

## SEMESTER AT SEA COURSE SYLLABUS

**Voyage:** Summer 2013

**Discipline:** Public Health

**PHS 5601:** Health Research Methods

**Division:** Upper Division

**Faculty Name:** Paige P. Hornsby, Ph.D.

### **Pre-requisites:**

Introductory level course in Public Health or one of the social sciences

### **COURSE DESCRIPTION**

Much of what we know about human health and health-related behavior is based on quantitative and qualitative research. This course involves students in the research process from start to finish, including formulating a research question; conducting a background literature review; choosing a study design; developing data collection tools; recruiting a study population; collecting data; assuring data quality; analyzing data; and interpreting and presenting the results. In addition, students will study examples of health-related research from each of the countries visited on the voyage.

### **COURSE OBJECTIVES**

1. Understand the purposes of health-related research and distinguish between quantitative and qualitative research;
2. Delineate each step involved in the process of health research;
3. Practice each step of the process of health research, using research science instruments and methodologies to collect, analyze and interpret data;
4. Describe the strengths and limitations of different types of health research;
5. Understand the importance of accurate communication of findings in health research;
6. Demonstrate effective written and oral skills for communicating the findings of health research;
7. Appreciate the need for respectful community engagement in conducting health research;
8. Employ ethical principles in the collection, maintenance, use and dissemination of data and information; and
9. Evaluate and compare health research from the countries visited on the voyage.

### **REQUIRED TEXTBOOKS**

**AUTHOR:** Jacobsen, Kathryn H.

**TITLE:** Introduction to Health Research Methods

**PUBLISHER:** Jones & Bartlett Learning

**ISBN #:** 13:978-0-7637-8334-1

**DATE/EDITION:** 1<sup>st</sup> edition, 2012

### **TOPICAL OUTLINE OF COURSE**

#### **C1- June 18**

**Topic:** The Purpose and Process of Health Research & Selecting a Topic

**Questions:**

1. What are the different types of health research?
2. What are the goals of health research?
3. What is the research process?
4. How can brainstorming and topic mapping be used to generate a topic?
5. How are exposure, disease and population defined and refined?
6. What is the value of various types of background information resources?
7. What makes research original?
8. How is plagiarism avoided?

**Reading:** Jacobsen, ch.s 1 - 3

**Assignments due:** None

## **C2- June 19**

**Topic:** Identifying a Study Question

**Questions:**

1. What is the best study approach for a given research question?
2. How can the study goal and objectives be determined and clarified?
3. What are the important components of a study support team?
4. How can a study support team be assembled?
5. What are the different choices for study design?

**Reading:** Jacobsen, ch.s 4 - 6

**Assignments due:** None

## **C3- June 20**

**Topic:** Selecting a Study Approach

**Questions:**

1. What is a Review?
2. What is a Correlational Study?
3. What is a Case Series?
4. What is a Cross-Sectional Survey?
5. What is a Case-Control Study?

**Reading:** Jacobsen ch.s 7 - 11

**Assignments due:** Group project choice of research topic and general plan

## **C4- June 21**

**Topic:** Selecting a Study Approach (cont'd)

**Questions:**

1. What is a Cohort Study?
2. What is an Experimental Study?
3. What is a Qualitative Study?

**Reading:** Jacobsen, ch.s 12 - 14

**Assignments due:** Group project research question

June 22-June 25: Casablanca

## **C5- June 26**

**Topic:** Designing the Study

**Questions:**

1. What are the key components of a research proposal?
2. How do a research proposal and a protocol differ?
3. What steps are needed to select a study population?
4. How is sample size estimated?

**Reading:** Jacobsen, ch.s 15 – 17; Moroccan study by Nejjari et al.

**Assignments due:** Group project brief literature review and study design plan

**C6- June 27**

**Topic:** Data Collection Tools

**Questions:**

1. What are the key steps in developing a questionnaire?
2. What are the advantages and disadvantages of self-administered surveys?
3. What are the advantages and disadvantages of interviews?
4. When and how are additional assessments useful?

**Reading:** Jacobsen, ch.s 18 - 20

**Assignments due:** Group project research proposal; Brief project proposal for Morocco

**C7- June 28**

**Topic:** Ethical Considerations

**Questions:**

1. What ethical principles are important in health research?
2. Why is informed consent necessary?
3. How is informed consent obtained?
4. Why is confidentiality necessary?
5. How is confidentiality maintained?
6. What are important cultural considerations?
7. What is an Institutional Review Board (IRB)?
8. What is the process for obtaining IRB approval for research?

**Reading:** Jacobsen, ch.s 21 - 24

**Assignments due:** Group project data collection plan/draft methods

June 29- July 2: Tunis

**C8- July 3**

**Topic:** Group Projects – Study Design

**Reading:** Tunisian study by Aounallah-Skhiri et al.

**Assignments due:** Group project IRB application

**C9- July 4**

**Topic:** Group Projects – Questionnaire Design

**Reading:** Reserve and electronic resources, as needed

**Assignments due:** Brief project proposal for Tunisia

**C10- July 5**

**Topic:** Group Projects – Data Collection Plan

**Reading:** Reserve and electronic resources, as needed  
**Assignments due:** Group project draft questionnaire

July 6-10: Alexandria

**C11- July 11**

**Topic:** Group Projects – Data Collection Pilot Testing

**Reading:** Egyptian study by Labib et al.

**Assignments due:** None

**C12- July 12**

**Topic:** Group Projects – Data Collection

**Reading:** Reserve and electronic resources, as needed

**Assignments due:** Group project final questionnaire; Brief project proposal for Egypt

July 13-27: Istanbul

**C13- July 18**

**Topic:** Group Projects – Data Collection & Entry

**Questions:**

1. What is a codebook and how is one constructed?
2. How can the accuracy of data entry be assured?
3. What is data cleaning and why is it necessary?
4. When should data be recoded?
5. How can confidentiality be maintained during data collection and entry?

**Reading:** Jacobsen, ch. 25; Turkish study by Sezer et al.

**Assignments due:** Group project Excel spreadsheet

**C14- July 19**

**Topic:** Group Projects – Data Entry

**Reading:** Reserve and electronic resources, as needed

**Assignments due:** Brief project proposal for Turkey

July 20-23: Piraeus

**C15- July 24**

**Topic:** Group Projects – Data Cleaning

**Reading:** Greek study by Papadopoulou et al.

**Assignments due:** Group project preliminary Excel database

July 25: Study Day and Sea Olympics

**C16- July 26**

**Topic:** Group Projects – Data Cleaning & Analysis

**Questions:**

1. What analytic plan is appropriate for a given study design?

2. What are the different types of variables?
3. What are measures of central tendency?
4. What are measures of spread?
5. Why are descriptive statistics important?
6. When is statistical consultation necessary?

**Reading:** Jacobsen, ch. 26

**Assignments due:** Group project cleaned database; Brief project proposal for Greece

July 27-31: Marseilles

### **C17- August 1**

**Topic:** Group Projects – Data Analysis

**Questions:**

1. What comparative statistics are appropriate for a given study design?
2. What is hypothesis testing?
3. How are *p*-values interpreted?
4. How are confidence intervals interpreted?
5. What are measures of association?
6. How is an appropriate statistical test chosen?

**Reading:** Jacobsen, ch. 27; French study by Berdot et al.

**Assignments due:** Group project descriptive statistics tables

### **C18- August 2**

**Topic:** Group Project – Data Analysis (cont'd)

**Questions:**

1. What is confounding?
2. What is effect modification?
3. What is linear regression?
4. What is logistic regression?
5. What is survival analysis?
6. What is spatial analysis?

**Reading:** Jacobsen, ch. 28

**Assignments due:** Group project comparative statistics tables; Brief project proposal for France

August 3-5: Livorno

August 6-9: Civitavecchia

### **C19- August 10**

**Topic:** Reporting Findings – Article Structure & Citations

**Questions:**

1. What are the essential elements of a research article?
2. How are references cited in a research article?
3. How do authors write in their own words?
4. How can plagiarism be avoided?

**Reading:** Jacobsen, ch.s 29 – 30; Italian study by Bravi et al.

**Assignments due:** Group project results

**C20- August 11****Topic:** Reporting Findings – Writing & Revising**Questions:**

1. What are useful writing strategies?
2. How does a writer get started and stay motivated?
3. What is the appropriate writing style for a research article?
4. What are helpful steps for editing?

**Reading:** Jacobsen, ch.s 31 - 32**Assignments due:** Group project citations; Brief project proposal for Italy

August 12-15: Barcelona

**C21- August 16****Topic:** Presenting Findings**Questions:**

1. How is an abstract written?
2. What are the essential elements of a poster?
3. What are some design options for a poster?
4. How can the clarity of a poster be increased?
5. How can a poster be made visually interesting?

**Reading:** Jacobsen, ch. 33; Spanish study by Ochoa et al.**Assignments due:** None**C22- August 17****Topic:** Group Project Paper & Poster Workshop**Reading:** None**Assignments due:** Group project draft papers and posters; Brief project proposal for Spain**C23- August 18****Topic:** Group Project Poster Presentations**Reading:** None**Assignments due:** Group project final posters

August 19: Study Day

**C24-August 20: Final Exams** (Note: there will not be a final exam for this course)

August 21: Packing and Reflection

August 22: Southampton

**FIELD WORK****FIELD LAB** (At least 20 percent of the contact hours for each course, to be led by the instructor.)

Proposal 1:

Title: Health Research at an Egyptian University  
Port: Alexandria  
Date: Wednesday, July 10, 2013

Proposal 2:  
Title: Health Research at a French University  
Port: Marseilles  
Date: Wednesday, July 31, 2013

(Note: Please see Appendices for full description.)

### ***FIELD ASSIGNMENTS***

1. Brief paper (3 page) based on field lab experience on one of the following 3 topics:
  - Describe the current biomedical, epidemiologic and clinical research activities of the HIPH
  - Compare the priorities for research conducted at the HIPH to research priorities for a similar institute in the U.S.
  - Compare graduate training requirements at the HIPH to those at a similar institution in the U.S.
2. For 4 of the 8 ports visited, students will write a brief (1-2 page) research proposal for a specific health research issue relevant to the country visited. Each proposal should include the following:
  - Statement of research question/problem
  - Brief background information and justification
  - Design of proposed study
  - Strengths and limitations of proposed study

### **OTHER ASSIGNMENTS**

Small group research project: Students will be divided into small groups of 4 – 6 to design and carry out a research study on the ship over the course of the voyage. The steps for the project are as follows:

1. Identify a topic of interest
2. Identify a research question
3. Conduct a brief literature review
4. Design the study
5. Design the data collection tool
6. Complete mock IRB protocol\*
7. Collect data
8. Enter and clean the data
9. Analyze the data
10. Write up the findings in a paper (12 – 15 pages)
11. Present the findings at a final poster presentation session in class

\*NOTE: Per a discussion on 9/13/12 with the Social and Behavioral IRB office at U.Va., IRB approval is not required for these projects, as they will be used for didactic purposes only and will not constitute a student thesis project or be submitted for publication.

## METHODS OF EVALUATION / GRADING RUBRIC

Class attendance, class participation, and small group participation: (based on self- and group member evaluation)	20%
Field assignments:	20%
Field lab participation and paper:	20%
Group research study poster:	20%
Group research study paper:	20%

### Grading Scale:

A+ 97 - 100	B+ 87 - 89	C+ 77 - 79	D 60 - 69
A 93 - 96	B 83 - 86	C 73 - 76	F < 60
A- 90 - 92	B- 80 - 82	C- 70 - 72	

### RESERVE LIBRARY LIST

AUTHOR: Booth WC, Colomb GG, and Williams JM  
TITLE: The Craft of Research  
PUBLISHER: University of Chicago  
ISBN #: 13:978-0-226-06566-3  
DATE/EDITION: 3<sup>rd</sup> edition, 2008

AUTHOR: Day RA and Gastel B  
TITLE: How to Write and Publish a Scientific Paper  
PUBLISHER: Greenwood  
ISBN #: 978-0-313-39197-2  
DATE/EDITION: 7<sup>th</sup> edition, 2011

AUTHOR: Bailey SL and Handu D  
TITLE: Introduction to Epidemiologic Research Methods in Public Health Practice  
PUBLISHER: Jones & Bartlett Learning  
ISBN #: 978-1-4496-2784-3  
DATE/EDITION: 2012

AUTHOR: Iverson C et al.  
TITLE: AMA Manual of Style  
PUBLISHER: Oxford University Press  
ISBN #: 978-0-19-517633-9  
DATE/EDITION: 10<sup>th</sup> edition, 2007

### ELECTRONIC COURSE MATERIALS

AUTHOR: Nejjar, C. et al.  
ARTICLE/CHAPTER TITLE: Prevalence and demographic factors of smoking in Morocco  
JOURNAL/BOOK TITLE: International Journal of Public Health  
VOLUME: 54(6)  
DATE: 2009  
PAGES: 447-451

AUTHOR: Aounallah-Skhiri, H. et al.  
ARTICLE/CHAPTER TITLE: Blood pressure and associated factors in a North African adolescent population: a national cross-sectional study in Tunisia  
JOURNAL/BOOK TITLE: BMC Public Health  
VOLUME: 12  
DATE: 2012  
PAGES: 98-108

AUTHOR: Labib, N. et al.  
ARTICLE/CHAPTER TITLE: Comparison of cigarette and water pipe smoking among female university students in Egypt  
JOURNAL/BOOK TITLE: Nicotine and Tobacco Research  
VOLUME: 9(5)  
DATE: 2007  
PAGES: 591-596

AUTHOR: Sezer, H. et al.  
ARTICLE/CHAPTER TITLE: Breast cancer risk factors in Turkey: a hospital-based case-control study  
JOURNAL/BOOK TITLE: Asian Pacific Journal of Cancer  
VOLUME: 12  
DATE: 2011  
PAGES: 2317-2322

AUTHOR: Papadopoulou, E. et al.  
ARTICLE/CHAPTER TITLE: The effect of high doses of folic acid and iron supplementation in early-to-mid pregnancy on prematurity and fetal growth retardation: the mother-child cohort study in Crete, Greece  
JOURNAL/BOOK TITLE: European Journal of Nutrition  
VOLUME: doi:10.1007/s00394-012-0339-z  
DATE: 2012  
PAGES: ??

AUTHOR: Berdot, S. et al.  
ARTICLE/CHAPTER TITLE: Inappropriate medication use and risk of falls – a prospective study in a large community-dwelling elderly cohort  
JOURNAL/BOOK TITLE: BMC Geriatrics  
VOLUME: doi:10.1186/1471-2318-9-30  
DATE: 2009  
PAGES: ??

AUTHOR: Bravi, F. et al.  
ARTICLE/CHAPTER TITLE: Food groups and endometrial cancer risk: a case-control study from Italy  
JOURNAL/BOOK TITLE: American Journal of Obstetrics and Gynecology

VOLUME: 200(3)  
DATE: March 2009  
PAGES: 293.e1-293.e7

AUTHOR: Ochoa, M. et al.  
ARTICLE/CHAPTER TITLE: Predictor factors for childhood obesity in a Spanish case-control study  
JOURNAL/BOOK TITLE: Nutrition  
VOLUME: 23(5)  
DATE: May 2007  
PAGES: 379-384

AUTHOR: Sofi, F. et al.  
ARTICLE/CHAPTER TITLE: Adherence to Mediterranean diet and health status: meta-analysis  
JOURNAL/BOOK TITLE: British Medical Journal  
VOLUME: 11  
DATE: Sept 2008  
PAGES: 337 - ?

#### **ADDITIONAL RESOURCES**

1. Students will need access to Excel and Epi Info, a free statistical analysis tool available from the CDC at: <http://wwwn.cdc.gov/epiinfo/7/>
2. Students groups will need a poster board for the end-of-voyage poster presentations.

#### **HONOR CODE**

Semester at Sea students enroll in an academic program administered by the University of Virginia, and thus bind themselves to the University's honor code. The code prohibits all acts of lying, cheating, and stealing. Please consult the Voyager's Handbook for further explanation of what constitutes an honor offense.

Each written assignment for this course must be pledged by the student as follows: "On my honor as a student, I pledge that I have neither given nor received aid on this assignment." The pledge must be signed, or, in the case of an electronic file, signed "[signed]."