

MCH 605
Basic Research Methods for Maternal and Child Health Practitioners
(3 Credits)
Department of Maternal and Child Health
School of Public Health
University of Alabama at Birmingham

Fall, 2003
Monday 2:30 PM - 5:00 PM
107 Ryals Building

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Username: webcmch605

Password: Research#605

Introduction:

This course is required for students receiving a Master in Public Health in Maternal and Child Health (MCH). Other than admission to the MPH program, there are no other course prerequisites. Non-MCH students are welcome and may register with permission of the instructor.

Course Description:

This course provides an introduction to basic research methods with a specific focus on their use in the field of Maternal and Child Health (MCH). The course purpose is to facilitate the development of knowledge and skills related to the review, assessment, and

conduct of data-based research. Specifically, this course is designed to:

1. provide an overview of basic research principles and the stages of research development, including scientific theory construction, hypothesis formulation and testing, measurement validity and reliability, study design, analytical approaches, and validity of inference;
2. examine the purposes and methods for undertaking integrated and historical literature reviews and provide examples of the application of basic research principles to the conduct of literature reviews;
3. examine the purpose of technical reports in the MCH field and provide an overview of issues related to the preparation of MCH technical reports;
4. cover the practical issues involved in formally reviewing an article;
5. cover the practical issues involved in preparing and presenting research at professional meetings;
6. introduce current MCH research topics and available MCH-related data bases.

Course Objectives:

Upon completion of the course, students will have increased their understanding and knowledge of and ability to:

1. describe the basic components underlying the conduct of a research agenda, including theory development, hypothesis testing, assessing bias in empirical measures, and selecting study populations and research designs;
2. conduct a critical review of the research literature in an MCH-related area with a focus on measurement issues and validity of inference;
3. describe the purpose, format and essential components of MCH technical reports;
4. describe the steps for preparing and giving a research presentation.

Course Format:

Course sessions will entail a combination of lectures, group discussions, small-group activities, and student presentations based on assigned readings and projects. Active student participation in all class discussions and presentations is essential. Guest presenters may be used to address specific topics.

Course Evaluation:

Students will be evaluated on the basis of:

1. Group “hypothesis” assignment and presentation (25%)
2. Individual oral presentation on “concept” assignment (10%)
3. Individual written paper on “concept” assignment (25%)
4. Participation in class discussions (15%)
 - 15 pts (Always participates; adds quality; does not dominate);
 - 10 pts (Often participates; adds some quality);
 - 5 pts (Occasionally participates; adds some quality);
 - 0 pts (Rarely participates; disruptive; dominates; poor quality input)
5. Final take-home due 12/10 (25%)

Grading:

We will use the following classification (with no rounding up) to determine final grades for the course:

93 – 100:	A
85 – 92:	B
70 – 84:	C
60 – 69:	D
< 60:	F

Class Roll and Participant Information

Each student enrolled in the course is requested to provide the following information to the instructor by the end of the first session:

1. Name;
2. Degree Program and Major;
3. Years in program;
4. Prior degrees;
5. Professional certifications;
6. Description of any previous research experience;
7. Description of any specific course expectations;
8. List of 2-3 research topic(s) of interest.

Readings:

Required readings will be identified for each session. These readings will be on reserve in the office of the Department of Maternal and Child Health and in the Copy Center. Readings may be identified the week prior to an upcoming class session; if so these items will be announced in class.

Text:

Isaac, Stephen and William B. Michael. Handbook in Research and Evaluation, 3rd Edition. EdITS Publishers, San Diego, 1995.

Course Outline:

Aug. 25 (1)

- Course Introduction

- Course Description, Objectives, and Format
- Course Evaluation Criteria
- Class Roll
- Readings & Text
- Course Outline
- Assignments & Exercises

- Philosophy of Science

- Concepts, Definitions and Empirical Indicators in MCH

- Research Golden Numbers and Their Use in MCH Policy Analysis

Readings: Isaac and Michael - pp. 1-6, 35-44, 105-112, 244

Sept. 1

- Holiday (Class Cancelled)

Sept. 8 (2)

- Hypothesis Formulation and Modeling Theoretical Relationships

- Problems in Data Interpretation

Readings: Alexander, Greg R. and Donna J Petersen. Threats to Accurate Interpretation of Secondary Data. Chapter in: Maternal and Child Health: Programs, Problems and Policy in Public Health, edited by Jonathan Kotch, Aspen Press, 1997.

Sept. 15 (3)

- **Meta Analysis**
(Guest Lecturer: Martha Slay)

- **Historical Perspectives and Techniques for Literature Synthesis**
(Guest Lecturer: Greg Alexander, ScD)

Readings: Isaac and Michael - pp. 237-245
Haynes - article

Handouts: Formats for Summarizing a Literature Review

Sept. 22 (4)

Melissa Adams, RN, PhD: Guest Lecturer

- **Data Measurement: Types, Validity and Reliability**

Readings: Isaac and Michael - pp. 125-136

- **Surveillance and Survey Methodology**

Readings: To be announced

Sept. 29 (5)

- **Internal and External Validity in MCH Research (Sheree Boulet, MPH: Guest Lecturer)**

Readings: Isaac and Michael - pp. 45-104

- **Research Study Designs**

>>>> NOTE >>>>: Students to turn in 1-page sheet (see attached) containing their name and the name of the "Concept" they have selected for their Final Paper and Oral Presentation!!!!

Oct. 6 (6)

- Student Group Hypothesis Written Assignment and Presentation due!

Oct. 13 (7)

- **Econometric Methodologies**
(Guest Lecturer: Shailendar Swaminathan, PhD)

Readings: To be announced

- **Qualitative Research**

Readings: To be announced

Oct. 20 (8)

Geographic Analysis Techniques

Readings: To be announced

Oct. 27 (9)

Donna Petersen, MHS, ScD: Guest Lecturer

- **Program and System Evaluation Methodology**
- **MCH Data Bases**
- **Use of Technical Reports & Current Research Issues in MCH**

Readings: Petersen, Donna J. and Greg R. Alexander. Evaluation, Performance Monitoring and Health Status Surveillance. Chapter in: Family Health and Health and Welfare Reform in the 21st Century: An Interdisciplinary Perspective, edited by Helen Wallace, Jones and Bartlett Publishers, Boston, 1998.

Isaac and Michael - pp. 7-34

Gable – article

Nov. 3 (10)

Reviewing, Preparing and Presenting Articles and Abstracts

- **What Reviewers Look For**
- **Preparing and Presenting Articles and Abstracts**
- **Managing Reference Literature**
- **Research Steps and Time Lines**

Readings: Martin - article

Handouts: Stages of Research & Time Lines
Thoughts on Developing Research Topics.

Nov. 10 (11)

Reviewing the Current Literature

Handouts: Selected Recent Research Articles
(to be announced Nov. 3)

Nov. 17 (11)

- **APHA Annual Meeting (Class Canceled)**

STUDENT PRESENTATIONS

Nov. 24 (13)

1) _____ 2) _____ 3) _____

4) _____ 5) _____ 6) _____

7) _____ 8) _____ 9) _____

10) _____ 11) _____ 12) _____

Dec. 1 (14) FINAL PAPER DUE!!!!!!!!!!!!

1) _____ 2) _____ 3) _____

4) _____ 5) _____ 6) _____

7) _____ 8) _____ 9) _____

10) _____ 11) _____ 12) _____

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Concept Paper & Presentation

This assignment includes both a written paper and an oral presentation. Your presentation will be based on your paper. Presentation dates (11/24 or 12/1) will be assigned in class.

Your paper is due December 1! Points will be deducted from papers turned in late using the following procedure: 5 pts the first day and 1 pt each following day.

The purpose of this assignment is to provide the student with an opportunity to investigate the development and measurement properties of a MCH research "concept" of interest. In doing this investigation, the student will conduct a literature review and synthesis.

Students may choose any MCH "concept" of interest or select one from the attached list. The "concept" selected should have sufficient background literature to allow for a scholarly review and must have public health significance and MCH relevance. **Students are required to identify their "concept", in writing, to me by September 29.**

Written Paper

The written narrative of your paper should **not exceed 10 pages** and **may be shorter**. **Double space** and **do not use small fonts**. Do carefully check your paper for spelling and grammatical errors. Papers that are difficult to read (visually or grammatically) tend to vex the instructor. This may result in a more critical assessment.

Oral Presentation

A maximum of 10 minutes is allowed for your presentation and questions. This breaks down into 8 minutes for presentation and 2 minutes for questions. Please practice your presentation so that you can present it within the time allowed. As running over your allotted time reduces the time available for another student, the **10-minute time limit will be strictly enforced**. Ending a minute or two before your time is up is OK. Presentations that are succinct, to the point, and under 10 minutes tend to get better grades!

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Concept Paper & Presentation

The content of your paper will typically contain some or all of the following:

- I. Introduction
 - A. Provide a brief description (conceptual definition) of the "concept."
 - B. Provide background, including a brief discussion of why this concept is important and significant to the MCH public health field and any policy and programmatic implications that might result from limitations to its valid measurement.
 - C. Provide a summary of how this concept has been used in research, including what is known about factors that predict it and what outcomes it predicts.

- II. Measurement Issues & Review of the Literature
 - A. Provide an operation definition of the "concept" and describe the available empirical indicators of the "concept" that have been used in research efforts.
 - B. Discuss the major measurement issues in regards to those empirical indicators, i.e., validity and reliability. Describe what populations have been used to validate the measurement tools?
 - C. What major controversies exist regarding the measurement of the concept?

- III. Conclusion
 - A. Discuss if the existing conceptual and operational measures of the concept adequate?
 - B. What further work could be done to improve the conceptualization, measurement, and validation of the concept?

Examples of MCH "Concepts"

- 1 Poverty
- 2 Homelessness
- 3 Patient Satisfaction
- 4 Failure to Thrive
- 5 Pregnancy Intendedness
- 6 Cultural Competency
- 7 Child Neglect or Abuse
- 8 Limited Functioning
- 9 Disability
- 10 Hunger
- 11 Culture
- 12 Race/racism
- 13 Substance Use
- 14 Neighborhood/community
- 15 Welfare Dependent
- 16 Well-being
- 17 Adolescence
- 18 Suicide Attempt
- 19 Accident
- 20 Child health
- 21 Newborn maturity
- 22 Diarrhea
- 23 Preterm Birth
- 24 Special Health Care Need
- 25 Community-based
- 26 Systems of care
- 27 Regionalized care
- 28 Self-sufficiency
- 29 Resilience
- 30 Social support
- 31 Developmental delay
- 32 Maternal Mortality
- 33 Family
- 34 Perinatal causes of infant death
- 35 Breast feeding
- 36 Macrosomia

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2003 Schedule

<u>Date</u>	<u>Topic</u>	<u>Speaker</u>
8/25	Introduction Philosophy of Science & Theory Concepts & Golden #'s	Kirby Kirby Kirby
9/1	Holiday	-----
9/8	Hypotheses Theoretical Modeling Data Interpret. Problems	Kirby Kirby Kirby
9/15	Meta-Analysis Historical Lit. Review	Slay Alexander
9/22	Measurement Issues Surveillance & Surveys	Adams Adams
9/29	Internal and External Validity Research Study Designs	Boulet Kirby
10/6	Student Hypotheses Reports	Students
10/13	Economic Analysis Qualitative Research	Swaminathan Kirby
10/20	Geographic Analysis	Kirby
10/27	Evaluation MCH Data Bases Tech. Reports & Topics	Petersen Petersen Petersen
11/3	Reviewing, Preparing & Presenting Abstracts and Articles Research Steps/Time lines	Kirby
11/10	Reviewing the Current Literature	Kirby and Students
11/17	APHA Meeting: Cancelled	-----
11/24	Student Presentations	Students
12/1	Student Presentations	Students
12/?	Take-home Exam Due by 12 noon	

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ASSIGNMENT #1: Hypothesis Development

Background

The Children's Health Act of 2000 authorized the National Institute of Child Health and Human Development (NICHD), along with the Centers for Disease Control and Prevention (CDC), the Environmental Protection Agency (EPA), and the National Institute of Environmental Health Sciences (NIEHS), to develop a large, long-term study of environmental influences on children's health and development. **The National Children's Study** will explore a range of factors, both harmful and helpful, that influence the health and well-being of children. Chemical, physical, social, and behavioral influences on children will be assessed to better understand the role of these factors on health and disease. This study will examine about 100,000 children across the United States, following them during prenatal development, through birth, childhood, and into adulthood. As an MCH expert, you have been asked to be part of a working group. The purpose of this group is to develop and recommend research hypotheses for studying the impact of certain factors on children's health and development.

This assignment is based on a real meeting that recently took place. The questions being asked and the forms being used are taken from those employed during the national meeting of researchers that were invited to help develop the actual National Children's Study.

Group Assignment

You will work in groups of 5 to 6 students. (The use of workgroups to develop hypotheses for national studies is a well accepted strategy.) Each group will focus on one stage of development. These stages are:

- Prenatal–conception to birth
- Infants & Toddlers–birth to 2 years
- Early childhood–2 to 6 years
- Middle childhood–6 to 11 years
- Adolescence–12 years to 22 years

Written Assignment

Each group will collectively develop a research hypothesis that is pertinent to their assigned stage of development. The group will then complete the accompanying form, which will be submitted as the group's written report for this assignment. On the

form, the hypothesis should be stated as a single sentence. A visual model of the variable relationships that make up the hypothesis should also be developed and attached to the form on a separate page. Next, bullets can be used to indicate the rationale and significance of the hypothesis. Among the items typically used to justify the importance of hypotheses are high morbidity and mortality rates, long-term developmental delays, potential for spread of disease or economic loss, etc. On page two of the form, discuss the requirements for testing the hypothesis, including measurement strategies (how will the concepts in the hypothesis be empirically defined), special data needs (requirements for multiple data sources, linking of data sources, etc.), control variables (possible biases, etc.), and other issues. Finally, indicate pertinent references. **Use the attached form to complete this assignment.** The **maximum length is 2 pages.** The hypothesis model may be turned in on a separate page.

Oral Presentation

On 10/6, each group will come to class prepared to present their hypothesis. The presentation should be composed of the following: stated hypothesis, model, bullets providing rationale and significance, list of requirements. Overheads or PowerPoint presentations are welcome (typically 6-8 slides). Each group should decide who will present the group's material. The presentation will be limited to **8 minutes.** Following the presentation, the entire group will come forward to answer questions. 7 minutes will be allowed for questions and discussion. Following the presentation, the group will turn in their completed form.

Grading

One grade will be given for the group. The assignment will be evaluated on the following criteria:

- 1) hypothesis is clearly stated,
- 2) significance and background information are relevant and clearly stated,
- 3) variable measurement issues are addressed,
- 4) other issues related to testing the hypothesis are discussed,
- 5) visual presentation is concise and organized
- 6) all group members participate in discussion

<p>Working Group Proposed Hypothesis Due October 6</p>
<p>Topic: _____</p>
<p>Group Members: _____</p>
<p>_____</p>

1. Hypothesis and Model:

2. Rationale and Significance of the Hypothesis

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MCH “Concept” Paper Topic

Please complete and turn in on September 29

Name: _____

Concept: _____

Student Background Form

1. Name: _____

2. Email address: _____

3. Degree Program and Major: _____

4. # of years in degree program: _____

5. Prior degrees: _____

6. Professional certifications: _____

7. Description of any previous research experience: _____

8. Description of any specific course expectations: _____

9. List of 2-3 research topic(s) of interest: _____

