HKR 6000 Quantitative Methods in Physical Education

Instructor

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Office

- PE2023

Office Hours

Time

- Synchronous - Mondays from 9:30-10:30am (NL time)
- Asynchronous - 1 hour video per week

Location

- The internet

Prerequisites

None

Course Description

A critical examination of methodological research issues and quantitative research designs in the field of human kinetics and recreation. Examines and applies a variety of statistical analysis techniques which can be used in a variety of research designs. Emphasis is placed on the interpretation and implications of empirical quantitative research in the field. Students will learn statistics using either R or SPSS.

Course Objectives

- To introduce students to the nature of scientific inquiry and techniques of research design;
- To examine the prevalent methods and techniques of quantitative research design;
- To provide you with the understanding and knowledge necessary for refining your skills as competent researchers;
- To introduce the basics of analysis and interpretation of statistical measures, techniques, and tests, in order to provide the student with an understanding of their application human kinetics and recreation;
- To present an overview of the most commonly used descriptive statistics and inferential parametric and statistical measures and tests within human kinetics and recreation;
- To assess under what circumstances certain analytical techniques are selected and why, and to recognise the strengths and weaknesses of these decisions; and
- To afford the opportunity for computer-based applications of different procedures and techniques described in class thereby providing “hands on” experience for a practical understanding of the organisation and construction of data and measures, the selection of appropriate techniques, and the analysis and interpretation of “real” results.

Format and Procedures

The general format of each week will include one asynchronous video discussing the key concepts for the week, one sychronous session working through applied problems related to the weeks content and on assignment to apply new knowledge.

This course will use this website and D2L as the method for course communication and to provide students with course materials (e.g., syllabus, handouts, instructions for assignments, readings, and course schedule). The course materials that are needed for each class will be posted on D2L a minimum of one (1) week prior to the class date.

Course Text

- Fields, A. (2010). Discovering Statistics Using SPSS (3rd ed). London, England: Sage Publications.

OR

- Fields, A. (2013). Discovering Statistics Using SPSS (4th ed). London, England: Sage Publications.

Additional readings are required. These readings will be in electronic format and will be posted on D2L. Readings will be available at least one (1) weeks prior to the reading assignment due date.

Academic Integrity

Students and faculty at Memorial University share an important responsibility to maintain the integrity of the teaching and learning relationship. This relationship is characterized by honesty, fairness and mutual respect for the aim and principles of the pursuit of education.

Academic misconduct impedes the activities of the university community and is punishable by appropriate disciplinary action. Students are expected to be familiar with Memorial University's regulations on Academic Misconduct (Section 6.12 of the Academic Calendar) which sets out the kinds of actions that constitute academic misconduct, including plagiarism, copying or allowing one's own work to copied, use of unauthorized aids in examinations and tests, submitting work prepared in collaboration with another student when such collaboration has not been authorized, and other academic offenses. The regulations also describe the procedures for dealing with allegations and the unit level as well as the university level, and the sanctions for any finding of academic misconduct, which can range from a written reprimand to a rescindment of the degree. A lack of familiarity with Memorial's regulations on academic misconduct does not constitute a defense against its application.

If an instructor alleges that academic misconduct has occurred for evaluative instruments worth between 15-39% the course instructor is required to submit the student's work along with a summary of the allegation to the SHKR Committee for Academic Integrity for consideration and a decision. Any allegations of misconduct that occur with evaluative instruments worth 40% or more of the final grade or final examinations are automatically sent to the Senate Committee on Undergraduate Studies for consideration.

Further information on academic integrity is outlined in the University Calendar 6.12: http://www.mun.ca/regoff/calendar/sectionNo=REGS-0748 Information regarding acceptable writing practices is available through the Writing Centre at http://www.mun.ca/writingcentre/

Accommodations for students with disabilities

In compliance with the Memorial University's policy and equal access laws, it is understood that appropriate academic accommodations may be required for student with disabilities. Please see the guide for full details http://www.mun.ca/policy/site/policy.php?id=239.

Methods of assessment

Assignment	Percent	Due Date
Quizzes	10%	See below
Satistics Assignments	40%	See below
Exploratory Data Analysis Part 1	10%	March 9, April 13
Exploratory Data Analysis Part 2	20%	March 9, April 13

Assignment	Percent	Due Date
Final Exam	20%	TBA

Note 1. I purposefuly do not have penalties for late assignments. You will have the most success with this course if you submit the assignments on time. There will be a steep learning curve. It will hurt. The faster you get over the learning curve, the easier, and more fun, your life will be in this course.

Note 2. There are no specific formatting rules or guidelines for the course. Use some type of reference formatting, APA and AMA are good choices.

Quizzes

Students will be required to complete a total of five (5) quizzes (weighted equally) based on the textbook readings for the course (see table below). Quizzes are to be completed on D2L before class on the due date. See table below for topics, associated readings, and due dates. Quizzes will be open book (i.e., you are allowed to have the textbook and any notes you make in front of you); however, you are not permitted to use any other resources or speak to any person (electronically or verbally) while completing the quiz. To prepare for the quiz read the appropriate chapter and make some notes for key points so that you can easily locate the answers while completing the quiz. Quizzes will generally consist of approximately 10 multiple choice questions and you will be allowed approximately 45 minutes (so you will have lots of time to complete the open book quiz). The first quiz consists of 15 multiple choice questions and you are allowed 60 minutes. If you have any technical problems while completing the quiz, please contact the instructor immediately via email.

Number	Topic	Edition & Chapter	Date	Grade %
Q1	Statistics Review	3rd and 4th Edition Chapter 1 and 2	January 27	2
Q2	Exploring Data	3rd and 4th Edition Chapter 4 and 5	February 3	2
Q3	Correlation	3rd Edition Chapter 6, 4th Edition Chapter 7	February 10	2
Q4	Regression	3rd Edition Chapter 7, 4th Edition Chapter 8	March 2	2
Q5	ANOVA	3rd Edition Chapter 10, 4th Edition Chapter 11	March 16	2

Statistics Assignments

Students will be required to complete six (6) statistical assignments. Further details of the assignment will be provided in class and on D2L. Statistics Assignments are to be submitted via the appropriate D2L dropbox by 5:00pm on the due date. See table below for topics, associated readings, and due dates.

Number	Topic	Date	Description	Code Sample	Grade %
A1	SPSS or R Environment	February 3	Description	R - SPSS	3
A2	Exploring Data	February 24	Description	R - SPSS	7
A3	Comparing means	March 2	Description	R - SPSS	5
A4	Regression	March 16	Description	R - SPSS	9
A5	ANOVA	April 6	Description	R - SPSS	7
A6	Repeated Measures	April 6	Description	R - SPSS	9

Major Written Assignment

Students are required to complete the final assignment.

Conduct an exploratory data analysis and write up your findings in the form of a detailed draft formatted for a potential target journal in your field. You can select from one of the provided datasets below or select one of your own datasets. Data sets (if not using supplied data) and a project proposal must be approved by the

instructor. Students are encouraged to consult with the instructor and with their supervisor related to using a specific dataset. Minimum page length is 8 pages (~2000 words) and maximum is 15 (~3600 words) not including references and tables.

The exploratory data analysis should include 1. Introduction/literature review (~500 words) 2. Method (~800 words) - Design - Data - Analysis plan 3. Results (~1000) - Descriptive statistics - Inferential statistics 4. Discussion/conclusions (~500 words)

The assignment will be completed/submitted in 2 Parts

1. Part 1 consists of submitting a 4 page draft. (10% of course grade)

2. Part 2 consists of submitting the final paper. (20% of course grade)

Final Exam

Students will compelte an online final exam focussing on methodology and statistical topics/analysis learned throughout the course. Part A of the exam will first consist of multiple choice and short answers. Part B of the exam will be open book and will include the anlaysis of a data set.

Weekly Schedule

Week	Date	Theme	Topic	Assignment	Due Date
Week 1	January 11	Statistics	Intro	Q1	Janury 15
Week 2	January 18	Methods	Research Design	A1	Janury 22
Week 3	January 25	Methods	Quantitative Measurement	Q2, A2	Janury 29
Week 4	February 1	Methods	Research and Analysis Design		
Week 5	February 8	Statistics	Correlation	Q3	February 12
Week 6	February 15	Statistics	Linear Regression	A3	February 19
Week 7	February 22	Reading Week			
Week 8	February 29	Statistics	Comparing Means & ANOVA	Q4, A4	March 5
Week 9	March 1	Statistics	Repeated Measures	Final Assignment Part 1	March 12
Week 10	March 8	Statistics	Non Parametric Methods	Q5, A5	March 19
Week 11	March 15	Statistics	Data Visualization	A6	March 26
Week 12	March 22	Statistics	Multilevel Models		
Week 13	March 29	Review	All The Things	Final Assignment Part 2	April 9