Western Kentucky University
Department of Allied Health
Doctor of Physical Therapy Program

Course Number: DPT 783

Course Title: Research in Physical Therapy III

Credit Hours: 3

Lecture Hours: 8 hours/week (7 hours lecture; 1 hour online)

Weekly Schedule: Tu/ Th 8:00-12:00

Office Hours: Tu/ Th 12:30-1:00 pm; Tu 4:00-5:00 pm; Fri 11-12:00

Location: TBA

Instructor: Beth Norris

Course Description:
Use of SPSS for physical therapy related data analysis, including descriptive statistics, statistical inference, analysis of differences, and analysis of relationships. Prerequisite: DPT 782. Open only to DPT students in good standing.

Course Objectives:
At the completion of the course content, the student will be able to:

1. Discuss the need for integrating best evidence for physical therapy practice as it relates to outcomes research. (CC-5.23)
2. Describe basic clinical research design and be able to cast appropriate statistical analyses to the design.
3. Describe the rationale and process of hypothesis testing.
4. Explain Type I and Type II errors.
5. Explain and perform measures of effect size and power, including determination of sample size.
6. Demonstrate logical deductive and inductive reasoning.
7. Demonstrate appropriate use of SPSS software.
8. Write up and discuss research results from case scenarios.
9. Demonstrate competence in making graphs and figures.
10. Compare, contrast, and conduct descriptive and inferential statistics.
11. Conduct and interpret t-tests.
12. Conduct and interpret one-way and factorial ANOVAs.
13. Conduct and interpret correlational statistics.
14. Conduct and interpret basic regression analysis.
15. Conduct and interpret tests of reliability and validity.
16. Conduct and interpret chi-square analyses.
17. Conduct and interpret tests of diagnostic accuracy.

18. Conduct and interpret risk reduction and number needed to treat.

Course Structure and Learning Experience:

This course combines both lecture and laboratory teaching. The laboratory portion of course will be utilized to perform basic statistical analyses using SPSS. The laboratory portion of the class will be performed in the computer lab. The student will gain knowledge in this course from the combination of: 1) Self-study (e.g. reading material); 2) Critique of scientific literature; 3) Lecture material; 4) Computer laboratory sessions; 5) Individual and group homework outside of class; and, 6) Practical experience writing up the results of the statistical analyses. Emphasis will be placed on statistical methods and tests that are commonly used in the rehabilitation setting. This course will prepare the student to interpret and perform basic statistical analyses that will be commonly encountered in physical therapy.

Evaluation Methods:

1. **Attendance**
   Attendance and promptness to class will be monitored. Students must sign in at the beginning of each lecture/presentation and document the time of arrival. One percentage point will be deducted each occurrence of tardiness and 2 percentage points will be deducted for each unexcused absence.

2. **Testing**
   a. **Written Exams (2 @ 50 points; 100 points)**
      Students will be required to take 2 written tests of the material learned in class. Students will also be expected to perform statistical analyses as part of the examination**. Each exam is worth 50 points, for a total of 100 points.**
   b. **Quizzes (4 @ 10 points; 40 points): Four** unannounced quizzes will be offered throughout the semester (10 points each)
   c. **Mediasite Lecture/Quiz (6 @ 5 points; 30 points):** Five Mediasite lectures will be provided as an overview to the statistical topic to be covered in designated class sessions. Students are to listen to the Mediasite recording and complete a quiz PRIOR to attending the class. Each Mediasite lecture/quiz is **5 points, for a total of 30 points.** If a student does not complete the Mediasite lecture/quiz prior to class, 0 points are awarded. There are **no make-up opportunities** for missing a Mediasite deadline.
   d. **Assignments (3 @ 25 points each: 75 points)**
      Students will perform group assignments using data from clinically relevant physical therapy examples.
   e. **Group Presentation** of one statistical analysis (**30 points**)
   f. **In class assignments (4 @ 10 points: 40 points)**
      - There will be several in class data analyses conducted to assist you in understanding statistical analysis conducted with SPSS. During or at the end of each class, you will submit components of these analyses electronically or manually.

3. **Grading**
   a. **Course Grading**
   The final course grade is a letter grade. The course grade will be based on the following:

Assignment/ Test	**Points**
Midterm Exam	50
Final Exam	50
Quizzes (4)	40
Mediasite Lecture & quizzes (6)	30
Homework Assignments (4)	100
Presentation of 1 Statistical Analysis	30
In class assignments (4)	40
Attendance	- 2% point
Tardiness	-1% points
Total Points	**340**

   b. **Numeric and Letter Grade Translation**
   A 90-100
   B 80-89
   C 70-79
   F <70

Instructional Practices:

1. **Teaching Methods**
   a. Lecture
   b. Class discussion
   c. Student self-study
   d. Collaborative projects
   e. Use of SPSS
   f. Computer demonstration

2. **Teaching Aides**
   a. White board
   b. Video
   c. PowerPoint
   d. Computers with SPSS

Course Policies

1. **Refer to WKU DPT Student Manual for the following items:**
   a. Student Responsibilities (p. 40)
   b. Student Disability Services (p. 48)
   c. Copyright (p. 42)

d. Academic Misconduct (p. 27)
e. Religious Holidays Notification (p. 35)
f. WKU Writing Center (p. 48)
g. Missed Class(es)/Student (p. 34)
h. Professional Behaviors (p. 22)

The instructor reserves the right to make changes in the course schedule as needed to accommodate guest lecturers or to alter course content.

Required Texts:

1. Portney LG, Watkins MP. (2009). *Foundations of Clinical Research: Applications to Practice*. 3rd ed. Upper Saddle River, NJ: Prentice-Hall. ISBN: 0-13-171640-9

Recommended Text:

1. Carter R, Lubinsky J, Domholdt E. (2011). *Rehabilitation Research: Principles and Applications*. 4th Edition. Philadelphia, PA: WB Saunders Company. ISBN: 9781437708400
2. Green S.B. & Salkind N.J. (2010). *Using SPSS for Windows and Macintosh: Analyzing and Understanding Data.* (6th ed.). Prentice Hall. ISBN: 978-0205020409

Western Kentucky University (WKU) is committed to supporting faculty, staff and students by upholding ***WKU's Title IX Sexual Misconduct/Assault Policy (#0.2070)*** *at* *https://wku.edu/eoo/documents/titleix/wkutitleixpolicyandgrievanceprocedure.pdf and*

Discrimination and Harassment Policy (#0.2040) *at* *https://wku.edu/policies/hr_policies/2040_discrimination_harassment_policy.pdf.*

Under these policies, discrimination, harassment and/or sexual misconduct based on sex/gender are prohibited. If you experience an incident of sex/gender-based discrimination, harassment and/or sexual misconduct, you are encouraged to report it to the Title IX Coordinator, Andrea Anderson, 270-745-5398 or Title IX Investigators, Michael Crowe, 270-745-5429 or Joshua Hayes, 270-745-5121.

Please note that while you may report an incident of sex/gender based discrimination, harassment and/or sexual misconduct to a faculty member, WKU faculty are "Responsible Employees" of the University and ***MUST*** *report what you share to WKU's Title IX Coordinator or Title IX Investigator. If you would like to speak with someone who may be able to afford you confidentiality, you may contact WKU's Counseling and Testing Center at 270-745-3159.*

ADA Accommodation Statement

In compliance with University policy, students with disabilities who require academic and/or auxiliary accommodations for this course must contact the Student Accessibility Resource Center located in Downing Student Union, 1074. SARC can be reached by phone number at 270-745-5004 [270-745-3030 TTY] or via email at sarc.connect@wku.edu . Please do not request accommodations directly from the professor or instructor without a faculty notification letter (FNL) from The Student Accessibility Resource Center.

Topical Outline

Date	**Topic**
Tuesday June 6	Rehabilitation Research Review Descriptive Statistics; Statistical Inference
Thursday June 8	Tests of Differences: t-tests and non-parametric equivalent
Tuesday June 13	One-way ANOVA and Non-parametric equivalents
Thursday June 15	Factorial ANOVA
Tuesday June 20	Factorial ANOVA and Non-parametric equivalents
Thursday June 22	Tests of Relationships: Correlation Regression
Tuesday June 27	Measures of Reliability
Thursday June 29	Measures of Association: Chi-Square Measuring Risk
Thursday July 6	Final Exam