



DEPARTMENT OF ARTS AND EDUCATION

COURSE OUTLINE – FALL 2016

PY 2110 (A2) STATISTICAL METHODS FOR PSYCHOLOGICAL RESEARCH – 3 (3-0-1)

60 Hours

INSTRUCTOR: Dr. Bruce Galenza **PHONE:** 780-539-2994
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OFFICE HOURS: Mon 10:00 – 11:30/1:00 – 2:00, Tues/Thur 10:00 – 2:00, Wed 10:00 – 1:00,
Fri 11:30 – 1:00, weekend mornings.

PREREQUISITES: PY1040 and Mathematics 30 or equivalent or consent of instructor.

REQUIRED TEXT/RESOURCE MATERIALS:

Gravetter, F. & Wallnau, L. (2008). Statistics for the behavioural sciences (8th Edition). Wadsworth Thomson Learning.

The study guide is available and useful but not required. Get a good statistics calculator and bring it every day.

CALENDAR DESCRIPTION: The course provides an application of statistical methods to psychological problems: description of data in terms of averages, measures of variability and measures of relationships; correlation and regression, problems of sampling theory and statistical tests of hypothesis. Greater emphasis will be placed upon understanding the relevant principles than upon performing the mathematical calculations.

CREDIT/CONTACT HOURS: 3 credits / 4 hours per week

DELIVERY MODES: Lecture/Lab Work

COGNITIVE OBJECTIVES:

1. Elements within the scientific method, particularly variables, measurement, and scales.
2. Graphic representations such as frequency distributions, tables, and charts to summarize and describe collected data.
3. Measures of percentiles, percentile points, central tendency (means, medians, modes) and variability (sums of squares, variances, standard deviations, ranges, interquartile ranges) for both populations and samples.

4. Standardized or z-score distributions and percentages under the normal curve.
5. Probability theory, sampling theory, and sampling distributions of scores and of means, standard error.
6. Hypothesis testing principles, null and alternative distributions, significance of outcomes, Type I and II errors, power.
7. T-tests (Student's t, independent, and repeated measures) ANOVAs (independent and repeated), factorial designs, and interactions.
8. Correlations, coefficients, scatter plots, regression lines, standard errors of estimate, and the relations between these concepts.
9. Non-parametric statistics.

LEARNING OUTCOMES: As a result of taking this course, students will gain the ability to:

1. Verbally define, explain, and present the purpose and rationale for using the above statistical concepts.
2. Calculate answers for given questions using the appropriate formulae both by hand and by SPSS computer programs.
3. Present answers to lab assignments in an organized and readable manner.

TRANSFERABILITY:

** Grade of D or D+ may not be acceptable for transfer to other post-secondary institutions. Students are cautioned that it is their responsibility to contact the receiving institutions to ensure transferability

** University of Alberta: this course, PY 2110, will transfer as PSYCO 2xx (Science) and will satisfy intro statistics requirement/prerequisite credit allowed for Psychology majors only. Credit will only be given to one of GPRC's ST 1510 or PY 2110. Students in other field of studies cannot use this course to satisfy the statistics requirement at the U of A.

** Athabasca University: this course fulfills the MATH 216 requirement for Psychology majors. Credit allowed for only one of GPRC's ST 1510 or PY 2110. Math 216 will satisfy intro statistics requirement/prerequisite credit allowed for Psychology majors only.

** University of Calgary: this course CANNOT be used to satisfy the statistics requirement if majoring in Psychology. Credit is allowed for only one of GPRC's ST 2520, PY 2110 or MG 3120 for those not majoring in Psychology at the U of C.

** University of Lethbridge: credit is allowed for only one of GPRC's ST 1510 or PY 2110.

** For all other institutions, please check with the instructor and the Alberta Transfer guide

GRADING CRITERIA:

GRANDE PRAIRIE REGIONAL COLLEGE			
GRADING CONVERSION CHART			
Alpha Grade	4-point Equivalent	Percentage of Class	Designation
A⁺	4.0	2%	EXCELLENT
A	4.0	3%	
A⁻	3.7	7%	FIRST CLASS STANDING
B⁺	3.3	9%	
B	3.0	13%	GOOD
B⁻	2.7	16%	
C⁺	2.3	16%	SATISFACTORY
C	2.0	13%	
C⁻	1.7	9%	
D⁺	1.3	7%	MINIMAL PASS
D	1.0	3%	
F	0.0	2%	FAIL
WF	0.0	0	FAIL, withdrawal after the deadline

EVALUATIONS:

Research psychology recognizes the authority of, and bases its judgements on, carefully collected data, as opposed to opinion, tradition, or authority. Psychology always makes its decisions by measuring and comparing, and so shall I. In keeping with this philosophy: rather than me imposing my authority on you and telling you what you must know and then arbitrarily assigning cut-off points for grades through non-standardized tests, you as a class will inform me what you are capable of, through my careful measurement of your performance. Students will be assessed blindly and according to their relative position within the class. This method will be explained fully in the first class period; a handout is available if requested.

Assessment will be based on four examinations/assignment combinations, weighted at 20%, 25%, 25%, and a 30% final examination. Following the final grade assignments, students will be subjectively assessed for bonus points on the basis of their involvement in, and contributions to, the

class and in-class work, as well as attendance. The Percentage Guidelines listed above will obtain only if a perfectly normal distribution results. Deviations from the assumptions of normality will result in modified percentages. In short, this is NOT grading on the curve.

STUDENT RESPONSIBILITIES:

The assigned readings and exercises for each class should be completed before attending that class, except for the first class. As this course will depend heavily practice exercises, attendance at all sessions is required and is critical to the student's success in the course. Missing classes is generally fatal for most students. In case of illness or emergency, notify the instructor as soon as possible. If you find yourself having difficulty in this course, please contact the instructor immediately for assistance. If you simply want more discussion with the instructor about any aspect of the course, please visit my office during office hours or at a more convenient pre-arranged time. Many students find statistics difficult, but all the help you require is available.

This is adult education. You will be treated as such and are expected to behave accordingly. It is expected that all students will display a professional attitude and behaviour in the classroom. This includes reliability, respect for and cooperation with your fellow students and the instructor, attention to fellow students' questions and instructors' responses, determination to achieve first-class work while meeting deadlines, and constructive response to criticism. Engaging in cell phone behaviour will result in you being asked to leave the classroom.

STATEMENT ON PLAGIARISM AND CHEATING: Refer to the Student Conduct section of the College Admission Guide at <http://www.gprc.ab.ca/programs/calendar/> or the College Policy on Student Misconduct: Plagiarism and Cheating at http://www.gprc.ab.ca/files/forms_documents/Student_Misconduct.pdf

A GENTLE WARNING: As some of this work is unsupervised lab work, it is very easy to cheat by copying someone else's computer printouts and handing it in under your name. Be forewarned, however, that we have ways of determining from which computer account a printout has originated. If you cheat in any way, you will be given a zero for the paper, an "F" for the term, and I will write a letter to the administration recommending you be suspended from my class and from the college.

TEACHING STYLE:

My preferred teaching style is interactive lecture, derived from the teaching philosophy that little is learned until responses are made (either verbally or written). However, the majority of work in this course will be hands-on, lab-based experiential learning.

I encourage and welcome student consultation to the point of tutoring and I will be more than happy to proof students' rough drafts and to further discuss course material. Pre-writes are welcome up to the due date and may be submitted as an e-mail attachment.

Late papers will be graded but penalized 2 points per day. As adequate time will be allotted between the assignment and the due date, few excuses other than medical and major emergencies and single parenthood will be accepted. Papers with multiple spelling and grammatical errors will be returned ungraded; rewrites are permitted. Missing three or more lectures or coming in late without being excused will result in you being barred from writing the final exam.

COURSE SCHEDULE/TENTATIVE TIMELINE:

Week 1	Chapter 1: Introduction to Statistics	
Week 2	Chapter 2: Frequency Distributions, Charts, and Tables	
Week 3	Chapter 3: Central Tendency	
Week 4	Chapter 4: Variability and Standardized Distributions	
Week 5	Chapter 5: Probability	
Week 6	Chapter 6: Samples	
Week 7	Chapter 7: Hypothesis Testing	
Week 8	Chapter 8: Correlation & Regression	
Week 9	Chapter 9: T-Test – Independent Samples	
Week 10	Chapter 10: T-Test – Dependent Samples	
Week 11	Chapter 11: Estimation	
Week 12	Chapter 12: ANOVA and Factorial Design	
Week 13	Chapter 13: ANOVA and Factorial Design	
Week 14	Chapter 14: Chi-Square & non-parametric statistics	