



THE UNIVERSITY OF NEW SOUTH WALES

Health and Exercise Science School of Medical Sciences Faculty of Medicine

COURSE: HESC4501 RESEARCH METHODS IN PHYSICAL ACTIVITY

Course Title: Research Methods in Physical Activity

Course Number: HESC4501 Semester 1 2009

Lecturer Theatre: CLB 2 and 5, Computer room 106 and 108

Time/Day: Lecture: Monday, 11-12 pm (Quad 1027) and Tuesday, 11-12 pm (Mat B); PC Session: Tuesday 12-2 pm (G2-G4).

Coordinator/Lecturer: Yati N. Boutcher

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Office hours: Monday and Wednesday: 3 - 4 pm; by appointment

Rationale

This course gives an overview of research design and statistics for exercise science. Concepts in exercise science research such as probability, validity, and statistical tests and their assumptions will be covered. Students will have hands on experience of carrying out a range of statistical tests typically utilized in exercise science.

Structure

Thirty-eight hours of formal contact time. This contact time comprises two-60-minute lectures, and a 120-minute computer session.

Aims

The major aims are to provide the student with:

1. An overview of research methods in the physical activity area
2. An understanding of the statistical tests used in the physical activity area
3. Experience in designing and carrying out SPSS programs.

Learning outcomes

The student is expected to:

- understand research methods in the physical activity area
- understand the major statistical tests used in the physical activity area
- design and carry out SPSS programs

Course Text

- Berg, K.E., and Latin, R.W. (2007). *Essentials of Research Methods in Health, Physical Education, Exercise Science, and Recreation* (3rd edition). Lippincot Williams & Wilkins. Baltimore, MD, USA.

Recommended Texts

- Burns, RB. (2000). *Introduction to Research Methods* (4th edition). Sage Publications Ltd., London.
- Thomas, J., and Nelson, JK. (2001). *Research Methods in Physical Activity* (4th edition). Human Kinetics. Champaign, Illinois, USA.
- Pallana, J. (2001) *SPSS Survival Manual*. Allen and Unwin.

Assessment

1. Written exam (30% of grade). The written exam will consist of multiple choice and short answer questions.
2. Practical exam-PC SPSS (25% of grade). Students will be given a series of questions to answer. Students will be required to analyze data using appropriate statistical analyses.
3. Lab reports (20% of grade). Students will be given a series of questions to answer. Students will be required to analyze the data using appropriate statistical analyses. The lab report has to be handed in before the next lab is started (in the class). **Do not submit the lab report through email.**
4. Written (20% of grade) and presentation (5% of grade) of research proposal. Design a study in exercise science. Include an introduction and methods. Proposal write-ups are limited to 10 double spaced pages (not including figures, tables, and appendices). **Do not submit similar topics that have been previously submitted in another course. Do not submit the written research proposal through email.** The submission date is **2 June 2009 by 4.00pm** (submitted to the Health and Exercise Science receptionist in 233, F20 Goodsell building).

Note:

Word/Pdf file of each lab report (weekly assignment) and written research proposal have to be sent to Sue (as an email attachment) one day after the deadline at the latest.

Punctuality and unit attendance

- Class and laboratory role will be taken in every lecture and laboratory. Students are expected to attend the class **on time**.
- The attendance is compulsory for both lecture and the labs. **Minimum of 80% of lecture attendance and 100% of lab attendance are required to pass the course.** Failure to attend one of the labs will result in failure of the course. **Students who cannot meet the attendance criteria above will not be allowed to attend the exam.** Students who cannot attend the lecture or labs for medical reason need to produce a medical certificate.

Penalties for late submission of lab report/assignment

In cases where an extension has **NOT** been granted, the following penalties will apply:

- Lab reports submitted after the class has finished **will not be marked**.
- For assignments submitted after **4.00 pm** on the due date, a penalty of 50% of the maximum marks available for that assignment will be incurred.
- Assignment received two or more days after the due date **will not be marked**, however, the assignment **must** still be submitted to pass the course.

Plagiarism

Plagiarism either from another student's work or other written material (for example, textbook, journal or web article) will not be tolerated at this university. Students who submit the work of others as their own run the risk of failing the course and possible expulsion from the university. Please refer to your university handbook for further information.

Assessment criteria for the lab reports

The lab report (weekly assignment) will be assessed in the lab (about 10 minute) before the next lab is started. The process will be as follows: The key answer to each lab report will be provided. Then you will be required to swap your lab report with the person next to you. The lecturer or the lab instructor will go through each question and discuss every point of the questions. The marks for each point will vary (5-10) depending on difficulty. When you have finished with the assessment process, all lab reports have to be handed in to the lecturer or lab instructor for the final marks. Through this activity, you will gain immediate feedback about your work.

Assessment criteria for the research proposal

Criteria	Excellent: ≥ 85	Very good: 75-84	Fair: 65-74	Poor: 50-64
Introduction	The research question is relevant to the area of HESC; the purpose, hypotheses, and significance of the study are clear.	The research question is relevant to the area of HESC; the purpose, hypotheses, and significance of the study are reasonably clear.	The research question is somewhat relevant to the area of HESC; the purpose, hypotheses, and significance of the study are somewhat clear.	The research question is irrelevant to the area of HESC; the purpose, hypotheses, and significance of the study are not clear.
Literature review	The review literature is sufficient; key articles are cited; a summary table of the research area is presented.	The review literature is sufficient; some of the key articles are cited; a summary table of the research area is presented.	The review literature is somewhat sufficient; some of the key articles are cited; no table summarizing the area.	The review literature is not sufficient; the key article is not cited; no table summarizing the area.
Methodology	The sample is sufficient; research design and statistical analysis are appropriate; the procedures are manipulated correctly.	The sample is sufficient; research design and statistical analysis are appropriate; the procedures are somewhat manipulated correctly.	The sample is not sufficient; research design is appropriate; statistical analysis is not appropriate; the procedures are somewhat manipulated correctly.	The sample, research design, and statistical analysis are not appropriate; the procedures are not manipulated correctly.
Reference: APA style	APA style	APA style	APA style	It is not clear what type of style used.
General impression; grammatical	No spelling or grammatical errors; It is clearly readable; the arguments are logically developed.	Few spelling and grammatical errors, but paper is still understandable	Some spelling and grammatical errors, making paper difficult to understand in places	Arguments are not logically developed; many spelling and grammatical errors, which present significant barrier to understanding

LECTURE OUTLINE

Date	Lecture - CLB 2 Lecture - CLB 5 Computer lab - 106/108	Content	Readings
Week 1: 9/3/09 10/3/09	Lecture Lecture	Introduction to the course Introduction to research	BL: chapter 1
Week 2: 16/3/09 17/3/09	Lecture Lecture	Ethics in research Review of literature	BL: chapter 2 TN: chapter 2
Week 3: 23/3/09 24/3/09	Lecture Lecture	Research paper and proposal Research writing and review articles	BL: chapter 4 BL: chapter 5-6
Week 4: 30/3/09 31/3/09	Lecture Lecture Computer lab	Basic statistical concepts Central tendency, variability, and the normal curve Introduction to SPSS; Descriptive statistics	BL: chapter 7 BL: chapter 8
Week 5: 6/4/09 7/4/09	Lecture Lecture Computer lab	Probability and hypothesis testing Differences among groups; Rationale of the <i>t</i> -test <i>t</i> -test: independent and dependent <i>t</i> -tests	BL: chapter 9 BL: chapter 11; TN: chapter 8
10/4/09-19/4/09	Mid-session recess		
Week 6: 20/4/09 21/4/09	Lecture Lecture Computer lab	Measurement and data collection concepts Relationship among variables; correlation and regression Correlation and regression	BL: chapter 13-14 BL: chapter 10; TN: chapter 7
Week 7: 27/4/09 28/4/09	No lecture Lecture Computer lab	Anzac day One-way ANOVA One-way ANOVA	BL: chapter 11; TN: chapter 8
Week 8: 4/5/09 5/5/09	Lecture Lecture Computer lab	Experimental research & designs Repeated measures ANOVA; ANCOVA Repeated measures ANOVA; ANCOVA	BL: chapter 15 BL: chapter 11; TN: chapter 8
Week 9: 11/5/09 12/5/09	Lecture Lecture Computer lab	Non-experimental/descriptive research Mixed between-within Mixed between-within	BL: chapter 16 P: chapter 18
Week 10: 18/5/09 19/5/09	Lecture Lecture Computer lab	Qualitative methods Two-way ANOVA Two-way ANOVA	BL: chapter 17 TN: chapter 8
Week 11: 25/5/09	Lecture	Quality control & assessment in research	BL: chapter 18-19

26/5/09	Lecture Computer lab	Non-parametric statistics Non-parametric statistics & revision	BL: chapter 12
Week 12: 1/6/09	<i>Students activity</i>	<i>Research proposal presentation</i>	
2/6/09	<i>Students activity</i>	<i>Research proposal presentation</i>	
	<i>Students activity</i>	<i>Research proposal presentation</i>	

BL: Berg & Latin, 2004; TN: Thomas & Nelson, 2001; Pallant, 2001.

Exams

Written exam:

Friday, 12/6/09, 10-12 am; room TBA

SPSS practical exam: open book (students are allowed to bring SPSS lab manual into the exam room).

- Friday, 12/6/09, 2-3.30 pm; room G2-G4
- There will be four questions with different marks depending on the difficulty level. However, students only need to answer two questions of their choice.