University of Hawaii at Hilo  
School of Nursing DNP Program  
Course: NURS 618- 001: Environmental Biostatistics and Epidemiology  

Credits/Contact Hours  
3 credits, 3 contact hours per week  

Time and Location  

UHH Office Hours:  
- TBA (in- office):  
- TBA (on-line):  

Class Time: TBA  

Course Starts: August 20, 2012  
Course Ends: Dec 13, 2012  

Faculty  
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Department Assistance  
Phone: 808-974-7760  

Course Description  
Exploration of fundamental concepts and quantitative techniques used in biostatistics and epidemiology. Provides opportunities to comprehend, critique and communicate findings from biomedical literature. Topics include choosing the correct statistical test, chi-squared and t-tests, analysis of variance, linear regression and survival analysis, as well as how to perform elementary calculations using the statistical package SPSS. The course emphasizes the analytical studies, quantitative measures of association, and critical readings of current literature.  

Prerequisites  
Admission to the UHH DNP program. Open to other nursing and non-nursing majors with permission of instructor.  

Course Placement  
Admission to the UHH DNP program. Open to other nursing and non-nursing majors with permission of instructor.
Course Objectives

At the end of this course the learner will be able to

- Differentiate between principles of biostatistics & epidemiology
- Differentiate between different data types
- Choose & apply the correct statistical test for analysis
- Discuss the reasoning by which findings from sample data can be extended to larger, more general populations.
- Write statistical summaries for statistical outputs
- Critically evaluate the results of published scientific studies.
- Identify and develop appropriate and relevant tool for data collection
- Write a proposal for a scientific research study.

Differentiate between principles of biostatistics & epidemiology

Biostatistics is application of statistical methods in biology, medicine and public health. Epidemiology is the study of patterns of health and illness and associated factors at the population level. This course requires the students to identify, compare and contrast published articles that include statistical methods and epidemiological analyses.

Differentiate between different data types.

Data are assignments of values onto observations of events and objects. They can be classified by their coding properties and the characteristics of their domains and their ranges. When a given data set is numerical in nature, it is necessary to carefully distinguish the actual nature of the variable being quantified. This course will help you to learn the basic differences between the different quantitative data.

Choose & apply the correct statistical test for analysis

Statistical tests are generally specific for the kind of data being handled. However, choosing the right statistical test may at times, be a very challenging task for a beginner in the field of biostatistics. This course will provide the opportunity to learn the step-by step test selection process used to compare two or more groups for statistical differences.

Discuss the reasoning by which findings from sample data can be extended to larger more general populations

The basic idea of statistics is simple: you want to extrapolate from the data you have collected to make general conclusions about the larger population from which the data sample was derived. This course will help you to apply the basics regarding populations, samples and validity to explore how to draw samples from populations, how to assign samples to groups, the influence of the sample on the external validity of the study, and the effect of other events and actions on the internal validity of the study

Critically evaluate the results of published scientific studies.

Research (or scholarship) generally investigates ideas and reports useful knowledge. This process should be personally rewarding and socially beneficial. However, research can be is sometimes misrepresented as objective research. This is disappointing for legitimate scholars and harmful to people who unknowingly use such information. It is therefore helpful to have
guidelines for evaluating research quality. This course will provide the basic guidelines for evaluating research.

**Write statistical summaries for statistical outputs**
When applying statistical tests to data in order to analyze it, you are required to interpret the (software generated) output. This course will enable you interpret basic statistical outputs and write a summary to report the findings.

**Identify and develop appropriate and relevant tool for data collection**
Using an appropriate and relevant data collection tool is very important to answer the research questions. The course will explore valid and reliable features of data collection tools.

**Write a proposal for a scientific research study.**
All of the above topics and sessions will provide you with the basic tools to develop a scientific proposal. You will be required to submit a 6-page research proposal on a topic of your choice using the information learnt in this course.

**Required Course Materials (TBD)**
Title: Fundamentals of Epidemiology and Biostatistics (Ray M. Merrill)
ISBN: 9781449667535

### Assignments

<table>
<thead>
<tr>
<th>Assignment</th>
<th>Objective</th>
<th>Weightage</th>
<th>Required</th>
<th>Resource(s)</th>
<th>Due date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assignment I</td>
<td>Differentiate between different data types, scales of measurement and data presentation strategies</td>
<td>7.5%</td>
<td>Post a power point presentation of 10-15 slides to differentiate between different data types</td>
<td>Chapters 2, 3 &amp; 4 of the textbook</td>
<td>August 27, 2012</td>
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<tr>
<td>Assignment II</td>
<td>Choose &amp; apply the correct statistical test for analysis</td>
<td>10%</td>
<td>Complete the table</td>
<td>Chapters 6, 8 &amp; 11</td>
<td>September 10, 2012</td>
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<td>Assignment III</td>
<td>Evaluate the validity of tests</td>
<td>7%</td>
<td>Select and summarize two papers that describe the evaluation</td>
<td>Chapters 6 &amp; 12 Word limit: 150 for each study</td>
<td>September 24, 2012</td>
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<tr>
<td>Assignment</td>
<td>Task Description</td>
<td>Weight (%)</td>
<td>Special Instructions</td>
<td>Due Date</td>
<td></td>
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<tr>
<td>Assignment IV</td>
<td>Interpret statistical outputs</td>
<td>10%</td>
<td>Write statistical summaries for 5 statistical outputs</td>
<td>October 8, 2012</td>
<td></td>
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<tr>
<td>Assignment V</td>
<td>Discuss the reasoning by which findings from sample data can be extended to larger, more general populations</td>
<td>5%</td>
<td>How you can use statistics to extrapolate from sample to population</td>
<td>October 15, 2012</td>
<td></td>
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<tr>
<td>Assignment VI</td>
<td>Identify, compare and contrast 10 research articles</td>
<td>20%</td>
<td>Fill in the table</td>
<td>November 12, 2012</td>
<td></td>
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<tr>
<td>Assignment VII</td>
<td>Discuss the different features of scientific research study</td>
<td>30%</td>
<td>Write a proposal for a scientific research study</td>
<td>December 10, 2012</td>
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**Technical Requirements**
Internet Connection- This is a total online; therefore, you will need to have access to a fairly high speed internet connection such as DSL or Broadband Cable. If you do not have this type of connection available, you may be able to use computers at your local library, college, or university campus, or through other resources that may be available in your community. Students who have concerns about meeting this expectation should discuss these issues with the instructor or nursing department as soon as possible so that they may be addressed.

Browser- Firefox is the recommended browser. If you do not already have it on your computer, you may download and install it by going to http://www.mozilla.com/en-US/firefox/and following their directions.

Disabled Pop-up Blocker- Go to your browser and change the setting to allow popups for Laulima. See your browser’s help section for instructions.

Applications-This course will be using various types of online content for which you will need the following:

Microsoft Word and PowerPoint-if you don not have either of these, you can download and install the free OpenOffice Suite for PC (http://download.openoffice.org/) or NeoOffice for Mac. (http://www.neooffice.org/neojava/en/maindownload.php#download).

Teaching Methodology

Multiple teaching methods presented through modules will be used, which may include: Power Point Presentations, online weekly discussions, on-line searches, and review of research articles. Laulima instructional resources and can be found at https://laulima.hawaii.edu/portal/site/!gateway/page/!gateway-100. Students need to log in with their UH Hilo Banner user name and password and click the course link. Once in the Homepage please follow instructions as directed.

The use of online library databases is required to obtain peer reviewed articles from online current journals, which will augment the assigned readings from the required texts. Digital library searches are executed by accessing the following link http://library.uhh.hawaii.edu/articles/fulltext.htm

Course Requirements

Attendance and Participation
The class week begins on XXX and concludes on XXX. The requirement is to attend XX weeks as evidenced by class attendance and/or submitting the MCQs each week in the Discussion section of the course. There are several sources from which you can select a discussion topic. One source is from the journals that accompany each module. The other sources are from your assigned readings in the textbook or study guide.

General Expectations of Written Requirements
Students should refer to the APA Publication Manual 6th edition which is available in your library reference department and/or visit the library’s website for help http://www.wisc.edu/writing/Handbook/DocAPARefferences.html

Late Assignments

Late assignments will be reduced by 5% per day past the due date. In case of unforeseen event please make previous arrangements with the instructor to prevent the late penalty.

Evaluation

Grades will be assigned as follows:

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<tr>
<th>Score Range</th>
<th>Grade</th>
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<tbody>
<tr>
<td>90-100</td>
<td>A</td>
</tr>
<tr>
<td>80-89</td>
<td>B</td>
</tr>
<tr>
<td>70-79</td>
<td>C</td>
</tr>
<tr>
<td>60-69</td>
<td>D</td>
</tr>
<tr>
<td>Below 60</td>
<td>F</td>
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Note: All nursing courses must be passed with a B or better in order to successfully pass the course.

Syllabus Special Instructions

Use of Syllabus: This syllabus is to be construed as a contract with the student with regard to evaluation methods and grading scale. The class schedule may be subject to change.

Retention of Student Papers for Evaluation Purposes: Faculty reserves the right to retain copies of graded student work to be placed in student portfolios as a method of student and program evaluation.

Attendance and class participation: Students are expected to attend all in-class sessions. The instructor should be notified prior to any deadlines if a student cannot meet them due to unavoidable circumstances (i.e. illness) and wants an accommodation. Students should consult with fellow classmates for special course instructions during absences.

Assistance to those with special learning needs: Any student with a documented disability who would like to request accommodations should contact the University Disability Services Office - Hale Kauanoe A Wing Lounge, 933-0816 (V), 933-3334 (TTY), shirachi@hawaii.edu - as early in the semester as possible.
**Advising:** Advising is a very important resource designed to help students complete the requirements of the University and their individual majors. Students should consult with their advisor at least once a semester to decide on courses, check progress towards graduation, and discuss career options and other educational opportunities provided by UH-Hilo. Advising is a shared responsibility, but students have final responsibility for meeting degree requirements.

**Counseling Services:** Counseling services are available to students who need additional support while attending the baccalaureate nursing program. Nursing faculty is available for advising with an intentional focus on preparation of nurse generalists. You are encouraged to align your career focus and full attention to the requirements needed to succeed in all of your nursing courses. Please do not hesitate to share your concerns to faculty who will maintain confidentiality. Any other concerns not in keeping with the mission of the program will be referred to the counselors at Student Services.

**Class Calendar to Be Added Below**