COLLEGE OF CHARLESTON
PEHD 433: RESEARCH METHODS AND DESIGN IN HEALTH AND EXERCISE SCIENCE
3 Credit Hours
FALL 2011

Class Times: 8:00-9:15 am, Tu-Th (Section 2)
Class Location: Johnson Center, Room 206
Prerequisites: PEHD 330, 340; MATH 104 or equivalent; or permission of the instructor
Instructor: William R. Barfield, PhD, FACSM
Office Location: 213 Silcox Physical Education and Health Center
Office Hours: MWF 10:00-11:00, Tu-Th 9:25-10:40 am, or by appointment
Office Phone: 843-953-6746
Email: barfieldw@cofc.edu

Course Description: The class will focus on data collection and interpretation in health and exercise science, including common physiological, biomechanical, anatomical, and health-related variables. Emphasis is placed on the development of a research question and the appropriate procedures to further the body of knowledge in the area of health and exercise science.

Student Learning Outcomes: Upon successful completion of the course, the student should be able to:
1. Define common research designs used in exercise science, health, athletic training, and medicine
2. Determine the positive and negative characteristics of various research designs
3. Assess and optimize validity and reliability of variables used in athletic training, health, and exercise science
4. Develop a research question and appropriate experimental hypothesis for the student’s specific sub-discipline of interest
5. Perform a thorough literature search using contemporary search engines
6. Assess the financial cost and level of invasiveness for various research methods
7. Make appropriate ethical decisions in research, including the use of special populations as research participants while involved in physical exertion
8. Understand statistical procedures
   a. Descriptive statistics
   b. Inferential statistics
9. Understand common statistical software packages
10. Interpret statistical evidence and discuss the pertinent implications
11. Write a research proposal using a common style specified by a peer-reviewed journal in his or her sub-discipline

Required Textbook:

Required Technology:
1. Internet
2. Microsoft Powerpoint
3. Microsoft Word

Policies:  
College of Charleston Student Handbook: This is a guide to your responsibilities and rights as a student. If you are not familiar with this document, please take the time to review the information contained within the handbook.
**Attendance:** Class attendance is required. If extreme circumstances necessitate an absence, you will be held responsible for the class material covered during your absence. Any assignment missed due to absence must be made up within one week to receive full credit. Excused absences will be considered for the following: serious illness, hospitalization, death of a family member or close friend, attendance at an event representing the College of Charleston. Appropriate documentation must be provided from the Undergraduate Dean’s Office for an absence. All absences beyond 1 will result in deduction of points from your final class average. If you miss more than 4 classes you will be dropped for excessive absences (WA).

You will be marked tardy if you arrive after the class has started, but within the first minute. If you are tardy on two occasions, this will equal one unexcused absence.

**Assignment Policy:** All assignments are due at the beginning of class on the day they are due.

**Examination Policies:** You will be notified at least one week in advance if there is a change in a test date. Please note that if you miss a scheduled test you will be awarded no points for that particular examination. Make-up examinations will be given when written documentation is obtained from the Office of Undergraduate Studies. It is the instructor’s prerogative to give an alternate exam if deemed necessary. If you know you will be unable to attend an examination due to an excused absence (i.e. athletic participation, religious holiday, etc.) you must notify the instructor at least one week prior to the absence to make alternative arrangements.

**Academic Honesty:** Please refer to the current College of Charleston Student Handbook for the definition of academic dishonesty and the subsequent penalties. Faculty members are required to report violations of the Honor Code to the Office of Student Affairs. If you are found guilty of an honor code violation your grade in the class will be XF and will be so indicated on your transcript.

**Cell Phone/PDA/ Laptop Computer Policy:**
The use of all PDA devices, including cell phones and laptop computers are expressly forbidden in the classroom. Texting, receiving or sending messages, cell phone use, or the use of laptop computers will result in immediate loss of points from your final class average and an absence will be recorded. If there is a 2nd violation of the class policy you will be awarded an F. The first violation will result in a 20 point deduction from your final class average. The 2nd violation is another 20 points, therefore making it impossible to successfully complete the class with a passing grade. Students must keep these devices turned off and out of sight during class. It is a violation of this policy to keep such devices on your lap, in your pocket or on the floor by your desk. Any suspicion of your use on my part will result in loss of points.

**Disability:** In compliance with the Americans with Disabilities Act (ADA), all qualified students enrolled in this course are entitled to “reasonable accommodations.” Please notify the instructor during the first week of class of any accommodations needed for the course.

**Grading:**

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<tr>
<th>Component</th>
<th>Points</th>
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<tr>
<td>Examination #1</td>
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<tr>
<td>Examination #2</td>
<td>100</td>
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<tr>
<td>Examination #3</td>
<td>100</td>
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<td>Final Exam</td>
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<td>Research Proposal</td>
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<td>Presentation</td>
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<td><strong>TOTAL POINTS</strong></td>
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Research Proposal: Students are encouraged to engage in research at the College of Charleston. Not all students will be involved in research. Other activities students can be involved with include: fitness assessment, Autism Project, Louie’s Kids, Franke Home at Seaside and others to be presented to you by early September. All 433 students MUST have written approval from your faculty mentor by October 15, 2011. Required components for research will include: introduction, materials and methods, and references. Those not involved with research MUST present their plan for meeting the PEHD 498-Capstone obligation in a similar fashion. By the end of the fall semester, 2011, researchers must have completed CITI training, IRB approval and be ready for data collection. The proposal includes:

- Introduction (25 points)
- Materials & Methods (25 points)
- Oral presentation (50 points)
- Written proposal of 3-5 double-spaced pages, including references (100 points)

**Evaluation Scale:**

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<tr>
<td>90-100%</td>
<td>A</td>
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<td>88-89%</td>
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<td>85-87%</td>
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<td>80-84%</td>
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<td>78-79%</td>
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<td>70-74%</td>
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<tr>
<td>68-69%</td>
<td>C-</td>
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<td>66-67%</td>
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<td>&lt;62%</td>
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**Graded items:**

- Examinations: The format of the examinations will vary with the content which is being tested.

**PROJECTED CLASS SCHEDULE**

- August 23  Introduction to PEHD 433
- August 25  Chapters 1 & 2-Introduction to Research and Ethics in Research
- August 30  Chapter 3-Information Retrieval
- September 1 Chapter 4-The Research Paper and Proposal
- September 6 Chapter 5-Results, Discussion, Conclusions and References
- September 8 Chapter 6-Scientific Research Writing
- September 13 Review Chapter 1-6 and Test #1 Preparation
- September 15 Test #1-Chapter 1-6
- September 20 Chapter 7-Basic Statistical Concepts
September 22  IRB Application and Process-Eileen Callahan
September 27  Chapter 8-Central Tendency and Data Variability
September 29  Chapter 9-Probability and Hypothesis Testing
October 4   Chapter 10-Relationships and Predictions
October 6  Chapter 11-t-tests, ANOVA and ANCOVA
October 11  Chapter 11-t-tests, ANOVA and ANCOVA
October 13  Chapter 12-Nonparametric Statistical Tests
October 17-18 Fall Break
October 20   Review Chapters 7-12 and Test #2 Preparation
October 25  Test #2-Chapters 7-12
October 27  Chapter 13-Validity, Reliability and Measurement Error
November 1  Chapter 14-Internal and External Validity
November 3  Chapter 15-Experimental Designs
November 8  Chapter 16-Nonexperimental and Descriptive Research
November 10 Chapter 17-Qualitative Research Methods
November 15 Chapters 18 & 19-Quality Control & Research Assessment
November 17 Review Chapters13-19 and Test #3 Preparation
November 22 Test #3-Chapters 13-19
November 29 Prepare In-Class Presentations-Possibly a Compensatory Day
December 1  Last Class Day for PEHD 433-Fall 2011
In-Class Presentations of Research or Capstone Project-6:00-9:00 pm tentatively
December 8   FINAL EXAM-8:00-11:00 am