



University of Maryland School of Public Health

HLTH 710 – Methods and Techniques of Research

Semester: Fall, 2019
Classroom and Time: 1302 SPH; Tuesday 4:00 – 6:45 PM
Instructor: Kenneth H. Beck
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Office Hours: Tue/Thur 11:00 – 12:00
Tue/Thur 2:00 – 4:00

Course Description: The course provides an overview of research design and methodological issues in health behavior research investigations. Through lecture, reading, and several exercises, students will acquire an understanding of the research process. Issues include those of experimental and non-experimental designs, and both qualitative and quantitative data collection strategies. The course is designed as an examination of several research issues, particularly those related to reliability and validity of measurement and design, instrumentation and data collection methodology.

Course Learning Objectives:

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

1. Conduct a thorough and scientific literature review
2. Interpret and critique evaluation research and research reports
3. Demonstrate an understanding of the basic concepts and methods related to design
4. Demonstrate an understanding of concepts and methods related to design, sampling, data collection, statistical analysis, and hypothesis testing
5. Apply state-of-the-art approaches gleaned from the scientific literature
6. Use the language of research
7. Address barriers to research in health education
8. Identify various data collection procedures and their advantages and disadvantages
9. Use technical skills necessary for useful research in health education
10. Weigh the advantages and disadvantages of quantitative evaluations
11. Weigh the advantages and disadvantages of qualitative evaluations
12. Write a formative and evaluative health behavior research plan
13. Demonstrate skill at designing rigorous research and program evaluation by writing a scientifically defensible research proposal

Program Competencies Addressed in this Course:

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

1. Apply evidence-based approaches in the development and evaluation of social and behavioral science interventions.
2. Conduct evaluation and research related to health behavior interventions.

Required Texts and Other Readings:

Required:

Trochim, W.M.K., Donnelly, J.P. & Arora, K. (2016). *Research methods: The Essential Knowledge Base*. Cengage Learning: Boston, MA. ISBN: 978-1-133-95477-4
<http://www.cengage.com/global>.

Recommended:

Babbie, E. (2004). *The practice of social research (10th Ed.)*, Belmont, CA: Wadsworth/Thomson Learning.

Beck, K.H., & Bargman, C.J. (1993). Investigating Hispanic adolescent involvement with alcohol: A focus group interview approach. *Health Education Research*, 8, 151-158.

Campbell, D.T. & Stanley, J.C. (1966). *Experimental and quasi-experimental designs for research*. Chicago: Rand McNally.

Cook, T.D. & Campbell, D.T. (1979). *Quasi-experimentation*. Chicago: Rand McNally.

Crosby R.A., DiClemente, R.J. & Salazar, L.F. (Eds.). (2006). *Research methods in health promotion*. San Francisco: Jossey Bass

DeVellis, R.F. (2003). *Scale development - Theory and applications*. Applied Social Research Methods Series Volume 26. Sage Publications: Thousand Oaks, CA.

Duryea, E.J. & Okwumabua, J.O. (2002). Use of cause-and-effect language in health behavior research literature. *American Journal of Health Behavior*, 26(3), 221-228.

Hartman, T.J. et al. (1994). Focus group responses of potential participants in a nutrition education program for individuals with limited literacy skills. *Journal of the American Dietetic Association*, 94(7), 744-748.

Howard D. et al. (2015). Adolescent African American males' characterizations of healthy dating relationship: A challenge to one-dimensional stereotypes. *Journal of Child and Adolescent Behavior*, 3, 256: doi:10.4172/2375-4494.1000256.

Hulley, S.B., et al. (2001). *Designing clinical research (2nd Ed.)*, Philadelphia: Lippincott Williams & Wilkins.

Institute of Medicine. (2003). *Responsible research: a systems approach to protecting research participants*. Washington DC: The National Academies Press.

Jobe, J.B. & Mingay, D.J. (1989). Cognitive research improves questionnaires. *American Journal of Public Health*, 79(8), 1053-1055.

Lonner, W.J. & Berry, J.W. (1986). *Field methods in cross-cultural research*. Beverly Hills, CA: Sage.

Measurement Excellence and Training Resource and Information Center (METRIC) – Learning about measurement. Available online at: <http://www.measurementexperts.org>.

National Center for Health Statistics. (1992). *Cognitive research on response error in survey questions on smoking*. Public Health Service. Hyattsville, MD. (PHS) 92-1080.

Neutens, J.J., & Rubinson, L. (2002). *Research techniques for the health sciences*. (3rd Edition). Benjamin: San Francisco.

Patrick, D.L. & Berry, W.L. (1991). Measurement issues: Reliability and validity. *American Journal of Health Promotion*, 5(4), 305-310.

Patton. M.Q. (1990). *Qualitative evaluation and research methods*. (2nd Ed.). Newbury Park, CA: Sage.

Publication Manual of the American Psychological Association (5th Ed.), (2002). Washington, D.C.: American Psychological Association.

Robinson, J.P., Shaver, P.R. & Wrightsman, L.S. (Eds.), (1991). *Measures of personality and social psychological attitudes*. Vol. 1. San Diego: Academic Press.

Rosenthal, R. (1991). *Meta-analytic procedures for social research*. Newbury Park, CA: Sage

Steckler, A. et al. (1992). Integrating qualitative and quantitative methods. *Health Education Quarterly*. 19(1), 1 – 8.

Ulin, P.R., Robinson, E.T., & Tolley, E.E. (2005). *Qualitative methods in public health: a field guide for applied research*. San Francisco: Jossey Bass.

Vaughn, S., J.S., Sinagub, J. (1996). *Focus group interviews in education and psychology*. Thousand Oaks, CA: Sage.

Watters, S.E. & Beck, K.H. (2016). A Qualitative study of college students' perceptions of risky driving and social influences. *Traffic Injury Prevention*, 17 (2), 122-127.

Webb, E.J., Campbell, D.T., Schwartz, .R.D., Sechrest, L. & Grove., J.B. (1981). *Nonreactive measures in the social sciences* (2nd Ed.), Boston: Houghton Mifflin.

Additional Materials Required:

Students will be required to obtain or have access to SPSS, version 23.0 or higher

Course Requirements:

As attendance is critical to learning and successful attainment of the course objectives and curriculum competencies, class attendance is critical for performing well in your course.

Course Policies:

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 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:

Late or incomplete work will be made up if a legitimate excuse (determined by University policy and the instructor) is documented at the next class period. No excuses will be accepted after December 3.

Special arrangements for making up missed work must be made in advance with the instructor. If you cannot make class or an exam due to illness or some other legitimate reason, you must contact the instructor in person or by phone before the missed class period.

There will be no extra credit assignments. Failure to do or turn in the in-class and/or take-home assignments on time can significantly lower one's final grade.

Students who enroll in the class at any time during the drop-add period are responsible for all in-class work to date.

Course Evaluations

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. **The system (www.CourseEvalUM.umd.edu)** will be open at the end of this semester for course evaluations.

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.

Web Sites:

CITI (Collaborative Institutional Training Initiative):

www.citiprogram.org if there is any difficulty:

<http://www.umresearch.umd.edu/RCO/New/IRBTraining.html>

IRB Human Subjects – Initial Application Form:

<<http://www.umresearch.umd.edu/RCO/New/>>

Current NIH guidelines:

NIH grant application form:

<http://www.umresearch.umd.edu/ORAA/form/federal_forms/NIH_Package_398_forms.pdf>

Instructions for NIH form:

<http://www.umresearch.umd.edu/ORAA/form/federal_forms/PHS398INST_2005.pdf>

New Format for NIH Proposal:

<<http://grants1.nih.gov/grants/guide/notice-files/not-od-09-149.html>>

Instructions for Grant Applications:

<<http://grants.nih.gov/grants/funding/phs398/phs398.pdf>>

NIH Grant Review Tutorial: <http://www.nlm.nih.gov/ep/Tutorial.html>

Power Calculator: <[G*Power - Free download and software reviews - CNET Download.com](http://www.gpower.net/)>

NCHS data: <<http://www.cdc.gov/nchs/express.htm>>

Behavior Risk Factor Surveillance System: <<http://www.cdc.gov/brfss/>>

Qualtrics: <https://umdsurvey.umd.edu/> (Please note the login must take place using the Directory ID and password to get into the system.) For assistance: shrikanthjaikumar@gmail.com

Grading Procedures:

Evaluation		Grading
Exam I:	30%	96 - 100% A+
Exam II:	30%	93 - 95 A
Research Proposal & 3 Proposal Critiques:	30%*	90 - 92 A-
Survey Assignment:	30%**	86 - 89.99 B+
2 Article Critiques	10%	83 - 85 B
		80 - 82 B-
		76 - 79.99 C+
		73 - 75 C
		70 - 72 C-
		66 - 69.99 D+
		63 - 65 D
		60 - 62 D-
		≤ 59.99 F

***Ph.D. students** will submit a research proposal on Nov. 5. This will be presented to and evaluated by the class and the instructor. Details of this assignment will be presented in class.

****MPH students** will conduct a health survey. They can use a variety of survey platforms (e.g., Qualtrics) to collect their data that will be analyzed using SPSS software. Instructions will be given as to how to write up and present their results.

Course Outline / Course Calendar:

Course Schedule Summary			
Session	Date	Topic	Assignments Due
# 1	8/27	Foundations of Research	
# 2	9/3	Review, Retrieval and Synthesis of Research Findings & Ethical Considerations Guest Speaker: Dr. Jessica Rath	CITI Training – Basic Social-Behavioral-Educational track
# 3	9/10	Qualitative & Unobtrusive Measures	
# 4	9/17	Sampling and Statistical Power Survey Sampling Assignment – MPH Students only	
# 5	9/24	Survey Research	
# 6	10/1	Reliability of Measurement	Critique of survey article
# 7	10/8	Validity of Measurement and Scaling – In class exercise on survey data analysis	
# 8	10/15	Examination 1 – covers chapters 1 – 7, plus class materials	
# 9	10/22	Internal Validity and Causal Inference	
# 10	10/29	Experimental and Quasi-Experimental Design	Critique of experiment/program evaluation article
# 11	11/5	Advanced Topics – Complex Designs & Analytic Techniques	Research proposal – PhD’s
# 12	11/12	Data Analysis, Hypothesis Testing & Student Presentations	Survey Assignment – MPH’s
# 13	11/19	Writing a Research Report & Student Presentations	
# 14	11/26	Student Presentations	
# 15	12/3	Last Day of Class	Research Proposal Critiques
# 16	TBA	Final Exam – covers chapters 8 – 13, plus class materials	

Session Outline	
Session 1	August 27
Topic: Foundations of Research	
Session 2	September 3
Topic: Review, Retrieval and Synthesis of Research Findings & Ethical Considerations	
Learning Objectives for Session:	
<ul style="list-style-type: none"> - Conduct a thorough and scientific literature review - Address barriers to research in health behavior 	
Required readings: Chapters 1 & 2	
Recommended readings:	
Duryea, E.J. & Okwumabua, J.O. (2002). Use of cause-and-effect language in health behavior research literature. <i>American Journal of Health Behavior</i> , 26(3), 221-228.	
Institute of Medicine. (2003). <i>Responsible research: a systems approach to protecting research participants</i> . Washington DC: The National Academies Press.	
Assignments – CITI Training – Social & Behavioral track due	
Session 3	September 10
Topic: Qualitative and Unobtrusive Measures	
Learning Objectives for Session	
<ul style="list-style-type: none"> - Weigh the advantages and disadvantages of quantitative evaluations - Weigh the advantages and disadvantages of qualitative evaluations 	
Required readings: Chapter 3	
Recommended readings:	
Beck, K.H., & Bargman, C.J. (1993). Investigating Hispanic adolescent involvement with alcohol: A focus group interview approach. <i>Health Education Research</i> , 8, 151-158.	
Hartman, T.J. et al. (1994). Focus group responses of potential participants in a nutrition education program for individuals with limited literacy skills. <i>Journal of the American Dietetic Association</i> , 94(7), 744-748.	
Howard D. et al. (2015). Adolescent African American males' characterizations of healthy dating relationship: A challenge to one-dimensional stereotypes. <i>Journal of Child and Adolescent Behavior</i> , 3, 256: doi:10.4172/2375-4494.1000256.	
Patton. M.Q. (1990). <i>Qualitative evaluation and research methods</i> . (2nd Ed.). Newbury Park, CA: Sage.	
Watters, S.E. & Beck, K.H. (2016). A Qualitative study of college students' perceptions of risky driving and social influences. <i>Traffic Injury Prevention</i> , 17 (2), 122-127.	

Session 4 - 5	September 17- 24
<p>Topic: Sampling and Statistical Power</p> <p>Learning Objectives for Session: 2, 4</p> <ul style="list-style-type: none"> - Demonstrate an understanding of concepts and methods related to design, sampling, data collection, statistical analysis, and hypothesis testing - Interpret and critique evaluation research and research reports <p>Required readings: Chapter 4 & 7</p>	
Session 6	October 1
<p>Topic: Reliability and Measurement</p> <p>Learning Objectives for Session</p> <ul style="list-style-type: none"> - Use technical skills necessary for useful research in health behavior - Identify various data collection procedures and their advantages and disadvantages <p>Required readings: Chapter 5</p> <p>Recommended readings:</p> <p>DeVellis, R.F. (2003). Scale development - Theory and applications. Applied Social Research Methods Series Volume 26. Sage Publications: Thousand Oaks, CA</p> <p>Patrick, D.L. & Berry, W.L. (1991). Measurement issues: Reliability and validity. American Journal of Health Promotion, 5(4), 305-310.</p>	
Session 7	October 8
<p>Topic: Validity of Measurement & In Class Exercise</p> <p>Learning Objectives for Session</p> <ul style="list-style-type: none"> - Demonstrate an understanding of the basic concepts and methods related to design - Apply state-of-the-art approaches gleaned from the scientific literature - Use technical skills necessary for useful research in health education <p>Required readings: Chapter 6</p> <p>Recommended readings:</p> <p>Measurement Excellence and Training Resource and Information Center (METRIC) – Learning about measurement. Available online at: http://www.measurementexperts.org.</p> <p>National Center for Health Statistics. (1992). Cognitive research on response error in survey questions on smoking. Public Health Service. Hyattsville, MD. (PHS) 92-1080.</p> <p>Jobe, J.B. & Mingay, D.J. (1989). Cognitive research improves questionnaires. American Journal of Public Health, 79(8), 1053-1055.</p> <p>Assignment – All students will complete an exercise on measurement reliability, using SPSS software as demonstrated in class. Due 10/16.</p>	

Session 8	October 15
Topic: Examination I – covers chapters 1 -7, plus class material	
Session 9	October 22
Topic: Internal Validity and Causal Inference	
Learning Objectives for Session	
<ul style="list-style-type: none"> - Interpret and critique evaluation research and research reports - Demonstrate an understanding of the basic concepts and methods related to design 	
Required readings: Chapter 8	
Recommended readings:	
Babbie, E. (2004). The practice of social research (10th Ed.), Belmont, CA: Wadsworth/Thomson Learning.	
Lonner, W.J. & Berry, J.W. (1986). Field methods in cross-cultural research. Beverly Hills, CA: Sage.	
Hulley, S.B., et al. (2001). Designing clinical research (2nd Ed.), Philadelphia: Lippincott Williams & Wilkins.	
Crosby R.A., DiClemente, R.J. & Salazar, L.F. (Eds.). (2006). Research methods in health promotion. San Francisco: Jossey Bass	
Session 10	October 29
Topic: Experimental & Quasi-experimental Design	
Learning Objectives for Session	
<ul style="list-style-type: none"> - Use technical skills necessary for useful research in health behavior 	
Required readings: Chapters 9 & 10	
Recommended readings:	
Campbell, D.T. & Stanley, J.C. (1966). Experimental and quasi-experimental designs for research. Chicago: Rand McNally.	
Cook, T.D. & Campbell, D.T. (1979). Quasi-experimentation. Chicago: Rand McNally.	
Assignments – Critique of Experiment/Program Evaluation article due	
Session 11	November 5
Topic: Advanced Topics – Complex Experimental Designs & Analytic Techniques	
Learning Objectives for Session	
<ul style="list-style-type: none"> - Use technical skills necessary for useful research in health education - Write a formative and evaluative health behavior research plan - Demonstrate skill at designing rigorous research and program evaluation by writing a scientifically defensible research proposal 	
Required readings: Chapter 10	
Assignments – Research Proposal due – Ph.D. students only	

Session 12	November 12
Topic: Data Analysis, Hypothesis Testing & Student Presentations	
Learning Objectives for Session	
<ul style="list-style-type: none"> - Demonstrate an understanding of concepts and methods related to design, sampling, data collection, statistical analysis, and hypothesis testing - Apply state-of-the-art approaches gleaned from the scientific literature 	
Required readings: Chapters 11 & 12	
Assignments – Survey Assignment due – MPH students only	
Ph.D. students will be assigned dates to make a presentation of their research proposal	
Session 13	November 19
Topic: Writing a Research Report & Student Presentations	
Learning Objectives for Session	
<ul style="list-style-type: none"> - Use the language of research - Write a formative and evaluative health behavior research plan - Demonstrate skill at designing rigorous research and program evaluation by writing a scientifically defensible research proposal 	
Required readings: Chapter 13	
Session 14	November 26
Topic: Student Presentations	
Learning Objectives for Session	
<ul style="list-style-type: none"> - Use the language of research - Write a formative and evaluative health behavior research plan - Demonstrate skill at designing rigorous research and program evaluation by writing a scientifically defensible research proposal 	
Assignments – Critique of 3 student research proposals are due – Ph.D. students only	
Session 15	December 3
Last Day of Class – Course wrap up	
Session 16	TBA
Topic: Final Exam - covers chapters 8 - 13, plus class material	

Critical university policies:

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>.