

DRAFT
HBEH/NUTR 811
Development and Evaluation of Health Promotion and Disease Prevention Interventions
Fall 2018

Class Schedule: Tuesdays, 2:00 pm – 4:30 pm
Rosenau 332

Instructors: Deborah Tate, PhD
Department of Health Behavior
Department of Nutrition
318 Rosenau Hall
dtate@unc.edu
Office Hours: By Appointment

Marta Mulawa, PhD
Department of Health Behavior
mulawa@live.unc.edu
Office Hours: By Appointment (Tuesday Only)

Teaching Assistant: Julianne Power, MS
Department of Health Behavior
julma@live.unc.edu
Office Hours: By Appointment

Course Website: <http://sakai.unc.edu>

Course Description

The goal of this course is to prepare students to be able to design a compelling behavior change intervention that could be implemented and evaluated through funded research. This course will not result in a behavior change grant application but, rather, will teach students how to think through the essential elements of developing feasible and context-specific public health behavior change interventions with high potential for effectiveness.

This semester-long course will examine the development of interventions for health promotion and disease prevention, with a focus on designing interventions in practical and evidenced-based ways to maximize their feasibility and effectiveness. Initial topics will include a review of various intervention planning approaches, the utility of conceptual models for intervention planning purposes, and the use of formative research to inform intervention development. We will also discuss intervention objectives and the use of empirically supported components and strategies for intervention development. Students will gain experience deconstructing the components of existing intervention trials to identify the targeted theoretical constructs and will use a systematic framework to describe these interventions. Later topics will include the adaptation of interventions for new contexts as well as the use of novel study designs to identify “active ingredients” contributing to intervention efficacy and/or to identify alternative intervention approaches that could work for participants who do not respond to initial approaches.

All topics will be discussed in seminar format. Students are assumed to have a basic understanding of health behavior theory, program planning, research methods, and basic statistics. The intent is for students to synthesize and build upon this background as they develop skills in developing health promotion programs. In addition to participating in general skill-building activities on a variety of topics, students will each select a public health problem area to focus development of an intervention.

Course Objectives:

1. Familiarize students with the process of developing a behavior change intervention that could be rigorously evaluated in a 5-year R01 or other similar type of funding mechanism.
2. Synthesize the epidemiological evidence linking determinants to a health behavior of public health significance within a target population.
3. Identify theories and relevant constructs that link determinants to a behavioral outcome.
4. Construct a conceptual model that depicts the relationships between determinants and a behavioral outcome.
5. Understand how theory and empirically supported strategies are used to inform intervention development.
6. Identify supported intervention strategies for changing a behavioral outcome.
7. Become familiar with the process of adapting evidence-based interventions for different populations, the Multi-Phase Optimization Strategy, and with developing adaptive interventions based on response.

Course Requirements: The quality of the course depends on students' preparation for and participation in seminar discussion and assignments. Detailed instructions for the following assignments will be posted on Sakai along with a grading rubric. Brief descriptions of assignments include the following:

- **Assignment #1, Due 9/4:** Identifying a Health Behavior and Target Population. Identification of a modifiable health behavior or set of health behaviors that impact public health in an at-risk target population; define the behavior(s), address the public health impact, explain risk and prevalence in chosen population using epidemiological evidence, and justify your focus on this health behavior in this population. This assignment is a set of bullet-pointed paragraphs, with supporting literature and evidence briefly summarized in bullets (maximum 2 double-spaced pages plus references).
- **Assignment #2, Due 9/25:** Identifying Determinants of the Health Behavior(s) in a Target Population. Review the scientific evidence to develop (1) a conceptual model for an intervention that graphically depicts the relationships between modifiable determinants of the health behavior(s) in your population (or related populations as needed) and the behavior, (2) a justification for including each determinant in your conceptual model—use bullet points to summarize the literature in 3 key areas: populations/setting where the research was conducted, changeability of the construct, and strength of evidence linking the construct to the behavior, and (3) a brief explanation for whether/why any constructs were excluded from your conceptual model.
- **Assignment #3, Due 10/16:** Identifying Intervention Objectives and Strategies for Changing the Health Behavior(s) in a Target Population. (1) Review evidence from outcome and process evaluation studies about interventions designed to change the health behavior in your target population. Develop a table that links 3 modifiable determinants of your health behavior (from your conceptual model) to at least 2 intervention objectives each, and (2) Detail at least one intervention strategy for each intervention objective in your table.
- **Assignment #4, Due 11/6 (Part 1) & 11/20 (Part 2):** Review the literature and synthesize the evidence on large intervention trials in a health behavior topic area. (Part 1) Individually, review a large, effective public health intervention trial in the assigned health behavior topic area. Deconstruct the components of the intervention trial, identify health behavior theory constructs that were targeted and use the Behavior change techniques framework to describe the intervention. Submit a brief written report with the annotated intervention description from the publication. (Part 2) As a group, synthesize information across the reviewed intervention trials in the health behavior topic area. Compare and contrast target populations, settings, intervention duration, dose delivered/received, main outcomes, and BCTs across the intervention trials. What commonalities are there across the intervention trials? What has been effective vs. ineffective? Each group will present their synthesis to the class (~20 minutes) and lead a discussion.
- **Assignment #5, Due 12/10:** Next steps for large intervention trials. Given what you learned about large, effective intervention trials in your health behavior topic area from Assignment #4, your final

paper will focus on next steps for these intervention trials and will consist of 2 parts: (Part 1) Intervention Adaptation: Identify an effective public health intervention from your review that could be or has been adapted for a new population. Describe what has been done to adapt it to new populations, what has changed, and if it has been effective? Did this follow any formal adaptation process? If one has not been adapted what are the critical steps needed to adapt it for a new population (maximum 2 double-spaced pages). (Part 2) Choose one of the following subjects (maximum 4 double-spaced pages):

- Design a Multiphase Optimization Strategy (MOST): Based on your literature review there will likely be several components that are part of a kitchen sink intervention that seems to work or come up across the literature that might be important. Design a MOST to identify “active ingredients” or main effects of components that contribute to efficacy. Identify the criteria for “keeping” the component in a new intervention you will test.
- Design a Sequential Multiple Adaptive Randomized Trial (SMART): In intervention days of old, interventions were delivered and if they worked great but if they didn’t work for some people there was nothing else to do. Today, Sequential Multiple Adaptive Randomized Trials allow us to discover if there are alternate approaches that might work for non-responders to the initial intervention. Design a SMART trial to evaluate alternate interventions that might be offered. Decide on when to evaluate non-response, what should be offered and why?

- Please submit assignments via the Sakai Dropbox **by noon** on the day that it is due. Students are expected to be in class on time.
- Late assignments are not acceptable except under emergency circumstances with approval. Unexcused late assignments will be penalized by a half letter grade for every 12 hours they are late. Close attention and adherence to assignment instructions, including formatting, is expected.

Grading:

Attendance/Participation	5 points	<u>Final Grades</u>	
Assignment 1	10 points	H	≥ 90
Assignment 2	15 points	P	76-89
Assignment 3	15 points	L	65-75
Assignment 4	30 points	F	< 65
	(15 individual report)		
	(15 group presentation)		
Assignment 5	25 points		
	(10 points for part 1)		
	(15 points for part 2)		
<hr/>			
TOTAL	100 points		

Honor Code

Students must observe the Honor Code in all course assignments. You are expected to produce your own work, except where group work is specifically allowed. In all written assignments, you must not plagiarize the work of others. The instrument defining the Honor Code defines plagiarism as "deliberate or reckless representation of another's words, thoughts, or ideas as one's own without attribution in connection with submission of academic work, whether graded or otherwise." If you have questions about your responsibility under the honor code, please bring them to one of the instructors or consult with the office of the Dean of Students or the *Instrument of Student Judicial Governance*. This document, adopted by the Chancellor, the Faculty Council, and the Student Congress, contains all policies and procedures pertaining to the student honor system.

Please include the following pledge on all written assignments: "On my honor, I have neither given nor received unauthorized aid on this assignment."

Recognizing, Encouraging, and Valuing Diversity

In the classroom, diversity strengthens the products, enriches the learning, and broadens the perspectives of all in the class. Diversity requires an atmosphere of inclusion and tolerance, which oftentimes challenges our own closely-held ideas, as well as the boundaries of our personal comfort zones. The results, however, create a sense of community and promote excellence in the learning environment. This class will follow principles of inclusion, respect, tolerance, and acceptance that support the values of diversity. Diversity includes, but is not limited to, consideration of: (1) life experiences, including type, variety, uniqueness, duration, personal values, political viewpoints, and intensity; and (2) factors related to "diversity of presence," including, among others, age, economic circumstances, ethnic identification, family educational attainment, disability, gender, geographic origin, maturity, race, religion, sexual orientation, social position, and veteran status.

Date	Topic and Activities	Assignments
8/21	<p>Overview of Class</p> <ol style="list-style-type: none"> 1. Introductions & intro to interventions 2. Discuss syllabus and class overview 3. Students Discuss Behavioral Outcome and Target Population 	Bring target population and behavioral outcome idea
8/28	<p>Planning Approaches (Deb)</p> <ol style="list-style-type: none"> 1. Steps in Intervention Development 2. Examples of intervention development approaches <p>Readings</p> <ol style="list-style-type: none"> 1. Wight D, Wimbush E, Jepson R, Doi L. Six steps in quality intervention development (6SQuID). <i>J Epidemiol Community Health</i>. 2016; 70(5):520-5. 	
9/4	<p>Determinants and Conceptual Models of Interventions (Marta)</p> <ol style="list-style-type: none"> 1. Modifiable Determinants and Conceptual Models 2. In-Class Activity: Conceptual Models <p>Readings</p> <ol style="list-style-type: none"> 1. Lafata JE, Shay LA, Winship JM. Understanding the influences and impact of patient-clinician communication in cancer care. <i>Health expectations : an international journal of public participation in health care and health policy</i>. 2017; 20(6):1385-92. 2. (Review) Earp, J. A., & Ennett, S. T. (1991). Conceptual models for health education research and practice. <i>Health Education Research</i>, 6(2), 163-171. 	Assignment Due: Identify Health Behavior and Target Population
9/11	<p>Formative Research (Marta)</p> <ol style="list-style-type: none"> 1. Formative research to inform the development of health behavior interventions 2. In-Class Activity: Formative Research <p>Readings</p> <ol style="list-style-type: none"> 1. Rana Y, Haberer J, Huang H, Kambugu A, Mukasa B, Thirumurthy H, Wabukala P, Wagner GJ, Linnemayr S. Short message service (SMS)-based intervention to improve treatment adherence among HIV-positive youth in Uganda: focus group findings. <i>PLoS One</i>. 2015; 10(4):e0125187. 2. Parveen S, Nasreen S, Allen JV, Kamm KB, Khan S, Akter S, Lopa TM, Zaman K, El Arifeen S, Luby SP, Ram PK. Barriers to and motivators of handwashing behavior among mothers of neonates in rural Bangladesh. <i>BMC Public Health</i>. 2018; 18(1):483. PMID: PMC5896121. 	
9/18	<p>Intervention Objectives (Marta)</p> <ol style="list-style-type: none"> 1. Intervention Objectives 	

	<p>2. In-Class Activity: Intervention Objectives</p> <p>Readings</p> <p>1. Scarinci IC, Bandura L, Hidalgo B, Cherrington A. Development of a theory-based (PEN-3 and Health Belief Model), culturally relevant intervention on cervical cancer prevention among Latina immigrants using intervention mapping. <i>Health promotion practice</i>. 2012; 13(1):29-40.</p>	
9/25	<p>Intervention Components & Strategies (Deb)</p> <p>1. Deb: Linking Intervention Objectives to Strategies</p> <p>2. Example: Brooke Nezami, Ph.D. – Development of an mHealth Intervention for Moms of Preschool Children to Improve Diet</p> <p>Readings</p> <p>1. Perry, Chapter 4: Creating the Health Behavior Program, pp. 73-98</p> <p>2. Nezami, B. T., Lytle, L. A., & Tate, D. F. (2016). A randomized trial to reduce sugar-sweetened beverage and juice intake in preschool-aged children: description of the Smart Moms intervention trial. <i>BMC Public Health</i>, 16(1), 837</p>	Assignment Due: Conceptual Model of the Problem and Justification of Determinants
10/2	<p>Intervention Components & Strategies (Deb)</p> <p>1. Intervention Component & Strategy Faculty Show and Tell of Intervention Materials</p> <ul style="list-style-type: none"> • May Chen (Luz McNaughten Reyes) – Noviolencia, Moms for Safe Dates – Family Based Dating Violence Prevention (Newsletters) • Leslie Lytle – TAAG – Trial for Activity Adolescent Girls – School Based Activity Promotion (School Environment) • Heather Wasser – Mother’s & Others – Infant Feeding using Home Visitation • Joanne Earp – North Carolina Breast Cancer Prevention - Mammography Screening - Lay Health Advisor Model (Materials Presented by Deb) <p>Readings</p> <p>1. Optional Readings Posted</p>	
10/9	<p>Implementing and Monitoring Interventions (Deb & Marta)</p> <p>1. Practical Considerations for Intervention Implementation</p> <p>2. Measurement of Intervention Implementation (Process Evaluation)</p> <p>Readings</p> <p>N/A</p>	
10/16	Innovative Intervention Design and Methods (Deb)	Assignment Due:

	<ol style="list-style-type: none"> 1. Intro to Behavior Change Techniques (BCTs) 2. Using BCTs to Deconstruct Interventions 3. In-Class Activity <p>Readings</p> <ol style="list-style-type: none"> 1. Michie S, Richardson M, Johnston M, Abraham C, Francis J, Hardeman W, Eccles MP, Cane J, Wood CE. The behavior change technique taxonomy (v1) of 93 hierarchically clustered techniques: building an international consensus for the reporting of behavior change interventions. <i>Ann Behav Med.</i> 2013 Aug;46(1):81-95. doi: 10.1007/s12160-013-9486-6. PubMed PMID: 23512568. 2. Begin this Web Training – <ol style="list-style-type: none"> a. http://www.bct-taxonomy.com/ 	Table of Intervention Determinants, Objectives, and Strategies
10/23	<p>Innovative Intervention Design and Methods (Deb)</p> <ol style="list-style-type: none"> 1. Multi-phase Optimization Strategy (MOST) 2. In-Class Activity <p>Readings</p> <ol style="list-style-type: none"> 1. Collins LM, Kugler KC, Gwadz MV. Optimization of Multicomponent Behavioral and Biobehavioral Interventions for the Prevention and Treatment of HIV/AIDS. <i>AIDS Behav.</i> 2016 Jan;20 Suppl 1:S197-214. doi: 10.1007/s10461-015-1145-4. PubMed PMID: 26238037; PubMed Central PMCID: PMC4715714. 2. Chapter 1: Conceptual Introduction to the Multiphase Optimization Strategy (MOST) from <i>Optimization of behavioral, biobehavioral, and biomedical interventions : the Multiphase Optimization Strategy (MOST)</i>, 2018, Springer Available Online from UNC Library via the link: Link to Record: https://search.lib.unc.edu:443/search?R=UNCb9212552 	
10/30	<p>Innovative Intervention Design and Methods (Deb)</p> <ol style="list-style-type: none"> 1. Adaptive Interventions and Sequential Multiple Assignment Randomized Trials (SMART) 2. In-Class Activity <p>Readings</p> <ol style="list-style-type: none"> 1. Lei H, Nahum-Shani I, Lynch K, Oslin D, Murphy SA. A “SMART” Design for Building Individualized Treatment Sequences. <i>Annual review of clinical psychology.</i> 2012;8:10.1146/annurev-clinpsy-032511-143152. doi:10.1146/annurev-clinpsy-032511-143152. 2. The Methodology Center Website @ Penn State https://methodology.psu.edu/ra/adap-inter 	

11/6	<p>Intervention Adaptation (Marta)</p> <ol style="list-style-type: none"> Adapting Interventions for New Contexts In-Class Activity: Intervention Adaptation <p>Readings</p> <ol style="list-style-type: none"> Kevany S, Khumalo-Sakutukwa G, Murima O, Chingono A, Modiba P, Gray G, Van Rooyen H, Mrumbi K, Mbwambo J, Kawichai S, Chariyalertsak S, Chariyalertsak C, Paradza E, Mulawa M, Curran K, Fritz K, Morin SF. Health diplomacy and the adaptation of global health interventions to local needs in sub-Saharan Africa and Thailand: evaluating findings from Project Accept (HPTN 043). <i>BMC Public Health</i>. 2012; 12(1):459. Sikkema KJ, Choi KW, Robertson C, Knettel BA, Ciya N, Knippler ET, Watt MH, Joska JA. Development of a coping intervention to improve traumatic stress and HIV care engagement among South African women with sexual trauma histories. <i>Eval Program Plann</i>. 2018 	Assignment Due: #4 Part 1: Individual report
11/13	Work Time: In-class work time on assignment #4 group presentation & discussion	
11/20	<p>Presentations: Assignment #4</p> <ol style="list-style-type: none"> Group presentations and discussions <p>Readings One intervention article assigned by each group (TBD) for discussion</p>	Assignment Due: #4 Part 2: Group presentation & discussion
11/27	<p>Presentations: Assignment #4</p> <ol style="list-style-type: none"> Group presentations and discussions <p>Readings One intervention article assigned by each group (TBD) for discussion</p>	Assignment Due: #4 Part 2: Group presentation & discussion
12/4	<p>Wrap Up and Evaluation</p> <p>In-class work time on assignment #5 (peer and instructor feedback)</p>	
12/4-12/10	Turn in Final assignment on Sakai by Dec 10, at noon.	Assignment Due: #5 Final Paper