Christopher Dodd, MS.
Office Hours: 10:30-12:00 MWF and by appointment or dropping in
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Pre-requisite: ESC 320 or equivalent
Number of credits: 4

Meeting Times and Location:
Section A: MWF 12:00 – 1:10 p.m Rankin 111
Section B: MWF 9:20 – 10:30 a.m. Main 309

Course description
This is an advanced course in clinical exercise testing and prescription that will focus on the applicable assessment techniques, treatment procedures, exercise prescription, and patient education for individuals with cardiovascular, pulmonary, metabolic, musculoskeletal and neuromuscular diseases. This course will also examine common special needs such as cognitive, psychological and sensory disorders. The course is designed to provide the student with a basic understanding of the pathophysiology and exercise responses in these special populations.

Required texts


Course objectives
Upon successful completion of this course, a student should be able to:
1. Understand and apply the pathophysiology of cardiovascular, pulmonary, metabolic, musculoskeletal, and neuromuscular diseases as well as the etiology and epidemiology of these diseases.
2. Describe the principle actions of and effects on exercise testing and prescription of common classes of medications to treat cardiovascular, pulmonary, and metabolic diseases.
3. Demonstrate an understanding of the risks and benefits associated with exercise participation by individuals with chronic disease.
4. Recognize and interpret common ECG arrhythmias in the context of exercise testing and supervision.
5. Select and interpret pre-exercise evaluations as well as commonly used exercise and functional tests appropriate for special populations.
6. Design evidence-based exercise programs and treatment outcomes for special populations and modify appropriately to meet the needs of an individual with special needs.
7. Demonstrate knowledge of proper equipment, arrangement, and facility modifications to accommodate use by individuals with special needs.
8. Examine the principles and practices of rehabilitation.
9. Distinguish the role of the exercise professional as part of a collaborative health care team.
Course outline/map - See separate document.

Course requirements
Requirement: Course Objectives:
• Case studies (4) 40% 1, 2, 3, 4, 5, 6, 7, 9
• Research presentations (2) 10% 1, 5, 6, 8
• Short exams (5) 35% 1, 2, 3, 4, 6
• Homework and in-class assignments 10% 2, 4, 5, 6, 7
• Service Learning (minimum of 3 hours w/reflection) 5% 4, 7, 8, 9

Assessment of students
1. Case studies and in-class case presentation (40%). This component of the final course grade includes performance on three (3) case studies provided by the instructor, involving clients with cardiovascular disease risk factors (10%), cardiovascular disease (20%), and metabolic syndrome/diabetes (25%). These case studies will be completed in small groups of 3-4 students. For each case study, students will be provided with a paper client and guiding questions. Students will accomplish the following in their case study reports:
   • Identify risk factors, signs/symptoms, health problems/concerns, co-morbidities, etc.
   • Identify and address special considerations
   • Identify and provide scientific reasoning for exercise programming and goals/progression
   • Identify and provide scientific reasoning for lifestyle modification including nutrition and risk factor reduction
   • Discuss the basic pathophysiology of the disease/disorder and epidemiology
   • Discuss recommendations for disease management based on current evidence (including medications and effects on exercise)
   • Identify and provide scientific reasoning for appropriate tests (labs, screenings, pulmonary, fitness, etc.)
This component also includes a final case study that is developed, completed and presented by the students. The final case study will be weighted 35% of this requirement, and will focus on an orthopedic/neuromuscular disorder and must include at least one major co-morbidity (CVD, COPD, or a metabolic disorder). The client profile for final case study must be approved in advance by the instructor. Students will work in small groups of 3-4 persons and will provide the above information for their final case study client in a written report and a 15-20 minute PowerPoint presentation. The final group case study is a culminating assignment.
   The final 10% of the case study grade will be based on peer evaluations of each student’s contributions and effectiveness as a group member on each case study. Each student will submit a self and peer evaluation of the performance of each of the members of their group by the due date for each of the case studies.
   All case studies are to be submitted electronically to Turnitin.com and on LMS by the assigned due date and time. Students will be given class time for collaborative work on their case studies.

2. Evidence-Based Research Mini-Presentations (10%) – In the health field, practitioners must be able to develop evidence-based treatments and to use a problem-oriented approach to disease management. This assignment will help students develop the important problem-solving, critical thinking, and research skills required for evidence-based practice. Students will work in groups of 4-5 to present two mini-presentations on practice-based questions.
   For each presentation teams of students will search the literature for sources with the highest available level of evidence to answer a practice-based question in a manner that demonstrates a clear
understanding of the information as well as meaningful connections between research evidence and main course concepts. Refer to Students will integrate the information from the sources and present to the class a very short (< 5 min) summary of the information. Additional guidelines will be provided in a separate document.

3. **Exams (35%)** – Students will complete a total of four short exams plus a cumulative final exam. The first four exams will consist of 20-30 questions; the format may include multiple-choice, matching, fill in the blank, and short answer questions.

- Exam 1 = 15%
- Exam 2 = 25%
- Exam 3 = 15%
- Exam 4 = 15%
- Final Exam = 30%

4. **Homework and in-class assignments (10%)** – This course will utilize a student-centered approach to learning. This approach requires active preparation and participation from the students. Throughout the semester, students will be assigned homework and in-class assignments to complete. This component will include the following components:
  - Being prepared with completed homework assignments in the assigned format by the due date
  - Performance on in-class activities.
  - Demonstrating on-task behavior and a positive attitude in class and actively engaging in class discussions/activities. This includes professional behavior in class.

5. **Service learning and outside experience (5%)** – During this course students will participate in a minimum of 3 hours of structured outside experiences. As part of this experience, students will need to complete any necessary paperwork and logs. In addition, students will complete online written reflections. Additional instructions will be provided.

**Grading**

Grades will be based on the following set cut-off percentages (grades are not rounded):

- A = 100.00-92.00%
- AB = 91.99-88.00%
- B = 87.99-83.00%
- BC = 82.99-77.00%
- C = 76.99-70.00%
- D = 69.99-60.00%
- F = < 60

Please refer to the course map for specific due dates. All homework assignments and case studies will be computer-generated. Hand-written pages will NOT be accepted unless explicitly noted in the instructions. Case studies will be submitted electronically on LMS and on TurnItIn.com. Assignments will be graded within 3 weeks of due date.

**Standards for written work.**

The following criteria will be used to evaluate all submitted written work:

- Independent research and inquiry, incorporating evidence from credible resources. This includes the proper citation (APA style) every time a reference is used. Use of scientific literature is expected in addition to credible online sources (.gov, .edu).
- Ability to evaluate and compare and contrast research findings and make direct connections to course materials/content.
• Synthesis of knowledge from various sources to define a conclusion, and then reflect and apply the information appropriately based on the assignment.
• Overall ability to clearly articulate ideas and focus writing to address the question without including irrelevant information.
• Overall organization and completeness of work based on written directions as well as in-class verbal instructions.
• Appropriate use of scientific writing style and proper spelling, grammar, and punctuation.

Note: A separate grading rubric will be provided. Limited responses, vague generalizations, lack of evidence, and a lack of flow/organization in writing will not receive full credit.

Policy on late work.
All assigned homework, in-class quizzes, and presentations must be completed and submitted at the beginning or prior to the scheduled class session that they are due. Late work for the aforementioned classwork will not be accepted after the due date for credit. There are no exceptions.

Due dates for case studies are indicated on course map. Case studies must be uploaded to TurnItIn and LMS by the indicated date and time. Points will be deducted for late assignments (10% per day).

Attendance.
Students are expected to be prompt and regular in attendance at all scheduled classes. Absence from class can only detract from learning; however, if a student is unable to attend a class due to illness or a legitimate emergency/university-approved excused absence, he or she must notify the instructor in a timely fashion. Faculty do not grant permission for class absence, and the student is responsible for the work missed to include getting the information covered in class from classmates and turning in any homework and/or learning activities for scheduled class sessions. Learning opportunities that cannot be replicated will not be rescheduled for planned absences. Consistent attendance at all scheduled course activities is necessary for students to meet course objectives.

If a student is dealing with extenuating circumstances, then it is the student’s responsibility to personally meet with the instructor as soon as possible (before the assigned due date) to discuss and make alternative arrangements. Alternative arrangements/assignments are at the discretion of the instructor.

Student conduct in the classroom.
Any student behavior that interferes with an instructor’s ability to teach and classmate’s ability to learn without distraction is unacceptable. These behaviors may include, but are not limited to: 1) disrespectful verbal or nonverbal behavior, or displaying an overt negative attitude, 2) talking when the instructor or another student is talking to the class, 3) behavior that is disrespectful to the physical environment, and 4) reading or working on materials (print or Internet) not applicable to the current course topic/discussion. In addition, 6) the use of cell phones (including texting) in class is not permitted.

Writing Center and Research Support
The Carroll University Writing Center, located in the Learning Commons is open Monday through Thursday from 10-6, and on Sunday evenings from 4-8. Writing Assistants are available to help with all stages of the writing process, from pre-writing to development to citation. Assistants can be seen on a first come, first served basis, though the Center recommends making an appointment by accessing LC Online through the Learning Commons.
link on the student portal. Students are encouraged to get assistance if necessary with research from library staff. Susan Heffron is the librarian responsible for supporting student learning in the health sciences.

**Statement of the right to modify course content**

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).

**Accommodation of special needs**

Students with disabilities who may need accommodations or any student considering obtaining documents should make an appointment with the Walter Young Center (262-524-7621) no later than the first week of class.

**Academic honesty and due notification**

*The Carroll University Academic Integrity Policy is located in the student handbook—https://my.carroll.edu/ICS/icsfs/Student_Handbook_14-15_Updated. Please familiarize yourself with it. Carroll University emphasizes that students have an obligation to conduct their academic work with honesty and integrity. All acts of academic misconduct are serious. If you have any questions about appropriate citations, please ask.*