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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:

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 or 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.