

September 2016

**PSYC 204/POTH 204
Introduction to Psychological Statistics**

**Classes: Stewart Biology Building S1/4 (CRN 722)
Stewart Biology Building S3/3 (CRN 21431)**

**T/Th 11:30-1:00
T/Th 4:00-5:30**

Instructor: Rhonda Amsel

**Office Hours:
Stewart Bio. N7/17
W 10:30-3:30 or as posted**

**E-Mail: rhonda.amsel@mcgill.ca
V-Mail: 514-398-6129**

Content: A three-credit first course in statistics, emphasizing methods for describing data and testing theories for research and everyday use. The topics covered and corresponding sections of the text are listed on the course outline that follows.

Prerequisite: Functions or High School Algebra

Recommended Text: Gravetter, F. and Wallnau, L. (2014), Essentials of Statistics for the Behavioral Sciences (8th ed). St. Paul: West. Available at the bookstore or in e-copy (book or individual chapters) at <http://www.nelsonbrain.com/shop/en/CA/storefront/canada?cmd=CLHeaderSearch&fieldValue=978-1-133-95657-0>

OR

Ferguson, G.A. and Takane, Y. (1989), Statistical Analysis in Psychology and Education (6th ed.). New York: McGraw-Hill.

Harris, M.B. (1998), Basic Statistics for Behavioral Science Research (2nd ed.), Allyn and Bacon

Howell, D.C. (2014) Fundamental Statistics for the Behavioral Sciences (8th ed.), Wadsworth

All texts are available in the Redpath Library.

Required course pack: the course pack contains partial class notes as well as a short review of some of the more important concepts discussed each week. You'll also find extra exercises, review problems and sample exam questions. If you have trouble answering the questions in the course pack, they would be appropriate topics for discussion in conference.

Calculator: You will need a calculator for the final but calculators may not be programmable or capable of storing text. All work must be shown for evaluation.

A **MyCourses** site will be maintained for this course at <http://www.mcgill.ca/lms/>

Method: Two 90-minute classes and one (recommended) 60-minute conference per week. Please bring your course pack and calculator to class. The conference (up to 25 students each) will be led by a graduate student and can provide more individualized assistance than would otherwise be available in a class this size. Your TA will involve you in problem-based learning exercises, and review text and lecture material related to assignments and exams. SPSS labs may also be offered if there is demand.

Conference Schedule: A special arithmetic review will be available on MyCourses during the first week of class. Conferences will begin the second week of class. The conference schedule will be posted under CONFERENCES on the MyCourses site.

Having Problems with the Course Material? Don't hesitate to ask for help. I have drop-in office hours in Stewart Bio. N7/17 on Wednesday (see hours above.) You can call me during office hours, if you prefer, at 514-398-6129. I'll return your call as soon as possible and will usually respond to e-mail within 1 working day. If my office hours change, due to an emergency or a meeting, I'll post the changes on my door. Your TAs will also have office hours. These will be posted on MyCourses along with their office numbers. If you need more individualized help than we can provide, a suitable tutor can usually be found.

Exercises: It is essential that you work through course pack exercises. Similar problems frequently appear on exams. Suggested text exercises are listed in the course outline. Additional exercises can be found in the supplemental texts. The examinations will include definitions and conceptual questions so make sure to review the relevant basic terms and concepts in each chapter.

Evaluation: There will be three assignments (late September, late October and late November) worth 25% in total. These will consist mainly of short problems. **Assignments must be done independently and submitted in their entirety on the first submission in order for corrected assignments to be accepted for grading on the second submission.** Incomplete and late submissions will be penalized and submissions more than one day late will not be accepted. Assignments will be posted on MyCourses.

One closed book (short answer and problems) midterm (20%), Wednesday, October 19, 2016, **from 6:00-8:00 p.m.** will cover material approximately up to and including section III D on the outline. Room assignment will be posted on MyCourses. There will be no make-up exam (see below). Students with conflicts must see me no later than October 1.

The final exam (55%) during the exam period will cover the entire course. Under some circumstances (e.g., illness, family emergency) the final exam will serve as a make-up for the midterm or assignments and count for a larger percentage of the grade. By the end of the course, students should be able to explain basic statistical terms and concepts, select and perform appropriate statistical techniques to describe data and to test research hypotheses, report on the results, explain their choices and begin to evaluate the techniques chosen by others.

Fair evaluation and a safe learning environment depend on academic integrity and mutual respect. Information on cheating, plagiarism and other academic offenses can be found at www.mcgill.ca/integrity or at the link 'academic integrity' on the MyCourses site.

Memorization of Formulae: It is not necessary to memorize every formula to do well in this course. It is far more important to learn statistical concepts that will allow you to determine where and how to use the various formulas. Nonetheless, some formulas summarize important and simple concepts, so they should be remembered: **The formulas to be memorized are listed in each section of the course pack.** Whether or not the formula is given, you should understand the circumstances under which the formula is used, what the terms mean, and how to use the formula in problems.

Supplemental Examination: If this course is required as part of your academic program, a grade of 55 is the minimum passing grade. If this course is an elective, a 50 is the minimum passing grade. A supplemental or deferred final exam will be available for a) those who obtain a D or F in the course or b) those who miss the scheduled final examination for an acceptable reason. Application to write a supplemental or deferred final exam must be made at Service Point. The supplemental exam will be worth at least 55% of the final course grade.

Equivalents: If you have already taken a course in introductory statistics, check the list of equivalent courses and grade requirements. You won't get credit for taking PSYC 204 if you've already passed an equivalent course with an acceptable grade. Students who have completed statistics courses in CEGEP that may be equivalent to PSYC 204 should see an advisor or the professor to request exemption.

What's Next? Both PSYC 204 and PSYC 305 or their equivalents, are required courses for the Psychology majors or honours programs. PSYC 204 or its equivalent is a prerequisite to PSYC 305, Statistics for Experimental Design.

It should be noted that, in accordance with article 15 of the Charter of Students' Rights, students will be permitted to submit examination answers in either French or English.

According to Senate regulations, instructors are not permitted to make special arrangements for final exams. Please consult the Calendar, section 4.7.2.1, General University Information and Regulations at www.mcgill.ca . Special arrangements in emergencies may be requested at your Student Affairs Office. If you have a disability, please advise the Office for Students with Disabilities (514-398-6009) as early in the term as possible so that we can provide appropriate accommodation to support your success.

In the event of circumstances beyond the instructor's control, the evaluation scheme as set out in this handout might require change. In such a case, every effort will be made to obtain consensus agreement from the class.

Introduction to Psychological Statistics
Course Outline: Gravetter & Wallnau
Essentials of Statistics for the Behavioral Sciences, ed. 8

<u>Week</u>	<u>Lecture Topic</u>	<u>Chapter: Sections</u>	<u>Exercises</u>
I INTRODUCTION			
Week 1	Definitions	1:1-4	1: 2-7,10,12-15
II DESCRIPTIVE STATISTICS			
Week 1 A	Summation Notation	1:5	1: 18-23
Week 2 B	Frequency Distributions	2:1-4	2:1-5,10-12,14-21
Week 2 C	Averages	3: 1-6	3: 2-6, 8,10-13,15,16,17,21-24
Week 3 D	Variation	4: 1-5 / 5: 1-6	4: 4,6-11,13-24 5:1-5,9-20, 25,26
Week 4-5 E	Covariation, Correlation and Regression	14: 1-3,6	14: 1-8,19-21,23,24,26
III BASIC STATISTICAL THEORY			
Week 6 A	Counting, Permutations and Combinations		
Week 6 B	Probability	6:1	6:1-2
Week 7 C	Probability Distributions, Discrete and Continuous	6: 2-3	6: 4,6-21
Week 8 D	Sampling, Sampling Errors, and Sampling Distributions	6:4, 7: 1-5	7:5-17,19-21
IV INFERENCE STATISTICS			
Week 9 A	Logic of Statistical Inference	8: 1-6	8:1-15
Week 10 B	Inference re Means	9:1-4 / 10: 1-4 / 11: 1-4	9: 2,6,7,11-17,21-23 10: 3,4,13-15,16a&c, 17a, 18a&c, 19, 20a&c, 21-24a 11:9a, 10a, 11a&c, 12a&c, 13-15,16a&c, 17, 18-23
Week 11 C	Inference re Variances	10: 4	
Week 11 D	Inference re Correlations	14: 4	14: 9-11,22
Week 12 E	Inference re Frequencies	15: 1-3,5	15:1-12a, 13, 14a, 15a&d, 16-19a,,20a, 21

Introduction to Psychological Statistics

Readings and Problems in Ferguson and Takane Statistical Analysis in Psychology and Education (6th ed.)

<u>Week</u>	<u>Lecture Topic</u>	<u>Chapter: Sections</u>	<u>Exercises</u>
I INTRODUCTION			
Week 1	Definitions	1:1,3,5-8	
II DESCRIPTIVE STATISTICS			
Week 1	A Summation Notation	3:1-5	3:1-5,8,11,14, (10,12,13)
Week 2	B Frequency Distributions	2:1-14	2:1,2,4,5,6,7,12,15,16
Week 2	C Averages	4:1-10	4:1-16
Week 3	D Variation	5:1-9;10:4	5:1-8,11-16
Week 4-5	E Covariation, Correlation and Regression	8:1-5(6),7-9(10),11-16	8:1-4,9,12,13,15,16,20, 22,23,27,30
III BASIC STATISTICAL THEORY			
Week 6	A Counting, Permutations and Combinations	6:3,7	6:8,9,12,29,30
Week 6	B Probability	6:1,2,4,5	6:1-7,13,14,16,21,28
Week 7	C Probability Distributions Discrete	6:6,8,9	6:10,11,15,17-20,32
	Continuous	7:1,2,4-7	7:3-15
Week 8	D Sampling, Sampling Errors, and Sampling Distributions	9:1-6,8,9; 8:16;12:6	9:1,5,8,10,13,14,19,21
IV INFERENCE STATISTICS			
Week 9	A Logic of Statistical Inference	10:1,2,5;11:1-5,9,10	
Week 10	B Inference re Means	10:3,4,6;11:6,7,8	9:11-12; 10:1,4,6,8,9,12 11:1-3,6,8-11
Week 11	C Inference re Variances	12:4	12:5,11
Week 11	D Inference re Correlations	12:7	12:8,12
Week 12	E Inference re Frequencies	13:1-5,9,11	13:1-15; 12:3,14