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PT 561.01: Research in Physical Therapy

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PT 561

Research in Physical Therapy
Fall 2001

I. Credit: 3 semester credits

II. Instructors: Chuck Leonard, PT, PhD
Ann Williams, PT, PhD

(Other faculty serve as research advisers and guest lecturers)

III. Clock Hours: 3 hrs/wk Wed: 9:10-10 (CP 204)
Thurs: 10:10-12 (SB 113)

IV. Course Description: Basic principles of research design and statistical analysis, planning and implementing the inquiry process, investigation and analysis of published research, computer analysis of data sets, research and writing of a proposal for a research/special project. 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 and computer assignments	20%
Written examination	20%
Oral Presentation of proposal	20%
Written Proposal	40%

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

During the term students will be assigned faculty advisers for their research/special projects. These faculty advisers are responsible for and will grade the written proposal.

PT 561 Deadlines

Sep 20 - Written submission of rough ideas for project

Oct 4 - Written submission of refined idea

Oct 18 - Assignment of faculty advisors

Deadlines for first and second draft of proposal should be worked out with your adviser.

Dec 17 - final copy of proposal due

PT 561 Research in Physical Therapy
Schedule and Content

9/5/01	Intro to Course and Proposal
9/6/01	Faculty Research Presentations
9/12/01	Research Design (IRB)
9/13/01	Lab Orientations
9/19/01	Research Design
9/20/01	The Research Process
9/26/01	Research Issues
9/27/01	Research Issues
10/3-4/01	Statistical Analyses - Type I & II Errors, Ind/Dep Variables, Internal/External Validity/ Descriptive Stats (Reading PP 163-173; 209- 212, Chap 17)
10/10-11/01	Surveys and Sampling, Epidemiology (Reading: Chaps 8,14,15)
10/17-18/01	Inferential Statistical Analysis, T-test (Chap 18,19)
10/24-25/01	ANOVA, MANOVA, Single Subject Design (Chaps 20, 21, 12, 615-619)
10/31-11/1/01	SPSS
11/7-8/01	Correlation/Regression, Non-parametrics, reliability (Chaps 22,23,24,25,26)
11/14-15/01	Advanced Techniques (Chap 27)
11/ 28/01	Assignment Due
11/28-29/01	Review articles, assignments
12/5-13/01	Research Presentations

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.
 - 2 . 3 Apply correct medical literature style format or other acceptable format in a written proposal.
 - 4 . 1 Demonstrate knowledge of the components of a published research manuscript by successful completion of a research/special project proposal.
 - 4 . 2 Demonstrate familiarity with the process of literature search and review by successful completion of a research/special project literature review.
 - 4 . 3 Demonstrate familiarity with the IRB process by successful completion of an IRB application.
 - 4 . 4 Demonstrate synthesis of the research process by the successful writing and oral presentation of a research/special project.
 - 4 . 5 Given a research article, critique the article in terms of design, method, analysis, and discussion.
 - 5 . 1 Demonstrate appropriate professional behaviors during oral presentations.
- 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 of relationships, and non-parametric analyses.
- 1 . 3 Describe the meaning of the results of various statistical analyses.
- 2 . 1 Given data, determine the level of measurement.
- 2 . 2 Given a data set, perform a given statistical analysis using the computer.
- 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.
- 4 . 4 With the assistance of the faculty adviser and the course instructor, determine the appropriate statistical analysis for a research/special project.