

Psychology 2030 - Methods and Statistics

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 and mystical equations) is the proximate goal. To that end, lectures and discussion will critically examine induction and statistical thinking in the context of everyday 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”, etc.), and so on. Many will find that these discussions may challenge one or another of their core or long-held beliefs. Good. How to mount these challenges and to engage in critical thinking about everyday claims represent the fundamental “take-home” messages of the course.

Textbooks

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), have been collected into a book by John R. Vokey and Scott W. Allen, entitled *Thinking with Data (6th Edition)*. This book is available at the cost of printing and distribution from the bookstore. The latest version is always available in portable document format (pdf) on the course web site at: <http://classes.uleth.ca/201103/psyc2030n/> or

from Dr. Vokey’s website:

<http://people.uleth.ca/~vokey/pdf/thinking.pdf>

A complementary book for the course is *Is That a Fact?*, by Mark Battersby (Broadview Press, 2010) It is fun, contemporary, and filled with insights elucidated with Canadian examples.

Evaluation

Evaluation will consist of two take-home midterms and a final exam, each worth 1/3 of your final grade. The final exam will be in-class and scheduled by the registrar in the final examination period (tentatively scheduled for Monday December 12 from 6 until 9 pm). Each test will examine both methodological and statistical issues and will consist of short-answer questions. Make-up exams are not normally given and will not be considered without a valid medical excuse.

Calculator and Computer Spreadsheet

A good hand-calculator will prove useful for the course. At a minimum (beyond the standard arithmetical functions), the calculator must have a square-root function.

More sophisticated functions, such as summation, factorial, permutations and combinations, standard deviation, correlation, etc., may prove useful, but are not essential. As virtually all of the statistical methods covered in the course can be

programmed in a spreadsheet, access to a computer spreadsheet program is probably even more useful, but, again, is not required.

Questions and Discussion

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. Failing that, students are encouraged to post their questions and commentary to the class email list: psyc2030n@uleth.ca both to invoke discussion,

Important Dates

October 24	Midterm 1 due
November 21	Midterm 2 due
December 12	Final Exam (tentative)

and to receive clarification (if needed) from the instructor and/or the course TAs; doing so will most often result in a prompt and considered response. Grades and various supplementary materials will be made available via Moodle <<http://moodle.uleth.ca>>, so be sure to familiarize yourself with the system.

Letter Grades

The values in the table below 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.

Students with Special Needs:

If you are a [student with disabilities](#) and wish help with your classes, you may receive help by contacting the [Disabilities Resource Centre](#).

Experimental 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. If you are asked to volunteer, and you accept, each project usually requires

one hour or less of your time, but this will depend on the individual research project. In recognition of 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% 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 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 will be the same one you use to access Moodle. A password will be emailed to you (i.e., it *won't* be your email password). The system should be available starting around September 20th and the deadline for participating in studies is Dec. 9th.

Having taken care of all the housekeeping, allow me to finish by noting that there is much in this course that is fascinating, fun, and intellectually rewarding, and I sincerely welcome you to it.

– S. Allen

Your final letter grade will be calculated as follows (of course, if you're precisely on the border you will receive the higher grade) there will be no rounding of grades to the next category (i.e., 79.9 is less than 80 so is a B+, not an A-):

%	Grade	%	Grade	%	Grade	%	Grade
90 - 100	A+	77 - 80	B+	67 - 70	C+	55 - 60	D+
85 - 90	A	73 - 77	B	63 - 67	C	50 - 55	D
80 - 85	A-	70 - 73	B-	60 - 63	C-	0 - 50	F