy of your exam answers to the departmental dropbox[1] before the deadline. In addition, a digital copy (as a portable document file—pdf) of your answers to each take-home exam *must* be submitted to the Moodle course web-page dropbox before the exam deadline. All exam answers must be word-processed, and you are encouraged to include printouts of any spreadsheets you may have used to

[1]The department's after hours drop box is now located on the 7th floor of the SAB, in an alcove not far from the elevators.

compute your answers. Figures and equations (both of which may be hand-drawn, if necessary) are also encouraged.

The work you submit for your take-home exams *must be your own*. It is an academic offence to submit someone else's work as your own. Please see https://www.uleth.ca/policy/resources/student-discipline-policy-academic-offenses-undergraduate-students for details.

Research Participation

This course is designed to provide students with an opportunity to participate in active research programs of faculty members. This participation allows you to get direct experience in how many of the experiments and studies you will read and hear about are actually done, and provides an opportunity for you to see what goes on in the labs, and meet senior undergraduate and graduate students conducting their own laboratory research projects. Calls for volunteers to assist in these projects will be made during the semester, via e-mail. Each project usually requires typically less than one hour of your time, but the exact time commitment will depend on the individual research project. In recognition for your time, and in recognition that you are learning something about the discipline of psychology, beyond what you would in the normal classroom environment, an extra credit of 1-2% for each study in which you participate will be added to your total grade to a maximum of 5% (so, it is theoretically possible to score 105%). Note that there is no guarantee that *all* or even *any* students will be able to achieve the maximum extra credit. As these are *extra* credits, students who choose not to participate are not disadvantaged.

The available studies will be listed on the system at http://psychleth.sona-systems.com. Your username and password will be the same as the ones you use to access Moodle. The system should be available September 16, 2019, and will close December 4, 2019.

Questions and Discussion

Preferably, all questions and discussion about the course material should occur during class time, including questions and discussion about the exams, so that all students benefit from the discussion. The first part of each class has been explicitly set as a period for questions and answers, although students are encouraged to ask questions and raise issues for discussion at any time during the class. This dialogue is especially important as we meet only once a week. In addition, students are encouraged to post questions and commentary to the class e-mail list: psyc2030n@uleth.ca, both to provoke discussion, and to receive clarification (if needed) from the instructor and the TAs for the course; doing so will most often result in a prompt and considered response. Grades, take-home exams, and generous supplementary materials will be made available via Moodle https://moodle.uleth.ca, so be sure to familiarize yourself with the system.

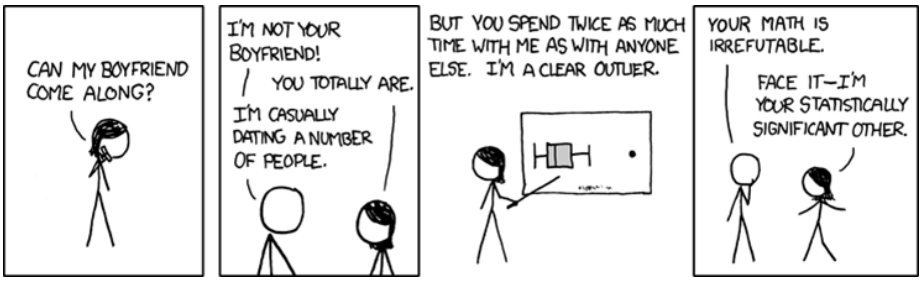
Table 1: Assignment-exam percentages will be converted to minimum letter-grades using this scale. Minimum letter-grade here refers to the lowest letter-grade that will be assigned on the basis of your objective performance; however, higher letter-grades may be assigned at the discretion of the instructor.

Percentage	Grade	Percentage	Grade
90-100	A+	67-70	C+
85-90	A	63-67	C
80-85	A-	60-63	C-
77-80	B+	55-60	D+
73-77	B	50-55	D
70-73	B-	<50	F

No formal office hours are scheduled. Rather, I may be contacted in my office, SA8368, or my lab, SA8366. Please feel free to drop in with any questions, comments, or opinions you may have. I would prefer that in the first instance you use e-mail to communicate with me (vokey@uleth.ca). There are two graduate student TAs attached to the course: Andreas Wartel (wartel@uleth.ca) and Francisco Gomez Jimenez (francisco.gomez@uleth.ca)

Moodle and email

All students have a U of L email account. Your Moodle username is equivalent to your email username (the part of your email address that comes before "@uleth.ca") and your Moodle password is your email password. You will need to access Moodle (https://moodle.uleth.ca) in order to obtain course information, exams, and supplementary material. If you require assistance with anything related to using computers at the U of L, please contact the Student Help Desk (UH D570).



http://xkcd.com/539/

Our primary method of communicating with you for general notices will be via e-mail and in-class announcements. Please be sure you check your U of L e-mail account on a regular basis, or have that account forwarded to your

usual e-mail provider. Please do regular housekeeping so that you do not miss important notices that relate to this class due to a full mailbox.