**Course Number and Title:** PTH 401: Statistical & Research Methods

**Number of Credits:** 3 Credit Hours

**Prerequisites:** Good standing in the Physical Therapy Program

**Professional Track Mission Statement**
The aim of the professional track in the Carroll University Entry-Level Physical Therapy program is to prepare an entry-level generalist trained clinician to successfully meet all requirements of the professional practice, and practice management expectations. Graduates will demonstrate self-directed learning, critical thinking, problem-solving ability and community needs awareness to allow autonomous practice within a changing and diverse health care environment.

**Course Description:**
This course introduces evidence-based practice and the theory and practice of research. The components and processes of statistical methodology and quantitative and qualitative research designs are emphasized. Learners access and read a variety of literature sources to develop and answer research questions and propose methods.

**Meeting Time:**
- C & D: 12:00-1:25 pm T/R
- A & B: 1:35-3:00 pm T/R

**Location:**
- CGS 107

**Faculty:** Lenny Ramsey, PhD
Office Hours:
- T/R 11am-12pm and W 12-2 at the CGS
- By appointment in PT building room 122

Email: lramsey@carrollu.edu
Cell: 314 285 2932

**Required Texts and Journals:**
On www.FADavis.com you get a 20% discount with the following promo code: R5RQBB3Z.

**Optional Texts and Additional Reading Materials**
As appropriate, additional texts, article readings, and video/DVD viewing may be assigned via Canvas.

**Course Objectives:**
Upon successful completion of this course, the student will:
1. Summarize components of evidence-based practice.
2. Formulate clinical questions related to each part of the patient/client management model.
3. Identify and access appropriate sources of information.
4. Develop and carry out effective and efficient searches of the scientific literature for answers to clinical questions.
5. Identify the various types of data in a study.
6. Summarize and differentiate the conclusions that can be drawn from various parametric and nonparametric statistics.
7. Compare and contrast the characteristics of study populations to clinical populations.
8. Summarize and differentiate the different types of experimental, exploratory, and descriptive designs.
9. Evaluate the appropriate research design to answer the various types of clinical questions.
10. Understand the role of ethics, legislation, and environment in research.

Linkages between these course student learning outcomes/objectives and the Entry-level Physical Therapy program goals can be reviewed within the document entitled “Curriculum Matrix” found on the LMS site for the Carroll University DPT Program.

Course Requirement Descriptions and Guidelines:
This course will be a combination of lecture, homework, group projects, and student participation in class discussions.

Lectures & Assigned Readings
Assigned readings (book chapters, articles, etc.) should also be reviewed prior to class. All materials are available for purchase through the bookstore or via LMS. Each class will be conducted under the assumption that you are prepared. If you are not adequately prepared, you will not benefit from your attendance in class.

You are expected to come to class with questions about the assigned readings and to actively participate in class discussions.

Homework Assignments & Discussion
Homework assignments will be developed which will help you to learn and review specific concepts. You are expected to turn in homework at the beginning of class on the day the assignment is due.

Exams
There will be three exams in this course. Exam question formats include, but are not limited to, multiple choice questions, matching, short answer, problem solving, calculation, and essay. Consider all exams to be cumulative. The information, theories, applications, etc., which were learned in a previous section of the course are the building blocks for future sections.

Interview Assignment
In pairs you will interview someone that is active as a clinician and ask them how they use evidence based practice in their work and what they would recommend to you as future practitioners.

Questions Assignment
The first step in EBP is designing answerable questions based on a patient case that will guide your literature searching. For this assignment, you will write 4 questions (2 background, 2 foreground). Questions should follow the PICO format as described in lecture and your readings.

Literature Search Assignment
Once a question is developed, you must be able to efficiently and effectively access information using online literature search databases. For this assignment, you will be required to find appropriate resources to complete assigned worksheets. Questions will be short answer and will require the student to be familiar with library resources and online literature search databases.

Research Design Assignments
Students will work in groups to formulate their topic into 4 different types of questions. For each question the appropriate literature types will be determined and articles will be found to support the questions. In each article: identify the design, sample, variables and statistics and explain why Each group will then present to the class a review of their articles and discuss reasoning’s behind each study’s research design.

Research Proposal and Group Presentation
The purposes of these assignments are for you to demonstrate the ability to apply the knowledge and skills gained throughout this course to develop a research hypothesis and protocol, and critically evaluate research design. Working in groups, you will propose a study to address your group’s identified research question. You will be
expected to provide relevant background information to support the importance of your proposal, generate a hypothesis, and design a study protocol including methods of data collection and analysis. A written proposal will be submitted. In addition, your group will be given 10 minutes to present your proposal to the class, followed by a brief question and answer period. The presentation should concisely and completely summarize the proposal. Each group member should have an active role in the presentation. You will be graded as a group based on your proposal and presentation, which together will account for 30% of the overall grade (15% for proposal, 15% for presentation). Peer assessment will occur for this assignment and will heavily influence your final assignment grade (i.e. members of the same group could receive different grades). The presentations will also be evaluated by a select group of your peers.

### Grading Summary:
<table>
<thead>
<tr>
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<th>Linked Objectives</th>
<th>Grading Scale</th>
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</thead>
<tbody>
<tr>
<td>Exam I</td>
<td>15%</td>
<td>A 93-100</td>
</tr>
<tr>
<td>Exam II</td>
<td>15%</td>
<td>AB 92-90</td>
</tr>
<tr>
<td>Quizzes &amp; homework</td>
<td>20%</td>
<td>B 89-80</td>
</tr>
<tr>
<td>Question and Lit search assignments</td>
<td>10%</td>
<td>BC 77-79</td>
</tr>
<tr>
<td>Research Design assignments</td>
<td>10%</td>
<td>C 70-76</td>
</tr>
<tr>
<td>Research Proposal</td>
<td>15%</td>
<td>D 69-60</td>
</tr>
<tr>
<td>Group Presentation</td>
<td>10%</td>
<td>F &lt; 59.95</td>
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<tr>
<td>Participation in class and discussions</td>
<td>5%</td>
<td>Total: 100%</td>
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### Class Policies:
Class policies regarding attendance, assignments, academic standards, and general conduct are in accord with those outlined in the “Entry-Level Doctor of Physical Therapy Student Handbook”. Policies in the Student Handbook apply to all aspects of this course and supersede in-class policies if they conflict.

### Accommodation for Disabilities:
Any requests for accommodation must be made through the Disability Services Coordinator in the Walter Young Center (524-7335). Appropriate accommodations will be made once notification has been received from the Walter Young Center.

### Statement on Academic Integrity:
The Carroll University Academic Integrity Policy is located in your student handbook. You are encouraged to become familiar with the policy. If a student violates this policy in any way, the instructor reserves the right to impose a sanction of failure on the assignment/lab/assessment or failure in the course.

### Modifications to the syllabus:
The instructor and the University reserve the right to modify, amend, or change the syllabus (course requirements, grading policy, etc.) as the curriculum and/or program require(s).
**Schedule:**
All assigned readings should be completed prior to the start of class. Additional readings including journal articles will be assigned and will be posted.

<table>
<thead>
<tr>
<th>Date</th>
<th>Topic</th>
<th>Preparation</th>
<th>Assessments</th>
</tr>
</thead>
<tbody>
<tr>
<td>9/7</td>
<td>Introduction, Overview of Course, Evidence Based Physical Therapy</td>
<td>Ch. 1,11</td>
<td></td>
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<tr>
<td>9/12</td>
<td>Asking questions and finding evidence</td>
<td>Ch. 2</td>
<td></td>
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<tr>
<td>9/14</td>
<td>Library In-Service: Finding evidence</td>
<td></td>
<td>Clinical questions due</td>
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<tr>
<td>9/19</td>
<td>Levels of evidence and credibility of sources</td>
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<td>HW 1: Quiz</td>
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<tr>
<td>9/21</td>
<td>Reading a research article</td>
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<td>Literature search due</td>
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<tr>
<td>9/26</td>
<td>Research Design: types of research</td>
<td>Ch. 3</td>
<td>HW 2: Reading an article</td>
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<td>9/28</td>
<td>Research participants and sampling</td>
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<tr>
<td></td>
<td>Variables and measurement</td>
<td>Ch. 5</td>
<td>HW 3: Quiz</td>
</tr>
<tr>
<td>10/3</td>
<td>Research validity and bias</td>
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**Unit 1: Foundations of Research**

**Unit 2: Basic Concepts of Statistics**

**Unit 3: Research Design**

**Exam I: Foundations of Research**

**Exam II: Basic Concepts of Statistics**

**Exam II**

**Written proposal**