

**Department of Arts Commerce and Education
Grande Prairie Regional College**

**Research and Quantitative Methods for Psychology
PY 3120 – Fall/Winter 2002/2003
6(3-0-2)**

**Lecture Days/Times/Room Numbers
Lab Days/Times/Room Number**

Instructor: Dr. Connie Korpan
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Texts: (tentative)

Leary, M. (2001) Introduction to Behavioral Research Methods (3rd edition) Pearson Education Canada.

Howell, D.C. (1999). Fundamental Statistics for the Behavioral Sciences (4th edition) Belmont, CA: Duxbury Press.

Course Prerequisites: Math 30 or 31 and PY 1040/PY 1050 or equivalents or permission from the instructor.

General Description of Course

The aim of this course is to prepare students for all senior courses in psychology. The content and skills taught in this course, however, can be applied to other disciplines, including education, sociological, and medical research. Upon completion of this course, students will have an understanding of the nature of scientific inquiry, its application, and ethical issues surrounding research. The course will cover both experimental and non-experimental (i.e., descriptive and correlational research) research techniques. Although the major focus will be on quantitative research, qualitative research techniques will also be discussed. Upon completion of this course, students should be able to design and conduct research, evaluate data, write a research report, critically evaluate primary research reports, and be critical consumers of scientific research reported in the media.

Course Topics (exact order is yet to be determined)

Research in Behavioral Sciences

- The science of psychology, its goals and value to students
- Philosophy of science
- The role of theory

- Problem identification and hypothesis formation
- A priori predictions and post hoc explanations
- Conceptual and operation definitions
- Proof and disproof

Measurements

- Types of measures
- Scales of measures
- Reliability issues
- Validity issues
- Fairness and bias

Approaches to measures

- Observational methods
- Physiological methods
- Self-reported data
- Case studies
- Archival data
- Content analysis

Descriptive Statistics

- Frequency distributions
- Measures of central tendency
- Measures of variability
- Interpretation of individual scores
- The normal curve

Descriptive Research Methods

- Types of descriptive research
- Sampling
- Describing and presenting data

Correlational Research Methods

- Correlation coefficient
- Coefficient of determination
- Statistical of determination
- Statistical significance of r
- Factors that distort correlation coefficients
- Correlation and causality
- Partial correlation
- Linear regression
- Multiple regression
- Assessing directionality
- Uncovering underlying dimensions (factor analysis)

Experimental Research Methods

- Independent and dependent variables
- Selection of participants
- Assignment of participants
- Experimental control
- One way designs
- Factorial designs
- Main effects and interactions

Basis Analysis of Experimental Data

- Introduction to Hypothesis Testing
- 2-group design: t-test for independent groups
- 2-group design: t-test for related samples
- statistical power

ANOVA

- how ANOVA works
- follow-up tests
- between and within subject ANOVA
- MANOVA

Nonparametric Statistics

- Chi-square
- Other nonparametric tests

Ethical Issues

- Approaches to ethical decisions
- Informed consent
- Invasion of privacy
- Deception in research
- Confidentiality
- Animal research
- Scientific misconduct

Scientific Writing

- Types of research reports
- Elements of good writing
- Parts of manuscript
- APA style

Distribution of Grading

Laboratory Assignments	20%
Research Project/Paper	15%
Exam 1	10%
Midterm	20%
Exam 3	10%
Final	25%

This course will involve 3 hours of lecture and 2 hours of laboratory work each week.

The laboratory assignments will consist primarily of statistical problem sets, which you will complete using SPSS (version 10). For some laboratory assignments, you will be provided with a selection of research articles that you will read and evaluate. Some articles will be chosen from the media and some will be chosen from academic journals. Details of the assignments will be provided during the first week of labs.

For the research project, you will choose a topic that you wish to investigate, design a study that would address the topic, and conduct the study. You will also write up a research paper that describes your research. Details of the research project and paper will be given in the next few weeks.

Exams will consist of multiple choice, short answer, and essay questions.

Grade	Percentage	Comment
9	90 – 100%	
8	<u>80 – 89%</u>	<u>Excellent</u>
7	72 – 79%	
6	<u>65 – 71%</u>	<u>Good</u>
5	57 – 64%	
4	<u>50 – 56%</u>	<u>Pass</u>
3	45 – 49%	Fail
2	26 – 44%	Fail
1	0 – 25%	Fail

Student Responsibilities

Independent learning is a valuable skill that instructors at Grande Prairie Regional College wish to foster in their students. For this reason, you are held accountable for all lecture materials and readings. It is your responsibility to keep up with class work. For example, you are expected to attend all lectures and labs. When absent, missed materials are to be obtained by approaching a fellow student (not the instructor). Also, you are expected to prepare for each lecture and lab by reading the assigned chapters and handouts. Students who prepare learn and perform much better than students who do not prepare.

Although the instructor feels that all the material in the text books is important and interesting, limited class time prevents discussion of all the material. You are responsible for learning the material not discussed in class. Please feel free to approach me outside of class if you wish to get clarification on this material.

You are expected to do all lab assignments. Copying from other students without doing the work will be considered as cheating. Copied assignments will be given a 0. Late assignments will be deducted 10% for each day late, unless accompanied by a medical. Assignments more than three days late will not be accepted.

If you miss any of the exams due to illness, a physician's note must be provided. If a physician's note is provided, the weight of that exam will be transferred to the final exam. If a note is not provided, a grade of 0% will be assigned to that exam. You are expected to inform me that you will miss the exam before the exam (if possible). Voice mail is available 24 hours a day. If the final exam is missed due to illness, you will also be required to submit an application to the Registrar's Office for permission to write a deferred exam (Please see the College Calendar, p 33). You may defer the final exam for up to 20 days of the end of the examination period.

If you wish to withdraw from this course, you must do so by xxx. Withdraw from the course after xxx may result in a failing grade because a mark of 0% will be assigned to the incomplete portion of the course work.