University of Colorado Denver
Clinical Outcomes and Applications (3 credit hours)
CLSC 7202
Fall Semester 2014

Faculty: Cathy Battaglia, PhD, RN, Assistant Professor
(O)720-857-5099 VA
(O) 303-724-6387 University
(C) 303-594-1618
Catherine.Battaglia@ucdenver.edu

Maureen O’Brien, PhD, RN
(O) 303-784-5760
(C) 303-667-1144
Maureen.Obrien@ucdenver.edu

Canvas Website: http://canvas.cuonline.edu

CU Online Help Contact Information: M-F 7a-7p; 303.315.3700
cuonlinehelp@ucdenver.edu

Class Details: Mondays from 4:00pm to 7:00pm at the Anschutz Medical Campus in Research 1 P18-CTL-1309 Computer Lab

Course Description: The Clinical Outcomes and Applications course focuses on research methodologies in the areas of clinical care, costs, health systems, policy, and health outcomes. This course provides an overview of major issues in clinical outcomes research. Outcomes research uses a wide variety of research designs to expand understanding of how to measure outcomes of health care. The course is designed to provide students with both theory and application through case studies.

Course Objectives: At the end of the course, learners should be able to identify and understand the:

- Range of Risk Factors: Patient risk characteristics which may inherently influence health outcomes following medical care treatments:
  - How the natural history of a health condition, environment and policy changes affect the timing of health outcomes
  - Develop researchable questions for measuring the effectiveness of medical care
  - Generate a conceptual model for a researchable question
  - Risk Adjustment

- Range of Health Outcome Measures: A comprehensive set of multifaceted health outcomes measures and to evaluate the strengths/weaknesses of these measures:
• **Analysis of Health Outcome Data:** Application of various types of methods to analyze health outcome data:
  - Evaluate alternative study designs for conducting health outcomes research
  - Identify and evaluate measurement issues in the medical literature
  - Discuss statistical issues related to health services research
  - Recognize and explain methodological applications commonly used in research

• **Policy Implications:** Interaction of quality, access, and cost-containment forces in public health/health policy reform initiatives, with a focus on defining and measuring quality of medical care in the future

**Core Clinical Sciences and Health Services Research Competencies Addressed in the Course:** To prepare students to perform state of the art translational research, this course addresses the following competencies:

• Accurately select, use and interpret commonly used statistics
• Participate in interdisciplinary collaboration
• Describe the role of outcomes research in public health and health services research
• Describe research methodology used in clinical sciences and health services research
• Understand the range of health outcome measures
• Critically review existing clinical science/health services outcomes research literature
• Apply and use appropriate study design and methods to address research questions/hypotheses
• Provide constructive reviews and feedback to colleagues
• Apply evidence-based practice principles

**Course Integration Statement:** The outcomes research methodology taught in this course applies to Health Services Research, Policy, Public Health and Clinical Sciences.

**Course Requirements:**

1. **Required Textbook:**
   - Conducting Health Outcomes Research
     Robert L. Kane and David M. Radosevich
     Jones & Bartlett Learning, 2011
     ISBN #0763786772

   - Primer of Biostatistics
     Stanton A. Glantz
     ISBN #0071435093
     CD version not required

   Additional readings will be required for homework or in-class assignments. See weekly schedule for details.
2. **Required Software:** SAS, Version 9.3 or later. Students may either purchase SAS (~$50) by emailing sitelic@colorado.edu OR may use the student computer lab at no cost. If you purchase SAS, the license will expire July 2015.

3. **Outcome Measures Report (Final Project)**
   Students will develop a researchable question from a dataset (provided to students) for measuring the effectiveness of medical care and design a health outcomes research study. Students should describe how these outcome measures will be identified, analyzed and applied to clinical practice and/or health policy. Students will work independently and each student will prepare both an oral class presentation and a written report.

4. **Homework**
   Students will be assigned to read chapters in a textbook, articles, and other materials throughout the course as well as specific homework assignments. Students are expected to be prepared to discuss the information in class. **Articles and datasets will be posted on CANVAS.**

5. **Class Structure/Participation**
   It is important to arrive on time. The format of this class will include interactive discussions, guest speakers, didactic lectures, and student presentations. Students are required to attend all sessions. Faculty will assign a grade for the classroom discussions, worth 20%. The grade assigned for this requirement will be based on the student's knowledge of required readings and active participation in class discussions.

6. **Grading**

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<tr>
<th>Component</th>
<th>Weight</th>
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<tbody>
<tr>
<td>Outcome Measures Report</td>
<td>50% (35% written and 15% oral)</td>
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<tr>
<td>Readings/Homework assignments/in-class quizzes</td>
<td>30%</td>
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<tr>
<td>Class Participation</td>
<td>20%</td>
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<td>100%</td>
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The following minimal grading scale will be used:

- A  93-100
- A-  90-92
- B+  87-89
- B   83-86
- B-  80-82
- C+  77-79
- C   73-76
- C-  70-72
- D+  68-69
- D   63-67
- D-  60-62
- F   <60
7. Evaluation Requirement
Students are required to complete course evaluations for this class before a final grade can be given. This evaluations will be completed on the last class. Additional evaluations will be requested for each guest speaker and for each group assignment.

Course Policies:

1. Attendance Policy/Make-Up Assignments
Attendance will be taken. If you are absent for one lecture a make-up assignment is required. If you miss more than 2 classes, your course grade will be lowered by a half grade. If you miss 3 or more classes, your course grade will be lowered by a full grade. Make-up assignment: Review class PPT and assigned readings and write a 2-page summary of your understanding of the lecture material. All make-up assignments are due by noon of the next class period. Faculty are not responsible for providing information related to classes missed. Handouts and/or lecture notes should be obtained from other students in attendance.

Students are responsible for all information presented in class. Please note, the lectures will cover some materials not found in the textbook and handouts. If you know an assignment will be late, notify the faculty before the due date to establish a revised deadline and to determine if deductions will apply. Failure to communicate and coordinate an acceptable plan with the faculty could result in receipt of an “F” or “0%” for the assignment.

2. Academic Conduct Policy
All students are expected to abide the Honor Code of the Colorado School of Public Health. Unless otherwise instructed, all of your work in this course should represent completely independent work. Students are expected to familiarize themselves with the Student Honor Code that can be found at http://www.cudenver.edu/Academics/Colleges/PublicHealth/students/StudentAffairs/StudentResources/Pages/index.aspx or the Student Resources Section of the CSPH website. The following activities will be considered academic dishonesty:

· Copying the work of current or past students or using solutions given to students in past semesters for any class assignments
· Paying external parties to complete part or all of assignments or exams
· Using material from other sources (such as websites, books and articles) without crediting the source

If a student is caught engaging in one of these activities, the CLSC/HSR PhD program will enforce the standard penalty for academic dishonesty. The standard penalty for a first violation is an F on the assignment resulting in at least a one letter grade penalty for the course. The penalty for subsequent academic penalties can involve removal from the program.

3. Special Considerations/Disability Policy
For students requesting accommodations, contact the Office of Disability Resources and Services. Their staff will assist in determining reasonable accommodations as well as coordinating the approved accommodations. Phone number: (303) 724-5640. Location: Building 500, Room W1103. The physical address is 13001 E. 17th Place.
## Weekly Schedule

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<th>Unit</th>
<th>Week</th>
<th>Content</th>
<th>Homework</th>
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| 1    | 8/25 | Review of Course Syllabus, Assignments, Expectations  
      |      | Introduction to Outcomes Research and Applications  
      |      | Introduction to Risk Adjustment  
      |      | Developing a Conceptual Model  
      |      | SAS Application Introduction | **Readings for 8/25 Class:**  
      |      | Chapters 1,2, and 10 in Kane/Radosevich  
      |      | Chapter 1 in Glantz  
      |      | Donabedian A, Evaluating Quality of Medical Care, Milbank Quarterly 2005; 83 (4):691-729  
      |      | Download “Cholesterol” dataset for in-class use  
      |      | Note that students may need to complete SAS introduction slides independently as homework |
| 2    | 9/8  | Key descriptive/summary statistics review  
      |      | Study design and measurement issues in Outcomes Research  
      |      | Administrative vs Clinical data  
      |      | Student Presentation: Review of study design and measurement issues for posted RFA/Grant Proposals | **Readings for 9/8th Class:**  
      |      | Chapters 3, 4, and 12 in Kane/Radosevich  
      |      | Chapters 2, 3, and 4 in Glantz  
      |      | Review posted RFA/grant proposals and be prepared to present and discuss study design and measurement issues |
| 3    | 9/15 | Analysis of Variance  
      |      | Non-parametric tests  
      |      | Contingency tables  
      |      | Power/sample size | **Readings for 9/22nd Class:**  
      |      | Chapters 5, 6, 9, and 10 in Glantz  
      |      | Download dataset for in-class use |
| 4    | 9/22 | Demographics  
      |      | Correlation  
      |      | Cause and effect  
      |      | Risk Adjustment vs Risk Standardization  
      |      | SES factors in Risk Adjustment | **Readings for 9/22nd Class:**  
      |      | Chapters 9 and 11 in Kane/Radosevich  
      |      | Chapters 7 and 8 in Glantz  
      |      | Additional Reading TBD  
      |      | Bland article  
      |      | Shellock article  
      |      | **Homework for 9/22nd Class:**  
<pre><code>  |      | Review posted Hospital Specific Report examples of outcome measures for in-class discussion |
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| 5    | 9/29  | • Regression analysis  
• Survival analysis applications  
• Survey development  
• Reliability and validity  
Guest Speaker – Rachel Everhart, PhD, Data Team Administrator, Ambulatory Care Services, Denver Health & Hospitals “Propensity Score Modeling in Outcomes Research” | Homework for 9/29 - TBD  
Readings for 9/29th Class:  
• Chapters 11 and 12 in Glantz  
• Chapter 13 in Kane/Radoevich |
| 6    | 10/6  | • For your consideration student led discussions                       | Readings for 10/6th Class:  
• TBD |
| 7    | 10/13 | • Condition-Specific Outcomes Measures  
• Generic Health Outcomes Measures  
• Health Related Quality of Life  
• Analysis of generic outcomes, disease specific | Readings for 10/13th Class:  
• Chapters 5, 6, 7 in Kane/Radoevich:  
Homework for 10/13  
Identify and review an example of condition specific outcome measure and present to class |
| 8    | 10/20 | Guest Speaker – Karen Albright, PhD, Faculty, Department of Community and Behavioral Health, Colorado Health Outcomes Program, Center for Research in Implementation Science and Prevention Children’s Outcomes Research Program “Using Mixed Methods (Quantitative and Qualitative) in Health Outcomes Research” | Readings for 10/20th Class:  
| 9    | 10/27 | Guest Speakers - Drs. Marianne McCollum and Karen Smith, School of Pharmacy, Regis University “Cost Effectiveness as an Outcome”  
• Review Methodology of the Cost-Effective Article | Readings for 10/27th Class:  
• “Quality-of-Life Effects of Prostate-Specific Antigen Screening” Eveline A.M. Heijnsdijk, Ph.D., et al, NEJM, 367;7, August 16, 2012  
Will assign cost effectiveness article for in-class activity |
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| 10   | 11/3  | • Patient Satisfaction  
• Discuss Issues Related to HCAHPS Surveys, Analyze Data Do’s And Don’ts | **Readings for 11/3rd Class:**  
• Chapter 8 in Kane/Radosevich  
• Download “HCHAPS” dataset for in-class use  
• Review Dataset for Outcome Measures Report for class discussion on 11/10 |
| 11   | 11/10 | • CER  
• Discuss Outcomes Report Using a Dataset - Identify Research Question, Study Design Analytical Plan and Evaluation | **In class – Create an outline/brief description (2 pgs) of Outcome Measures Report to measure the effectiveness of medical care: researchable question, conceptual model, outcome measures, independent variables, analytical plan, and description of scope of work – Final outline/brief description due 11/11 and Final Outcome Measures Report due 11/29** |
| 12   | 11/17 | • Policy                                                                 | **Homework and Readings - TBD**                                          |
| 13   | 11/24 | • Putting It All Together and Interpreting the Results Using Case Studies  
• Explore Data Sources and Their Usefulness in Health Outcomes Research | **Readings for 11/24th Class:**  
Chapter 14 in Kane/Radosevich |
| 14   | 12/1  | • Student Presentations of Outcomes Report                                |                                                                         |
| 15   | 12/8  | • Student Presentations of Outcomes Report                                |                                                                         |