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HESA 567-03 Applied Epidemiology

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HESA 567, Applied Epidemiology
Graduate Program in Health Services Administration
College of Social Sciences, Health, and Education
Xavier University, Spring 2018

Three Graduate Credit Hours

Days, Times Classrooms:

Thursdays 5:30 am- 8:00 pm Alumni Center B13

Faculty: Edmond A. Hooker, MD, DrPH

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Office Hours: By appointment most every day

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Course Description (from the Xavier University Catalog)

Knowledge and skills useful to health service managers related to population health management, and also managerial epidemiologic analyses and assessment of medical care processes/outcomes are taught in this course. Epidemiology is defined and its applications in health services management and health policy are discussed. Population based epidemiologic assessment methods are presented and utilized. Methods for assessing outcomes of health programs are discussed. Students are introduced to the application of risk factor epidemiological literature in health services management through an applied project.

Domain/Competence Model for Graduate Health Services Administration

Domain I: Knowledge of the Healthcare Environment

- Be able to describe population based healthcare and healthcare assessment of diverse populations.
 - Objectives
 - Be able to use available data to evaluate the social determinants of health in a community and propose solutions to improve health
 - History of epidemiology (chapter 2)
 - Population health (chapter 1, 3)
 - Primary, secondary, tertiary prevention
 - Epidemics, Pandemics
 - Efficacy vs. Effectiveness
 - Cases- primary, secondary, carrier,
 - Vaccinations
 - Notifiable and Reportable diseases
 - Infection control
 - Hospital Infection rates
 - Determinants of health (chapter 11)

- Social determinants
- Be able to critically evaluate the medical literature to understand the determinants (promoters and barriers) of the health of populations
 - Types of studies
 - Descriptive (chapter 4)
 - Analytical (chapter 7)
 - Experimental (chapter 8)
 - Hierarchy of evidence
 - Causation vs. Correlation (chapter 9)
- Be able to use available data to assess and compare health outcomes and performance of individual healthcare organizations and communities.
 - Community Health Assessment (chapter 5 & 6) need to supplement
 - Hospital Compare, Nursing Home Compare, etc.
 - Indirect Adjustment

Domain II: Critical Thinking, Analysis, Problem Solving and Business Skills

- Be able to use quantitative skills to evaluate healthcare statistical and financial data.

Domain III: Communications and Interpersonal Effectiveness

- Be able to manage interpersonal communications and effectively work in teams
- Be able to write in an effective, concise business style.
- Be able to present information using appropriate oral skills and technology.

Domain IV: Professionalism and Ethics

- Demonstrate the ability to be a lifelong learner.
- Demonstrate effective time management skills.

Course Objectives

1. Have an understanding of the origins of epidemiology and its importance to the health of human populations.
2. Understand the vocabulary used by epidemiologist.
3. Understand the types of epidemiological research (descriptive, analytical, and experimental)
4. Read the epidemiological literature and understand the reason for the research and the problems with its interpretation.
5. Understand how epidemiology is used to assess population health outcomes
6. Demonstrate the ability to work with a multi-disciplinary team to solve management issues.
7. Demonstrate the ability to research the clinical issue in order to work effectively with other members of the care-delivery team

Course Requirements and Methodology Requirements

This course is offered in the Second semester of the GPHSA curriculum (fourth semester for those in part-time program). To take this course out of sequence requires the instructor's permission. No prior healthcare, science, or clinical experience is required.

Methodology

Class attendance and participation

Students are expected to attend class regularly and to be **prompt** not only to benefit from class instruction but also to contribute to the class discussion. Students are expected to be active participants and not passive note takers. If an emergency occurs (e.g., death in the family, illness or hospitalization) and a student is required to be absent from class, the student should notify the instructor before class if at all possible. Otherwise, a student will be considered absent without an excuse. When a guest speaker gives a presentation, students are expected to be professional: that is, to be attentive, take notes and ask relevant questions. Simply attending class is not enough to obtain full credit for participation.

Community Health Needs Assessment

All students will work together to complete a local health needs assessment.

In Class Work

Exams

There will be two tests this semester. The material is all interrelated and each week builds on the previous work. Therefore, you are expected to know all material from the beginning of the semester for each exam.

QUIZZES

There will be a total of 5 quizzes this semester. These are intended to help keep everyone up-to-date on the reading.

Due Dates

Due dates for written homework, exams, and papers are found in the course outline. Late papers are subject to a grade reduction of 10 points for up to one day late and 20 points for up to two days late. Any assignments turned in later than 2 days late will receive a grade of zero.

Evaluation**Grading Weights**

Mid-term Exam		34%
Final Exam		34%
CHNA		15%
Quizzes	3% each	12%
Class Participation		5%

Grading Scale

94-100	A
90-93	A-
86-89	B+
82-85	B
80-81	B-
75-79	C+
70-74	C
≤ 69	F

Required Readings

Introduction to Epidemiology (Ray M. Merrill) 7th Edition

ISBN-13: 978-1284094350

ISBN-10: 1284094359

Academic Honesty

“The pursuit of truth demands high standards of personal honesty. Academic and professional life requires a trust based upon integrity of the written and spoken word. Accordingly, violations of certain standards of ethical behavior will not be tolerated at Xavier University. These include theft, cheating, plagiarism, unauthorized assistance in assignments and tests, unauthorized copying of computer software, the falsification of results and material submitted in reports or admission documents, and the falsification of any academic record including letters of recommendation. All work submitted for academic evaluation must be the student’s own. Certainly, the activities of other scholars will influence all students. However, the direct and unattributed use of another’s efforts is prohibited as is the use of any work untruthfully submitted as one’s own. Penalties for violations of this policy may include one or more of the following: a zero for that assignment or test, an “F” in the course, and expulsion from the University. The dean of the college in which the student is enrolled is to be informed in writing of all such incidents, though the teacher has full authority to assign the grade for the assignment, test, or course. If disputes of interpretation arise, the student, faculty member, and chair should attempt to resolve the difficulty. If this is unsatisfactory, the dean will rule in the matter. As a final appeal, the academic vice president will call a committee of tenured faculty for the purpose of making a final determination.”

Faculty Note

In addition to the above (taken directly from the University Catalog), please be aware that cutting and pasting from the Internet is not allowed! If you use more than three words written by someone else, I expect it to be in quotes. When you are writing you should use your own words and thoughts, not those of anyone else. You may not take a sentence and change one to two words and call it your own.

Inclusivity Statement:

The Department of Health Services Administration and its faculty and staff are committed to providing an atmosphere for learning that respects diversity, in which all students feel comfortable and safe to learn, and in which all students feel like valued members of the HSA community. We are committed to addressing issues that put such an atmosphere in jeopardy, and to being active allies to diverse students. In order to build a positive classroom community, we ask that students:

- Appreciate the opportunity that we have to learn from each other in this community;
- Share their unique experiences, values and beliefs;
- Be open to the views of others;
- Honor the uniqueness of their peers;
- Communicate in a respectful manner;
- Keep confidential discussions that the community has of a personal (or professional) nature;
- Utilize this opportunity together to discuss ways in which we can create an inclusive environment in this course and across the Xavier community.

Counseling Services

Students have access to counseling and mental health care through the McGrath Health and Wellness Center, which can provide both psychotherapy and psychiatric services. Students are encouraged to seek assistance for anxiety, depression, trauma/assault, adjustment to college life, interpersonal/relational difficulty, sexuality, family conflict, grief and loss, disordered eating and body image, alcohol and substance abuse, anger management, identity development and issues related to diversity, concerns associated with sexual orientation and spirituality concerns, as well as any other issue of concerns.

Counseling is a free service for all students. After hours, students may call Campus Police at 513-745-1000, and they can reach the on-call physician if needed.

Title IX

Title IX is a federal civil rights law that prohibits discrimination on the basis of your actual or perceived sex, gender, gender identity, gender expression, or sexual orientation. Title IX also covers sexual violence, dating or domestic violence, and stalking. If you disclose a Title IX issue to me, I am required forward that information to the Title IX Office. They will follow up with you about how the University can take steps to address the impact on you and the community and make you aware of your rights and resources. Their priority is to make sure you are safe and successful here. You are not required to talk with the Title IX Office. If you would like to make a report of sex or gender-based discrimination, harassment or violence, or if you would like to know more about your rights and resources on campus, you can contact the Xavier's Title IX Coordinator Kate Lawson, Gallagher Student Center, RM 332, 513-745-3046, lawsonk1@xavier.edu and/or the Office of Civil Rights, Cleveland Office, U.S. Department of Education, 1350 Euclid Ave., Suite 325, Cleveland, OH 44115, 216-522-4970, OCR.Cleveland@ed.gov.

This syllabus and course outline are subject to change due to unforeseen circumstances.

HESA 567 Course Outline Spring 2018

WEEK	Readings	DATE OF CLASS	QUIZ OR TEST
1	Chapter 1 (page 2-3) Chapter 2	1/11	
2	Chapter 1,3	1/18	Quiz 1
3	Chapter 9,11	1/25	
4	Chapter 4	2/1	Quiz 2
5	Chapter 7	2/8	
6	Chapter 8	2/15	Quiz 3
7		2/22	MID-TERM Exam
8	On Canvas	3/1	
9		3/6 or 3/8	NO CLASS SPRING BREAK
10	Chapter 5	3/13 or 3/15	
11	Chapter 6	3/20 or 3/22	Quiz 4
12		3/27 to 3/29	NO CLASS Easter Break
13	On Canvas	4/3 or 4/5	
14		4/10 or 4/12	NO CLASS Work on CHNA
15		4/17 or 4/19	Presentation of CHNA
16		4/24 or 4/26	Semester Review
17		5/1	FINAL EXAM

HESA 567 Course Outline Spring 2018

Week 1: Week of January 8

Title: Review of Syllabus and historical review of Epidemiology

Objectives: At the end of the class, the student will be able to:

1. Describe how epidemiology started
2. Describe what epidemiology really is today
3. Describe the three overarching goals are for the course

Week 2: Week of January 15

Quiz #1

Title: Basics of Epidemiology

Objectives: At the end of the class, the student will be able to:

1. Describe the difference between endemic, epidemic and pandemic
2. Understand the determinants of health
3. Differential efficacy and effectiveness
4. Describe a case and differentiate between an index case and a secondary case
5. Describe the difference between symptomatic and asymptomatic carriers
6. Describe the different modes of transmission.
7. Describe primary, secondary, and tertiary prevention
8. Describe the difference between incubation and latency
9. Describe the International Classification of Disease (ICD-9 and ICD-10)
10. Discuss the differences between notifiable and reportable diseases
11. Discuss immunizations, immunity, and herd immunity
12. Describe environmental controls and infection control

Week 3: Week of January 22

Title: Causation

Objectives: At the end of the class, the student will be able to:

1. Describe hypothesis testing.
2. Discuss chance, bias and confounding.
3. Describe how to control for chance, bias and confounding.
4. Discuss Causality and causal interference.
5. Discuss the criteria for determining causation versus correlation.
6. Discuss the web of causation.

Week 4: Week of January 29

Quiz #2

Title: Descriptive Epidemiology

Objectives: At the end of the class, the student will be able to:

1. Discuss descriptive epidemiology and the different types of descriptive studies
2. Discuss the strengths and weaknesses of ecological studies, including ecological fallacy
3. Discuss the strengths and weaknesses of case reports and case series
4. Discuss the strengths and weaknesses of cross-sectional survey.

5. Discuss the difference between nominal, ordinal, discrete, and continuous data.
6. Describe the ratios, proportions and rates.
7. Discuss and differentiate incidence rate and incidence density rate.
8. Describe adjusted rates (e.g. age adjusted rates)
9. Discuss the difference between direct and indirect methods of adjusting rates.
10. Discuss category specific rates.
11. Discuss confidence intervals.
12. Describe different ways to visually present data

Week 5 Week of February 5

Title: Analytical Epidemiology: Observational Studies

Objectives: At the end of the class, the student will be able to:

1. Discuss the strengths and weaknesses of Case-control studies.
2. Calculate the odds ratio
3. Discuss the types of bias in a case-control study.
4. Discuss confounding in a case-control study
5. Describe a case-crossover study and a nested case-control study
6. Discuss the strengths and weaknesses of cohort studies
7. Calculate a risk ratio (relative risk)
8. Discuss the types of bias in a cohort study.
9. Discuss confounding in a cohort study

Week 6 Week of February 12

Quiz #3

Title: Analytical Epidemiology: Experimental Studies

Objectives: At the end of the class, the student will be able to:

1. Discuss the strengths and weaknesses of Experimental Studies.
2. Describe randomization and what it controls for in studies.
3. Describe blinding and what it controls for in studies.
4. Discuss the phases of FDA studies
5. Discuss how to ensure compliance in a study.
6. Discuss the ethical issues surrounding experimental trials.
7. Describe what an IRB does.
8. Discuss the hierarchy of evidence
9. Discuss the strengths and weaknesses of Meta-analyses and Systematic reviews.

Week 7 Week of February 19

MID-TERM EXAM

Week 8 Week of February 28

Title: CHNA

Objectives: At the end of the class, the student will be able to:

1. Perform a local CHNA

Week 9 Week of March 5
NO CLASS Spring Break

Week 10 Week of March 12

Title: Description of a population according to person, place, and time

Objectives: At the end of the class, the student will be able to:

1. Describe a population using different descriptors (e.g. race, ethnicity, etc.).
2. Discuss how to track health trends over time.
3. Discuss surveillance and how it is used to monitor population health.
4. Discuss Community Health Needs Assessment (CHNA)

Week 11 Week of March 19

QUIZ 4

Title: Mortality

Objectives: At the end of the class, the student will be able to:

1. Discuss mortality and how it is measured, including different measures of mortality (e.g. infant mortality, cause specific mortality, etc.)
2. Discuss Years of Potential Life Lost
3. Discuss Quality Adjusted Life Years.

Week 12 Week of March 26

NO CLASS ACHE

Week 13 Week of April 2

Quiz 5

Title: GIS, Dashboards, etc.

Objectives: At the end of the class, the student will be able to:

1. Discuss and use GIS technology
2. Discuss how to present data using dashboards

Week 14 Week of April 9

NO CLASS. Work on CHNA

Week 15 Week of April 16

Title: PRESENTATION OF CHNA

Week 16 Week of April 23

Title: Semester Review and preparation for exam

May 3: **Final EXAM**