Course Data

Number: CPH 280  
Title: Interpretation of Health Data  
Department: Biostatistics  
School/College: College of Public Health

Course Instructors

<table>
<thead>
<tr>
<th>Name</th>
<th>Office</th>
<th>Phone</th>
<th>Email</th>
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<tbody>
<tr>
<td>&lt;name&gt; Course Director</td>
<td>&lt;office&gt;</td>
<td>&lt;phone&gt;</td>
<td>&lt;email&gt;</td>
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<tr>
<td>&lt;name&gt;</td>
<td>&lt;office&gt;</td>
<td>&lt;phone&gt;</td>
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</table>

The course instructors welcome conversations with students outside of class. Students may correspond with instructors by email or set up appointments by contacting <name> at <phone> or <email>.

Students should also contact <same name> with questions they might have regarding the mechanics or operation of the course.

Course Rationale

This course is an introduction to basic concepts of statistics as applied to public health. Major topics to be covered include descriptive statistics, theoretical distributions, probability, estimation, hypothesis testing, correlation and regression, analysis of variance, and non-parametric tests. There is not a prerequisite for this course.

Course Objectives

By the end of the semester, the student will be able to:
1. Identify and comprehend different types of data and appropriate methods for their presentation.  
2. Utilize basic statistical techniques in the analysis and presentation of health-related data.  
3. Use computers and a computer-based statistical package in data base development and statistical analysis of health-related research.  
4. Develop an understanding of the reasoning by which findings from sample data can be extended to larger, more general populations.  
5. Read health/medical literature critically and apply results of such studies to public health practice.  
6. Apply the skills learned to current health problem areas.

ASPH Competencies Addressed in this Course

Biostatistics

- Describe the roles biostatistics serves in the discipline of public health.  
- Describe basic concepts of probability, random variation and commonly used statistical probability distributions.  
- Describe preferred methodological alternatives to commonly used statistical methods when assumptions are not met.  
- Distinguish among the different measurement scales and the implications for selection of statistical methods to be used based on these distinctions.
- Apply descriptive techniques commonly used to summarize public health data.
- Apply common statistical methods for inference.
- Apply descriptive and inferential methodologies according to the type of study design for answering a particular research question.
- Apply basic informatics techniques with vital statistics and public health records in the description of public health characteristics and in public health research and evaluation.
- Interpret results of statistical analyses found in public health studies.
- Develop written and oral presentations based on statistical analyses for both public health professionals and educated lay audiences.

**Course Content**

*IMPORTANT NOTE: The schedule and topics may change as the course unfolds. Changes will be posted on Blackboard.*

<table>
<thead>
<tr>
<th>Week</th>
<th>Module</th>
<th>Description of Content</th>
<th>Text</th>
<th>Assignments Due</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>Module 1</td>
<td>Research Designs, Populations &amp; Samples, and Scales of Measurement/Variables</td>
<td>Ch. 1</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td>Frequency Distribution Tables and Frequency Distribution Graphs</td>
<td>Ch. 2</td>
<td></td>
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<tr>
<td>3</td>
<td></td>
<td>Percentiles and Percentile Ranks</td>
<td>Ch. 3</td>
<td>Article Review 1</td>
</tr>
<tr>
<td>4</td>
<td>Module 2</td>
<td>Measures of Central Tendency and Measures of Variability</td>
<td>Ch. 4</td>
<td>Lab 1 HW/Study Problem 1</td>
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<tr>
<td>5</td>
<td></td>
<td>z-scores and Standardized Distributions</td>
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<td>Article Review 2</td>
</tr>
<tr>
<td>6</td>
<td>Module 3</td>
<td>Introduction to Probability</td>
<td>Ch. 5</td>
<td>Lab 2 HW/Study Problem 2</td>
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<td>7</td>
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<tr>
<td>8</td>
<td>Module 3 (cont.)</td>
<td>Probability &amp; Normal Distribution and Probability and Distribution of Sample Means</td>
<td>Ch. 6,</td>
<td></td>
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<tr>
<td>9</td>
<td></td>
<td>Hypothesis Testing and z-scores</td>
<td>Ch. 7 (pg. 106-113; 124-132; 139-144; 146-149)</td>
<td>Article Review 3</td>
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<tr>
<td>10</td>
<td></td>
<td>Estimation and Confidence Intervals</td>
<td>Ch. 8 (pg. 135-137)</td>
<td>Lab 3 HW/Study Problem 3</td>
</tr>
<tr>
<td>11</td>
<td>Module 4</td>
<td>One Sample t-test, Two-Sample t-tests</td>
<td>Ch. 8 (pg. 132-135; 144-145)</td>
<td>Article Review 4</td>
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<tr>
<td>12</td>
<td></td>
<td>Estimation and Confidence Intervals</td>
<td>Ch. 9</td>
<td>Lab 4 HW/Study Problem 4</td>
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<tr>
<td>13</td>
<td></td>
<td>Correlation, Regression and Prediction</td>
<td>Ch. 13</td>
<td></td>
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<tr>
<td>14</td>
<td>Module 5</td>
<td>ANOVA</td>
<td>Ch. 10 and 12</td>
<td>Article Review 5</td>
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<tr>
<td>15</td>
<td></td>
<td>Chi-Square Tests, Binomial Tests, and Tests for Ordinal Data</td>
<td>Ch. 11 (pg. 194-199) and 14 (pg. 257-265)</td>
<td>Lab 5 HW/Study Problem 5</td>
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<td>Me Final Exam</td>
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Instructional Strategies

All students will be expected to attend class and complete all assigned readings. All students will complete homework assignments, article reviews, and lab assignments. This is a web-enhanced course via Blackboard (Bb) course management system. The site will serve as an archive of lecture notes and course assignments. Important announcements will also be posted throughout the semester and, therefore, students should check their Blackboard site regularly for information. Announcements will occasionally be e-mailed to the class through the class list serve on Blackboard. This means that students need to regularly check the email account they used to register for the class (or, change your properties within Bb).

Instructional Resources

Required Text

Software
Completion of SAS lab assignments will require students to visit the one of the campuses computer labs or purchase the student version of SAS software.

Other Required or Suggested Reading
Assessment and Evaluation

1. For each of 5 Modules, students will complete:
   a) An article review
   b) A set of homework/study problems
   c) SAS lab activities

2. Students will complete written mid-term and final examination.

Grading

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Points</th>
<th>Grading Scale</th>
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<tbody>
<tr>
<td>2 Exams @ 100 Points Each</td>
<td>200</td>
<td>A  90-100%</td>
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<tr>
<td>5 Study Problem Sets @ 20 Points Each</td>
<td>100</td>
<td>B  80-89.9%</td>
</tr>
<tr>
<td>5 Labs @ 20 Points Each</td>
<td>100</td>
<td>C  70-79.9%</td>
</tr>
<tr>
<td>5 Article Reviews @ 20 Points Each</td>
<td>100</td>
<td>D  60-69.9%</td>
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Total 500

Administrative Comments

Attendance Policy

1) Regular class attendance is expected of all students.
2) In the event of an unavoidable absence, the student should meet the instructor's terms for "make-up" procedures, but the responsibility for initiating make-up work rests with the student.
3) Attendance regulations shall begin with the first scheduled meeting of the class regardless of when the student enrolls.

Due Date Policy

Assignments are due at the beginning of class on the posted due date (see COURSE SCHEDULE). In fairness to the other students who work hard to meet expectations and deadlines, a "late tax" will be imposed at a rate of 20% per day (starting at the beginning of class on the posted due date). This heavy late penalty is meant to emphasize the importance of effective time management and the need to begin work on the next module. Although students usually have good reasons for running late, in fairness to the entire class this late tax will be imposed impartially.

Technical Issues

Students will need use of the following software for successful completion of assignments: Microsoft Word, Microsoft PowerPoint, Adobe Reader, and Blackboard. It is the student's responsibility to
maintain the course communications technology in functioning order, e.g., your email or access to the Internet. Technical problems are not acceptable excuses for late or unreadable submissions. The system can be accessed via the internet at the following website (http://ecourses.uky.edu or through the link blue portal).

_Inclement Weather_

This course will adhere to the University’s policy and decisions regarding cancellation or delayed class schedules. Adjustments will be made to the class schedule as necessary to take into account any delays or cancellations of this class. Local television and radio stations broadcast University delays or closings. The University web site may also provide delays or closings information.

_Grievances_

Students who have grievances regarding the course should contact the course director. If students are not satisfied with the response, they should seek guidance from the Dean of the Graduate School or the Dean of the school or college providing the course.

_Disabilities_

If a student has a documented disability that requires academic accommodations, please see the Course Director as soon as possible during scheduled office hours. To receive accommodations in this course, students must provide the Course Director with a Letter of Accommodation from the Disability Resource Center (http://www.uky.edu/StudentAffairs/DisabilityResourceCenter/). If a disabled student has not already done so, that student should please register with the Disability Resource Center (Room 2 Alumni Gym, 257-2754, jkarnes@uky.edu) for coordination of campus disability services available to students with disabilities.

_Academic Honesty_

Students are expected to be fully aware of their responsibility to maintain a high quality of integrity in all of their work. All work must be the student’s own, unless collaboration is specifically and explicitly permitted as in the course group project. Any unauthorized collaboration or copying will at minimum result in no credit for the affected assignment and may be subject to further action under the University Guidelines for Academic Integrity. Students are required to comply with the academic honesty policies of the University. These policies prohibit plagiarism, cheating, and other violations of academic behavior. For a full description of the University’s Academic Integrity policy refer to the following website: http://www.uky.edu/StudentAffairs/Code/) and Section 6.3 of the University Senate Rules (http://www.uky.edu/USC/Section VI.pdf)