

PT 583: CRITICAL INQUIRY III

DESCRIPTION: Introduction to research instruments including surveys, electrical and mechanical instrumentation critical to research methods. Includes discussion of validation, calibration, and reliability of instruments used in physical therapy research. Students develop a proposal for their scholarly projects and complete IRB use of human subject forms.

DEPARTMENT OF PHYSICAL THERAPY

INSTRUCTORS: Thomas Mohr, PT, PhD; David Relling, PT, PhD; other faculty depending on expertise.

CREDIT HOURS: One (1) credit hour

CLOCK HOURS: Elective course, offered as needed; course meeting times vary depending on the needs of the students and the instrumentation being utilized. Laboratory sessions are scheduled as needed to train students on use of instrumentation for research.

COURSE OBJECTIVES:

Students in this course are expected to learn how to use available research instrumentation based on their research interests. Examples of different learning objectives for the various instruments are given below. Not all objectives will be met within a semester long course. At the present time, the Department has equipment for motion analysis, electromyography, balance testing, body pressure measurement, un-weighting with treadmill. In addition, students have the option of performing survey research using specialized survey instruments. Statistical analysis of collected data is available within the department. Although individual instruments will require specialized training with emphasis on proper procedure the following elements would be common to all instruments:

A. INSTRUMENTATION:

Upon completion of this course, and depending the particular instrumentation; the student will be able to:

1. Compare and contrast the different types of instruments available for specialized data collection.
2. Determine the instrument that would be the most appropriate for various research designs and clinical applications.
3. Discuss theory related to the use of the chosen instrument.
4. Demonstrate proper set up of the equipment including computer applications and interfacing where appropriate, **or** demonstrate guidelines for developing questions and constructing an interview session or survey.
5. Demonstrate proper calibration or standardization of the instrument
6. Discuss reliability and validity of the instrumentation as used in research and clinical applications.
7. Determine (if necessary) the reliability of the instrument to be used.
8. Recognize the importance of measurement error in research applications, and discuss measures which can be taken to reduce this error.
9. Perform data collection using the instrument.
10. Analyze the data collected utilizing the appropriate computer hardware and software.
11. Prepare tables, charts and figures of the results utilizing the computer software.
12. Compare the results to normal values or values generated by similar studies.
13. Perform backup and retrieval of collected data.

B. SCHOLARLY PROJECT:

After the completion of this course, the student will be able to:

1. Discuss the elements of the Scholarly Project including the introduction, literature review, methodology, results, discussion, appendices and references.
2. Define and identify the independent and dependent variables in a study.
3. Discuss the importance of a control group.
4. Discuss the importance of randomization in selecting and assigning subjects.
5. Discuss the importance of randomization of the testing sequences.
6. Discuss the importance and implications of sample size.
7. Discuss internal and external validity.
8. Describe various types of experimental and non-experimental research designs.
9. Participate in collaborative research in order to understand or contribute to the scientific basis for physical therapy practice.
10. Access appropriate professional literature databases and journals through computer library resources.
11. Review, analyze, and critique current literature related to the Scholarly Project.
12. Write a research proposal of the Scholarly Project, including the literature review and methodology for subject selection, instrumentation, and data collection and analysis.
13. Successfully complete the use of human subjects online training modules.
14. Complete and submit the required use of human subject's forms if necessary.

COURSE PREREQUISITES:

Registered in Professional Physical Therapy Curriculum

TEACHING METHODS AND CURRICULUM PRACTICE MODEL:

Teaching methods lecture and hands on laboratory sessions with research instrumentation. Contributes to Professional Practice through Critical Inquiry.

METHOD FOR EVALUATION:

Discussion and demonstration utilizing appropriate instrumentation.

OUTLINE OF CONTENT AND REQUIRED READINGS: Documentation associated with the instrumentation.

EXAMINATIONS:

Demonstration of competency using instrumentation. Passing score is 76%. See the UND-PT *Scholastic Standards* document for further reference.

ATTENDANCE:

Class attendance is expected 100% of the time. Students must first attempt to notify the instructor by phone or in person for any absences. The student must also contact the instructor directly through e-mail or written documentation for any absences.

MAKE UP WORK/EXAMINATIONS:

If an absence is anticipated, make up examinations should be completed *prior* to the absence. If an absence is unanticipated, arrangements for make-up examinations must be made *by the student within three days* of the student's return to classes. **Students may be assigned additional coursework for all absences.**

GRADING SCALE: A (92 – 100), B (84 – 91), C (76 – 83)

ACADEMIC INTEGRITY:

In accordance with the rules concerning scholastic dishonesty in the *Code of Student Life** at the University of North Dakota, I affirm that I understand these rules and I agree to comply with them.

I will not:

- a) receive any additional information or assistance for any exam other than what was provided during class or approved tutor sessions
- b) copy from another student's test
- c) collaborate with or seek aid from another student who may have previously taken the exam
- d) knowingly use, buy, sell, steal, or solicit in whole or in part the contents of any exam
- e) bribe another person to obtain information about any exam

DISABILITY ACCESS STATEMENT: Contact me, David Relling (office 777-4091, email david.relling@med.und.edu), or visit Rm E-343 UND SMHS) to request disability accommodations, discuss medical information, or plan for an emergency evacuation. To get confidential guidance and support for disability accommodation requests, students are expected to register with DSS at www.UND.edu/disability-services/, 180 McCannel Hall, or 701.777.3425.

NOTICE OF NONDISCRIMINATION: It is the policy of the University of North Dakota that no person shall be discriminated against because of race, religion, age, color, gender, disability, national origin, creed, sexual orientation, gender identity, genetic information, marital status, veteran's status, or political belief or affiliation and the equal opportunity and access to facilities shall be available to all. Concerns regarding Title IX, Title VI, Title VII, ADA, and Section 504 may be addressed to Donna Smith, Director of Equal Employment Opportunity/Affirmative Action and Title IX Coordinator, 401 Twamley Hall, 701.777.4171, und.affirmativeactionoffice@UND.edu or the Office for Civil Rights, U.S. Dept. of Education, 500 West Madison, Suite 1475, Chicago, IL 60611 or any other federal agency.

REPORTING SEXUAL VIOLENCE: If you or a friend has experienced sexual violence, such as sexual assault, domestic violence, dating violence or stalking, or sex-based harassment, please contact UND's Title IX Coordinator, Donna Smith, for assistance: 701.777.4171; donna.smith@UND.edu or go to UND.edu/affirmative-action/title-ix.

FACULTY REPORTING OBLIGATIONS REGARDING SEXUAL VIOLENCE: It is important for students to understand that faculty are required to share with UND's Title IX Coordinator any incidents of sexual violence they become aware of, even if those incidents occurred in the past or are disclosed as part of a class assignment. This does not mean an investigation will occur if the student does not want that, but it does allow UND to provide resources to help the student continue to be successful at UND. If you have been the victim of sexual violence, you can find information about confidential support services at UND.edu/affirmative-action/title-ix.

UND CARES RESPONSE TEAM: The [UND Cares Response Team](#) is available to assist with incidents involving UND students 24 hours a day, seven days a week. They respond to incidents such as major accidents, missing students, sickness that interferes with attending classes, death, suicidal ideations, situations involving self-harm, psychological trauma and sexual violence. Contact directly at 701.777.2664 during regular business hours OR 701.777.3491 after hours. *If problems occur, students are required to work through channels of communication to resolve the problem before going to the chair or dean. The channel is student, instructor, chair, associate dean health sciences, and dean.* rev 12/2019