



University of Maryland College Park School of Public Health

Advanced Research Methods in Health – HLTH 711

Semester: Spring 2020
Classroom and Time: SPH 1234A, 4-6:45pm Thursdays
Instructor: Dr. Kerry M. Green
Office: SPH 1234Z
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Email: greenkm@umd.edu
Office Hours: By appointment

Course Pre- and Co-requisites:

Required: HLTH 710

Recommended: HTLH 652, HLTH653, HLTH 712

Required Texts and Other Readings:

Required: Russell, S. & Morrison, D. (2010). The Grant Application Writer's Workbook – National Institutes of Health Version.

2019 version available for purchase (\$90):

(<http://grantwriter.mybigcommerce.com/products.php?product=National-Institutes-of-Health-Version-1.19>)

See Canvas for specific articles assigned each week.

Additional Materials Required: none

Course Description:

The course covers advanced research methods for doctoral students with the focus primarily on learning how to apply these methods to answer public health research questions. Each week this seminar style class will expose students to different research methods techniques and their application.

Course Learning Objectives:

Upon completing this course, the student will be able to:

1. Develop appropriate research aims and hypotheses.
2. Develop a conceptual framework to address a public health problem.
3. Evaluate the appropriateness of a conceptual model.
4. Identify appropriate NIH funding opportunities, including knowing the difference between different mechanisms and different types of announcements.
5. Identify the essential components of each section of an NIH grant (i.e., public health significance statement, abstract, specific aims, significance, innovation, research design, human subjects, biosketch).
6. Evaluate if a research design is appropriate for a research question.
7. Identify the most important threats to internal and external validity of a given research design.
8. Evaluate the appropriateness of an analytic technique for a specific research design or question.
9. Identify the strengths and limitations of research proposals.
10. Effectively present and defend a research proposal.
11. Write an effective NIH grant proposal.
12. Read, understand, and critique statistical, methods and application articles.

By the end of this class, students will have:

1. Developed a familiarity with NIH grant review process, including the scoring system used.
2. Strengthened their grant writing skills.
3. Strengthened their critical thinking skills.
4. Strengthened their research development skills.
5. Strengthened their ability to evaluate research.
6. Strengthened their oral presentation skills.

Program Competencies Addressed in this Course:

The following competencies for the doctorate in Behavioral and Community Health are addressed in this course:

BCH CORE Course Competencies:

- ✓ Write a research proposal for theory-based research
- ✓ Select an appropriate research design

Additional Course Competencies:

1. Apply the steps involved in examining a conceptual model.
 - a. Conduct a thorough literature review and know its limitations.
 - b. Propose a research question and hypothesis given a questionnaire and data set.
 - c. Develop a conceptual model.
 - d. Apply an appropriate statistical analysis plan.
 - e. Provide an appropriate interpretation of data analysis.
2. Assess limitations of the internal and external validity of research.
3. Critically appraise reports of research and evaluation.
4. Identify sources and processes for research funding.

Previously Learned Competencies Reinforced in HLTH 711:

1. Describe a public health problem in terms of magnitude, person, time and place.
2. Draw appropriate inferences from epidemiologic data.
3. Describe and apply appropriate descriptive statistical methods for summarizing public health data.
4. Critically review and summarize statistical analyses presented in public health literature.
5. Draw appropriate inferences based on statistical analyses used in public health research.

Course Requirements: This is a seminar style class. It is expected that student attend every class having read and fully comprehended the required reading and are ready to participate in and take a leadership role in class discussions. Attendance at each class is critical to master the material.

- Assignments are due at the beginning of class and are essential to developing excellent grant writing skills.
- Exams will assess students' ability to synthesize and apply the material from the readings and classes.
- The grant application will assess students' ability to develop and refine research questions, specific aims, hypotheses, a conceptual model, a research design, and an analytic plan for an R-series grant application.

Course Policies:

Email – The Official University Correspondence:

Verify your email address by going to www.my.umd.edu.

All enrolled students are provided access to the University's email system and an email account. *All official University email communication will be sent to this email address* (or an alternate address if provided by the student). Email has been adopted as the primary means for sending official communications to students, so email must be checked on a regular basis. Academic advisors, faculty, and campus administrative offices use email to communicate important and time-sensitive notices.

Students are responsible for keeping their email address up to date or for redirecting or forwarding email to another address. Failure to check email, errors in forwarding email, and returned email (from "full mailbox" or "unknown user" errors for example), will not excuse a student from missing course or University announcement, messages, deadlines, etc. Email addresses can be quickly and easily updated at www.my.umd.edu or in-person at the Student Service Counter on the first floor of the Mitchell Building.

For technical support for University email: www.helpdesk.umd.edu or call 301-405-1400.

Absence Policy:

In accordance with University policy if you are absent for a single (1) lecture due to illness or some form of personal or family emergency, this absence will be considered "excused" and the instructor will accept a note from you attesting to the date of the illness/incident, along with an acknowledgement that the information is true. Whenever feasible, you should try to contact the instructor in advance.

Multiple or prolonged absences, and absences that prevent attendance at a major scheduled grading event (like an exam or test) will require written documentation from an appropriate health care provider/organization.

A link to pull information on the new policy covering absences from class can be found at <http://www.president.umd.edu/policies/v100g.html>

Late work and Missed Exams / Assignments:

Exams can only be made up if there is a University approved absence. Points will be deducted for late assignments (10% first day, additional 1 point for each day late).

Religious Observances:

The University System of Maryland policy provides that students should not be penalized because of observances of their religious beliefs; students shall be given an opportunity, whenever feasible, to make up within a reasonable time any academic assignment that is missed due to individual participation in religious observances. **It is the student's responsibility to inform the instructor in advance of any intended absences for religious observance.**

Special Accommodations / Disability Support Services:

If you have a documented disability and wish to discuss academic accommodations for test taking or other needs, you will need documentation from Disability Support Service (301-314-7682). If you are ill

or encountering personal difficulties, please let the instructor know as soon as possible. You can also contact Learning Assistance Services (301-314-7693) and/or the Counseling Center (301-314-7651) for assistance.

Academic Integrity:

The University's code of academic integrity is designed to ensure that the principle of academic honesty is upheld. Any of the following acts, when committed by a student, constitutes academic dishonesty:

- **CHEATING:** intentionally using or attempting to use unauthorized materials, information, or study aids in an academic exercise.
- **FABRICATION:** intentional and unauthorized falsification or invention of any information or citation in an academic exercise.
- **FACILITATING ACADEMIC DISHONESTY:** intentionally or knowingly helping or attempting to help another to violate any provision of this code.
- **PLAGIARISM:** intentionally or knowingly representing the words or ideas of another as one's own in any academic exercise.

For more information see: <http://www.shc.umd.edu/code.html>.

The Honor Pledge is a statement undergraduate and graduate students should be asked to write by hand and sign on examinations, papers, or other academic assignments. The Pledge reads:

I pledge on my honor that I have not given or received any unauthorized assistance on this assignment/examination.

The University of Maryland, College Park has a nationally recognized Code of Academic Integrity, administered by the Student Honor Council. This Code sets standards for academic integrity at Maryland for all undergraduate and graduate students. As a student you are responsible for upholding these standards for this course. It is very important for you to be aware of the consequences of cheating, fabrication, facilitation, and plagiarism. For more information on the Code of Academic Integrity or the Student Honor Council, please visit <http://www.shc.umd.edu>.

Copyright Protection for Class Materials: Lectures and course materials, including presentations, tests, assignments, and similar materials, are protected by copyright. Persons who publicly distribute or display or help others publicly distribute or display copies or modified copies of an instructor's course materials may be considered in violation of the University Code of Student Conduct, Part 9(k). You may take notes and make copies of course materials for your own use. You may not and may not allow others to reproduce or distribute lecture notes and course materials publicly. Similarly, you own copyright in any papers you write for this course and in your exam essays. If I am interested in posting your answers or papers on the course web site, I will ask for your written permission.

Inclement Weather / University Closings:

In the event that the University is closed for an emergency or extended period of time, the instructor will communicate to students regarding schedule adjustments, including rescheduling of examinations and assignments due to inclement weather and campus emergencies. Official closures and delays are announced on the campus website (<http://www.umd.edu>) and snow phone line (301-405-SNOW), as well as local radio and TV stations.

Course Evaluations (www.CourseEvalUM.umd.edu)

The University, the School of Public Health, and the Department of Behavioral and Community Health are committed to the use of student course evaluations for improving the student experience, course

and curriculum delivery, and faculty instruction. Your evaluations help instructors improve their courses; help deans and department chairs decide on merit pay for faculty, renewal of contracts, and support tenure and promotion decisions; and help current and future students decide on classes.

Assignments and Grading

Final letter grades will be assigned according to the following system:

A+ = 98+	B- = 80-82	D = 63-66
A = 93-97	C+ = 77-79	D- = 60-62
A- = 90-92	C = 73-76	F = below 60
B+ = 87-89	C- = 70-72	
B = 83-86	D+ = 67-69	

Students should be prepared to share assignments with the class on the due date.

	Points	Due Date
Class Participation/Impromptu Assignments	15	Ongoing
Specific Aims Chart Due	5	2/6
Specific Aims	7 total (5+2)	2/13
Public Health Significance Section and Significance Section	7	2/20
Peer Reviews	9 total (3 each)	2/20, 2/27, 4/2
Conceptual Framework/Theory	5	2/27
Innovation Section and Specific Aims revision Due	5	3/5
Mock Grant Review	10	3/12
SPRING BREAK 3/19		
Research Design and Timeline	5	3/26**
Measures	5	4/2
Exam	20	4/9
Strengths, Limitations, and Conclusions	5	4/16
Analysis Section	5	4/23
Abstract	5	4/30
Final Presentation	15	4/30 & 5/7
Human Subjects	2	5/7
Final Grant Proposal	15	5/14
Total	145	

Schedule at a Glance

Date	Topic	Assignment Due
1. January 30	Introductions, Expectations, Assignments, Baseline Assessment	Baseline Assessment
2. February 6	Identifying a Research Question and Writing Specific Aims	Read Specific Aims and Fill Out Table
3. February 13	Ensuring "Significance;" Enhancing "Innovation"	Specific Aims Draft 1 Due
4. February 20	Developing a Conceptual Framework and Identifying Mechanisms of Change	Significance Due Peer Review 1 Due
5. February 27	Choosing a Research Design/Approach	Conceptual Framework Due Peer Review 2 Due
6. March 5	Funding Your Work/Responding to a PA	Innovation and Revised Specific Aims Due
7. March 12	Evaluating Other's Proposals	Grant Reviews Due
March 19 Spring Break		
8. March 26	Subgroup Effects (plus some mediation and confounding)	Research Design, Procedures and Timeline Due
9. April 2	Assessing Causal Effects	Measures Due Peer Review 3 Due
10. April 9	Exam	NO ASSIGNMENT DUE
11. April 16	Addressing Missing Data and Power	Strengths/Limitations Due
12. April 23	Class Choice	Analysis Section Due
13. April 30	Presentations	Abstract Due
14. May 7	Presentations	Human Subjects Due