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Email: pcavazos@wustl.edu
Office Hours: By appointment

OVERVIEW:

1. BROAD PURPOSE OF COURSE

This course is designed to introduce students to basic research methods used in health care research. The course will provide an overview of basic methodological concepts used in health care, social science, and behavioral science research. After completing this course you should be able to demonstrate an advanced understanding of all phases and components of the research process including: generating research questions and hypotheses, designing a study, selecting a study sample, measuring variables and constructs, collecting data and planning data analysis.

OBJECTIVES:

2. COURSE OBJECTIVES

Upon completion of this course, students should be able to:

1. Accurately critique different kinds of study design approaches.
2. Enhance skills in accessing and critically reviewing practice-related research.
3. Demonstrate understanding of various approaches to data collection and analysis
4. Select appropriate statistical procedures to analyze and correctly interpret different kinds of data.
5. Identify and follow appropriate procedures and rules for obtaining informed consent, preserving confidentiality, and notifying participants of benefits and risks related to research.

3. GRADING POLICY

Summaries of each assignment are provided below. Note that extended details of each assignment are included at the end of this syllabus.

Summary over Weekly Readings (20% of total grade): For this assignment, you will be required to demonstrate your interpretation and understanding of the assigned weekly readings. As a starting point for in-class discussions, you will be asked to respond to a series of questions about the assigned readings. These questions are intended to focus your reading and thinking, and should ultimately facilitate a high-quality discussion. Your summary will consist of a 10-15 minute PPT presentation.

Study Design Critique (20% of total grade): For this assignment, you are required to critique other people’s scientific work, and in doing so, you will become better at critiquing your own work and become a better scientist and writer because of this practice. Your critique will consist of a 10-15 minute PPT presentation.

Overview of Existing National Database (10% of total grade): You will summarize existing national databases that are publically available for data analysis and focused on health behavior. Provide an overview of the database, pros and cons and identify potential research questions answered by the database. Your overview will consist of a 10-15 minute PPT presentation.
*** If you are absent for any of your scheduled presentations, then you will need to submit a 2-3 pages long summary of the assignment (1 inch margins, Times New Roman 12-point font and double spacing).

**Poster Presentations: 15% of final grade**
You will be required to update the class on your team’s research project and summarize your progress on poster format. Do note that this is an Individual Assignment and every student should complete a unique and independent poster. This assignment will enable you to summarize your own interpretation of your team’s project and will test your own assumptions against your team members’. You will also have an opportunity to receive feedback to incorporate into your final team products. During a class session, you will present your poster to the class.

**Research Project Presentations: 15% of final grade**
You will be required to give a 25-30 minute presentation of your research proposal. You are allowed an additional 5-10 minutes of discussion time. The use of PowerPoint slides is preferred.

**Research Project Paper: 20% of final grade**
You will be required to write a research project paper of a study in a selected area of interest. One research project paper per team should be submitted. Please conform to APA format and do not include more than 1 direct quote from the literature. No late proposals will be accepted unless approved by the instructor.

**METHODS OF EVALUATION**

<table>
<thead>
<tr>
<th>Assignments</th>
<th>Percentage of final grade</th>
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<tbody>
<tr>
<td>Summary over Weekly Readings</td>
<td>20</td>
</tr>
<tr>
<td>Study Design Critique</td>
<td>20</td>
</tr>
<tr>
<td>Overview of Existing National Databases</td>
<td>10</td>
</tr>
<tr>
<td>Poster Presentations</td>
<td>15</td>
</tr>
<tr>
<td>Research Project Presentations</td>
<td>15</td>
</tr>
<tr>
<td>Research Project Paper</td>
<td>20</td>
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<td>Total Percentage Points Possible</td>
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4. TEXTS AND READINGS

*Required:*

Assigned readings in course schedule calendar below are required

*Recommended:*
5. ACADEMIC INTEGRITY

**Academic Integrity Policy**
Students are expected to abide by and uphold the Academic Integrity Policy for Graduate Students from the Graduate School of Arts & Sciences. All students should have received this policy. Please contact the Office of the Dean of the School of Arts & Sciences to obtain copies of this document.

**Students with disabilities**
Washington University is committed to providing accommodations and/or services to students with documented disabilities. Students who are seeking support for a disability or a suspected disability should contact the Disability Resource Center (DRC) at 5-4062 on the lower level of the Women's Building (drc@dosa.wustl.edu). The DRC is responsible for approving and arranging all accommodations for University students.
January 14  
**First day of class**  
January 21  
**MLK Holiday**  
January 28  
**Observational Study Design**


**Recommended readings:**


February 4  
**Cross-sectional study design**


February 11  
**Cohort study design**


February 18  
**Case–control studies**


**February 25**

**Ecologic studies**


**March 4**

**Recommended reading:**


**March 11**

**Spring Break**

**March 18**

**Poster presentations**

**March 25**

**Randomized controlled trials**


**April 1**

**Quasi-experimental study designs**


April 8

**Retrospective studies and chart reviews**


April 15

**Qualitative Methods**


April 22

**Systematic reviews and meta-analyses**


April 29

**Last Day of Class**

**Presentations**

**Recommended Reading:**

Pierson, D. J. (2004). The top 10 reasons why manuscripts are not accepted for publication. *Respiratory care, 49*(10), 1246-1252.

Johnson, C., & Green, B. (2009). Submitting manuscripts to biomedical journals: common errors and helpful solutions.

### Summary over Weekly Readings

**Instructions:**
Summarize the article:
- Describe the study design
- Strengths and limitations
- When is the study design appropriate

From your reading, what is the most important point made in this article? Why is this important? What ideas in this article are new to you and especially interesting?

**You should prepare a 10-15 minute PPT presentation summarizing these points.**

### Study Design Critique

**Instructions:** For this assignment, you are required to identify a research study that utilized the study design assigned for the week (i.e., study design will align with the course schedule). We are all conditioned to trust what we read at first glance if it is in print but it is important to be critical about what we are reading and distinguish what is trustworthy from what is untrustworthy. As you critique other people’s work, you should also become better at critiquing your own work and you will likely become a better writer because of this practice.

You should prepare a 10-15 minute PPT presentation summarizing the items below.
- Title of the Study
- In your own words, state the purpose of the study
- State the theory/framework, concepts, and the relationship to health and behavior
- State the research question or hypothesis
- List the dependent and independent variables
- Describe the sample
- Describe the ethics of the study
- State the data collection procedure
- Discuss the data analysis
- Describe strengths and limitations of the study, in general, and the study design
- Consider alternative study designs that are better suited for the research question
- Discuss results, recommendations, and implications.

### Overview of Existing National Databases

**Instructions:** You will summarize existing national databases that are publically available for data analysis and focused on health behavior. Provide an overview of the database, pros and cons and identify potential research questions answered by the database.

**You should prepare a 10-15 minute PPT presentation summarizing these points and a hardcopy of an outline or summary for your classmates.**
Poster Presentation

Instructions: For this project, you will be conducting a secondary analysis of existing data. One of the most time-efficient ways to write a paper is to analyze an existing dataset and write up the results as a formal manuscript. There are many organizations that make their data files available to other researchers and encourage them to publish their results in peer-reviewed journals. Specifically, you will be downloading an existing individual-level dataset from a trusted organization (such as the U.S. CDC or the WHO), selecting a study question that you can explore with the (latest available) data, conducting basic statistical analysis, and writing up your findings. Your analytic techniques do not have to be complex, but you must have a clear study question and specific objectives for your analysis and you must answer these with your results section. You will present your results as a poster.

During a class session, you will present your poster to the class. You will also have an opportunity to receive feedback to incorporate into your final product.

Present your research in a poster format: “Posters are widely used in the academic community, and most conferences include poster presentations in their program. Research posters summarize information or research concisely and attractively to help publicize it and generate discussion. The poster is usually a mixture of a brief text mixed with tables, graphs, pictures, and other presentation formats. At a conference, the research poster is read by the poster display while other participants can come and view the presentation and interact with the author.”

Content Checklist for Poster:
- The title and the author’s name appear at the top center of the poster.
- The poster does not include an abstract
- The poster has separate sections for the background, methods, results, and conclusions; additional content, such as a section for goals or objectives and a section for references, may also be helpful
- Images are used instead of words as often as possible; when words are needed, short sentences and bulleted lists are used rather than paragraphs
- The poster includes at least 3 separate images, such as tables, figures, flowcharts, photographs, or maps

Design Checklist for Poster:
- The text is large enough that it can be read from several feet away from the poster; Arial size 24 font or Times New Roman size 28 font is the smallest recommended size for primary content (the reference list and other secondary content can be a smaller font)
- All parts of graphs, tables, and other images – including the title, axis labels, and keys – can be read from several feet away

For additional guidance see this article:
https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1955747/
Research Project Presentation

Instructions for Research Project Presentations: For this presentation, you will expand on your poster presentation above (secondary analysis of existing data). You will be required to give a 10-15 minute presentation of your research proposal. You are allowed an additional 5-10 minutes of discussion time. The use of PowerPoint slides is preferred.

Research Project Paper

Instructions for Research Project Paper: For this research project paper, you will expand on your poster and research project presentations above (secondary analysis of existing data). You will be required to write a research project paper of a study in a selected area of interest based on your findings. Please conform to APA format and do not include more than 1 direct quote from the literature. No late paper will be accepted unless approved by the instructor. Papers should be about 10 to 15 pages long with 1” margins (font should be 12 Times New Roman). Please do not include more than 1 direct quote from the literature. The content of the proposal should include the following:

1. Title page
2. Introduction (1-2 pages)
   a. Specific aims
   b. Research questions to be answered
3. Review of the Literature (3 – 5 pages)
4. Significance of the study (1 – 2 pages)
5. Methods/Results section (4 – 6 pages)
   a. Descriptions of the participants
   b. Procedures
   c. Measures
   d. Data analysis
   e. Results
6. Discussion/Summary (1-2 pages)
7. References

No late proposals will be accepted unless approved by the instructor.
National Datasets

1. **Behavioral Risk Factor Surveillance System (BRFSS)** is the nation's premier system of health-related telephone surveys that collect state data about U.S. residents regarding their health-related risk behaviors, chronic health conditions, and use of preventive services. Established in 1984 with 15 states, BRFSS now collects data in all 50 states as well as the District of Columbia and three U.S. territories. BRFSS completes more than 400,000 adult interviews each year, making it the largest continuously conducted health survey system in the world. [https://www.cdc.gov/brfss/index.html](https://www.cdc.gov/brfss/index.html)

2. **National Health and Nutrition Examination Survey** (Centers for Disease Control and Prevention)—A survey conducted by the National Center for Health Statistics that collects information regarding the health and diet of people in the United States through the use of interviews and a health test. [http://www.cdc.gov/nchs/nhanes.htm](http://www.cdc.gov/nchs/nhanes.htm)

3. **National Health Interview Survey** (Centers for Disease Control and Prevention)—A survey that assess family demographics, income, and health care accessibility. [http://www.cdc.gov/nchs/nhis.htm](http://www.cdc.gov/nchs/nhis.htm)

4. **Youth Risk Behavior Survey** (Centers for Disease Control and Prevention)—A nationally coordinated survey of each state that identifies high-risk youth behaviors through the use of school and classroom samples. Data from this survey are available for participating states every 2 years, enabling the monitoring of trends in risky youth behavior. [http://www.cdc.gov/nccdphp/dash/vrbs/vrbsaag.htm](http://www.cdc.gov/nccdphp/dash/vrbs/vrbsaag.htm)


6. **Global Tobacco Survey** (Centers for Disease Control and Prevention)—World Health Organization and CDC developed the Global Youth Tobacco Survey (GYTS) to track tobacco use across countries using a common methodology and core questionnaire. The surveillance system is intended to enhance the capacity of countries to design, implement, and evaluate tobacco control and prevention programs. [http://www.cdc.gov/tobacco/global/gyts/GYTS_intro.htm](http://www.cdc.gov/tobacco/global/gyts/GYTS_intro.htm)

7. **Health and Retirement Study (HRS)**- The University of Michigan Health and Retirement Study (HRS) is a longitudinal panel study that surveys a representative sample of more than 26,000 Americans over the age of 50 every two years. Supported by the National Institute on Aging and the Social Security Administration, the HRS explores the changes in labor force participation and the health transitions that individuals undergo toward the end of their work lives and in the years that follow.

8. **The Panel Study of Income Dynamics (PSID)** - is the longest running longitudinal household survey in the world. The study began in 1968 with a nationally representative sample of over 18,000 individuals living in 5,000 families in the United States. Information on these individuals and their descendants has been collected continuously, including data covering employment, income, wealth, expenditures, health, marriage, childbearing, child development, philanthropy, education, and numerous other topics. http://www.bls.gov/nls/#overview

9. **National Longitudinal Surveys (NLS)** are a set of surveys designed to gather information at multiple points in time on the labor market activities and other significant life events of several groups of men and women. For more than 4 decades, NLS data have served as an important tool for economists, sociologists, and other researchers. [https://www.bls.gov/nls/#overview](https://www.bls.gov/nls/#overview)