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PT 561.01: Research in Physical Therapy

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PT 561

Research in Physical Therapy
Fall 2002

- I. Credit: 2 semester credits
- II. Instructors: Chuck Leonard, PT, PhD
Ann Williams, PT, PhD
- III. Clock Hours: 3 hrs/wk T: 3:10-4 (SB 113)
R: 10:10-12 (SB 113)
- IV. Course Description: Basic principles of research design and statistical analysis, investigation and analysis of published research. Application of statistical analysis to clinical settings.

V. Required text:

Portney LG, Watkins MP, Foundations of Clinical Research, Applications to Practice, 2nd Ed, Appleton & Lange, 2000.

American Psychological Association, Publication Manual of the American Psychological Association, Fourth Ed.

VI. Schedule: See attached

VII. Objectives: See attached

VIII. Course Requirements and Methods of Evaluation:

Written examination	50%
Review of Articles	50%

Working with one partner, each pair of students is required to submit a critique of the four cited articles. Each critique should include both positive and negative aspects including an analysis of the statistics and should be no longer than two pages (double spaced, 12 pt).

The final exam for this course will be open book/open note and will include questions regarding the critiqued articles.

Grading Scale:	70-79%	C
	80-89%	B
	90-100%	A

PT 561 Research in Physical Therapy
Schedule and Content

- 9/3,5/02 Course Intro, Research Design (Chap 10, 12, 13,15)
- 9/10,12/02 Research Design (Descriptive, Associational, Experimental, Single Subject, Case Reports)
- 9/17,19/02 Research Process, Institutional Review (Chap 31)
- 9/24,26/02 Research and Ethical Issues, Statistical Packages (Excel, SPSS) (Chap 3)
- 10/1,3/02 Type I & II Errors, Validity, Reliability, Indep & Dep Variables, Internal & External validity (Chap 5,6,399-402)
- 10/8,10/02 Descriptive Statistics, Surveys and Sampling (Chap 8, 14, 17)
- 10/15,17/02 Inferential Statistics (Chap 19)
- 10/22,24/02 Inferential Statistics (Chap 20,21)
- 10/29,31/02 Correlation/Regression (Chap 23,24)
- 11/7/02 Non-Parametric Statistics (Chap 22,25)
- 11/12,14/02 Non Parametric Stats, Advanced Techniques (Multiple Regression, MANOVA, Factor Analysis, Discriminant Analysis) (Chap 27)
Article critiques due
- 11/19,21/02 Advanced Techniques, Discussion of Article Critiques

Final Exam as per schedule – Exam will be open book.

PT 561 Objectives

- 1 - Knowledge and Comprehension
- 2 - Application
- 3 - Psychomotor
- 4 - Synthesis
- 5 - Affective

Content Outline

At the end of the course, the student will, as demonstrated in written and computer assignments, written examination, written proposal, and oral presentation, with at least 70% accuracy:

Content Area (indicated by capital letters)

- A. Research Design and Process
 - 1 . 1 Describe the various types of research design to include: descriptive, associational, experimental, single-subject, and epidemiological studies.
 - 2 . 1 Given a research article, determine the type of design.
 - 2 . 2 Discuss ethical issues in the research process.
 - 4 . 1 Demonstrate knowledge of the components of a published research manuscript by successful completion of critiques of research articles..
 - 4 . 2 Given a research article, critique the article in terms of design, method, analysis, and discussion.
 - 5 . 1 Demonstrate appropriate professional behaviors during class discussions.
- B. Sampling and Surveys
 - 1 . 1 Describe the various methods of sampling.
 - 1 . 2 Discuss the process of designing a survey.
 - 4 . 1 Given a research question, determine the appropriate sampling technique.
 - 4 . 2 Given a research article using a survey instrument, critique the survey instrument.
 - 4 . 3 Given a project, design an appropriate survey instrument.
 - 4 . 4 Given the results of a survey, determine the appropriate statistical analysis.
- C. Statistical Analysis
 - 1 . 1 Describe the various levels of measurement.
 - 1 . 2 Describe when various statistical analyses would be performed to include measures of central tendency, variation, frequency analysis, graphs and tables, analysis of differences, analysis or relationships, and non-parametric analyses.
 - 1 . 3 Describe the meaning of the results of various statistical analyses.
 - 1 . 4 Describe the statistical analysis that can be done with selected statistical packages to include Excel and SPSS.
 - 2 . 1 Given data, determine the level of measurement.
 - 2 . 2 Given a data set, determine the appropriate statistical analysis.

- 3 . 1 Apply statistical analysis to clinical settings including setting up data sets, satisfaction surveys, and collective outcome data sets.
- 4 . 1 Given a research design and data set, determine the appropriate statistical analysis.
- 4 . 2 Given a research article, critique the statistical analysis.
- 4 . 3 Given a statistical analysis, interpret the output in terms of relevance to the research question.