Spring 2010

INQ 240 Statistical Reasoning: Here’s to Your Health!
Prof. Claire Staniunas
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Phone: 375-2010
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Office Hours: MWF 10:50-1pm, TTh 11:40am – 1pm

Note: Students who have completed Stat 202 may not take this course. Students must receive a C or better in this course to declare a major in Business Administration.

Course Description: Statistical Reasoning: Students will gain an understanding of how decision making is accomplished using modern statistical techniques. Topics include descriptive statistics, graphical methods, elementary probability, estimation, statistical inference, linear correlation, and regression.

Perspective: Natural World
Specific Area of Inquiry: Students will apply the techniques of data analysis to data sets and statistical studies that deal with health related issues.

Intended Learning Outcomes: By the end of this course, students will be able to
… use the methodologies of statistics to investigate a topic of interest and make decisions based on the results.
… use the methodologies of statistics to design and carry out a simple statistical experiment.
… use the methodologies of statistics to critique news stories and journal articles that include statistical information.
… articulate the importance and limitations of using data and statistical methods in decision making.
… express themselves clearly and effectively in writing using the concepts and language of statistics.
… use statistics to describe health topics and their significance for understanding the natural world.
… articulate the importance of the methodologies of statistics for understanding a topic in the natural world.

Course Materials
Supplementary Reading: News and Numbers- A Guide to reporting Statistical Claims and Controversies in Health and Other Fields, Victor Cohn and Lewis Cope, 2nd edition
New York Times on-line Health Section
Various magazines and newspapers available in Fintel Library
Health Datasets from STARS: Creation of Statistical Resources from Real Datasets website, and the WHO Website, among others
Minitab statistical software package
Scientific/graphing calculator, preferably a TI-83

Test Schedule: Tests are closed book. Calculators are required.

<table>
<thead>
<tr>
<th>Test</th>
<th>Block 9</th>
<th>Block 10</th>
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</thead>
<tbody>
<tr>
<td>Test 1</td>
<td>Feb. 4</td>
<td>Feb. 4</td>
</tr>
<tr>
<td>Test 2</td>
<td>Feb. 25</td>
<td>Feb. 25</td>
</tr>
<tr>
<td>Test 3</td>
<td>Mar. 30</td>
<td>Mar. 30</td>
</tr>
<tr>
<td>Final Exam</td>
<td>Thurs. Apr. 22, 8:30 am</td>
<td>Wed. Apr. 21, 8:30 am</td>
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Please do not ask me to reschedule your exam just because you want to leave school early.
If illness or family emergency causes you to miss a test notify me promptly. You’ll be expected to take the test as soon as possible, preferably within 48 hours.

Classroom policies: Cell phones must be turned off and put away prior to entering the classroom. In the unlikely event that you need to turn on your cell phone during class, you must have permission of the instructor to do so. Otherwise, anyone using a cell phone for any reason during class will be asked by name to shut it off. Those who must be asked more than once during the semester to shut off their phones will have three percentage points per infraction subtracted from their final grades. The only electronic device that may be used in the classroom is a calculator (cellphone calculators not allowed). Use of laptops may be permitted occasionally, but only for specific assignments. Other electronic distractions are prohibited.
Assignments:
Writing Assignments: There will be four assignments concerning the use of health statistics in the news. These are aimed at developing a healthy skepticism about what is reported in health articles and the skills to find the underlying information.

Minitab assignments: There will be three or four assignments in which the students will use Minitab to display statistics, simulate processes, and perform tests upon data sets. The students will write an interpretation of their results as part of the assignment.

Statistical Study: (Small Group Assignment) Groups will design and carry out a simple study related to a health issue.
- Write a “scientific” report of findings.
- Poster for in-class gallery walk

Public Service Announcement: (Small Group Assignment) Groups will produce a video in the style of a public service announcement regarding a health issue. The message of the announcement must be supported by solid statistical research. The research must be mentioned in the video and justified in written form.

Daily Homework: You will have practice problems from the primary text and assigned readings from supplementary text. You will also analyze additional health related datasets. From time to time you will have a quiz on the assignments and the reading. Quiz grades will be averaged with the daily homework.

Co-curricular Requirement: The Math, Computer Science and Physics department offers a series of discussions that appeal to a broad range of interests related to these fields of study. These co-curricular sessions will engage the community to think about ongoing research, novel applications and other issues that face our disciplines. Dates and times will be announced later and will appear on the Assignments page of Blackboard. You must attend one of these lectures and write a 1-page paper about it. The paper must be submitted within one week of the lecture.

Academic Integrity: The College policy is fully supported. All tests and quizzes are closed book and closed notes. Collaboration between individuals is not allowed for journal entries or for Minitab assignments. Collaboration between groups is not allowed for the statistical experiment report and poster nor for the public service announcement video. Collaboration IS allowed on daily homework.

Grading Policy

<table>
<thead>
<tr>
<th>Component</th>
<th>Weight</th>
<th>Grade Range</th>
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<tbody>
<tr>
<td>Homework /Quizzes average</td>
<td>10%</td>
<td>A 93-100</td>
</tr>
<tr>
<td>Tests (15% each)</td>
<td>45%</td>
<td>B- 80-82</td>
</tr>
<tr>
<td>Writing assignments average</td>
<td>10%</td>
<td>C+ 77-79</td>
</tr>
<tr>
<td>Minitab assignments average</td>
<td>5%</td>
<td>D 63-66</td>
</tr>
<tr>
<td>Statistical study</td>
<td>5%</td>
<td>D+ 67-69</td>
</tr>
<tr>
<td>Public Service Announcement Video</td>
<td>5%</td>
<td>Failure to complete the co-curricular component of the course will result in the lowering of the final course grade by one level. For example, an A becomes an A-, and an A- becomes a B+, and so on.</td>
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<tr>
<td>Final Exam</td>
<td>20%</td>
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Course Averages:

- A   93-100
- B-  80-82
- C+  77-79
- D   63-66
- D+  67-69
- F below 60

Special Needs: If you are on record with the College’s Special services as having special academic or physical needs requiring accommodations, please meet with me as soon as possible. We need to discuss your accommodations before they can be implemented. Also, please note that arrangements for extended time on exams and testing in a semi-private setting must be made at least one week before the exams.

Attendance Policy: If you miss four classes after you add the class, you may be dropped from the course. If indulgence in alcohol causes you to miss more than one class, the number for AA is 343-6857.