MATH 140 ***Introductory Statistics*** **Hybrid Course SYLLABUS**
Spring 2009

Instructor: Andrea Nemeth

E-mail: andrea.nemeth.898@csun.edu
The official way of communication is via CSUN email, so please, check your email often or forward your CSUN email to your other account you use.

Webpage: www.csun.edu/~an73773
Announcements, homework and review sheets will be posted, so check my website often.

Office: Santa Susana Hall, Room 434
Office Phone : (818) 677-2826 (Do not leave messages; send me an email instead)
Office Hours: Tuesday: 1:00pm-1:50pm, 3:00-3:50pm, Wednesday: 11:30am-1:00pm, Thursday: 1:00-1:50pm or by appointment.

About the class in general:
This class is an introduction to statistics. A major goal of this class is to teach you to become *critical* and *informed* consumers of real data and statistical information. This course will focus on understanding statistical concepts, methods, and reasoning; organizing, interpreting and producing data; analyzing statistical arguments and communicating findings clearly; and appreciating the relevance of statistics to contemporary society. Specific course learning outcomes are listed at the end of the syllabus.

This is a hybrid course. This is a hybrid class delivered partially in the classroom and partially on the web. Therefore, Internet access is required.

- **Online component:** There is no required textbook for the course. Instead, the presentation of the course material will be delivered through the Carnegie Mellon Open Learning Initiative (OLI) online statistics course that I have set up for this class. You will be required to read this on-line material and do the associated activities, including quizzes. It is expected and crucial that you keep up with these activities.

- **In class:** I will not be lecturing on the course material, except on rare occasions. Instead, I will answer questions and help clarify any difficult material. In addition, you will be working on exercise, projects, and taking quizzes and exams. Attendance at class sessions is REQUIRED and will be a part of your course grade.

How to do WELL in this class: It should be emphasized that this course will cover a great deal of material at a rapid pace, but you can do well if you honestly make the effort to do so. Many Math 140 students who are not confident mathematically surprise themselves by doing quite well in this course. You have to take this class seriously and study in a serious fashion. The expectation is that students spend 2 hours outside of class studying for each unit in order to keep up with and get the most out of the course. That means you will probably need to spend about **10 hours per week outside of class**, so you should plan accordingly.

My advice:

- DO NOT MISS CLASS.
- Be determined and do not procrastinate.
- Ask questions in class and come to office hours.
- Find one or more classmates to study with who cares about doing well.
- Find a tutor if you need more help.

Required Material:

- **Math 140 Hybrid Course Workbook**, available in the bookstore
- **Calculators:** A graphing calculator is essential, preferably a TI-83 or TI-84.
  If you don't have one and don't want to buy one, you can rent one from
  www.myti83.com
  www.ti83calculator.com
- **OLI:** You will need to log in at https://oli.web.cmu.edu
  The Course Admit Code is:
  - For the 12pm class: M140H-S09-12
  - For the 2pm class: M140H-S09-2

  You will need to pay a $25 registration fee to able to access the course.

Recommended Software:

- **Minitab Statistical Software:** you will need Minitab to be able to complete some of the OLI assignments. You can rent it (download it) for $29.99 for the semester from
  www.minitab.com/education/semesterrental
  Or you can use the computers in our math lab (JR245) during the hours that it is open. We have Minitab installed on all computers. It's free there!

Suggested Books:

- Any Introductory Statistics textbook, for example:
  - *Elementary Statistics* by Larson and Farber
  - *The Basic Practice of Statistics* by Moore
- *How to Lie with Statistics* by Darrell Huff

Grade Components:

- **Homework:** Homework will be assigned regularly. I will collect the homework assignments randomly and grade them. To receive full credit, homework solutions must be written out neatly and in full. The pages must be STAPLED. You are graded on your explanation and justification, not solely on having the correct numerical solutions. You may work with a partner or in a small group, but all work you turn in should be your own. Copying others' solutions is not acceptable and will result in disciplinary action.
  I will post the solution to the homeworks, therefore I won't accept late homework. If you miss class (NOT recommended) you can turn in the homework to the Math department (SN 114) until 5pm on the due date. No homework will be accepted after that. Your lowest homework score will be dropped.
- **In-class quizzes:** You will have quizzes regularly during class. **No make-up quizzes.** Your lowest quiz score will be dropped.
- **Exams:** There will be three in-class exams, and a comprehensive final exam. All exams are closed book and notes; however you can use your calculator. No phone-calculators will be allowed. **NO MAKE-UP EXAMS**.

- **Attendance:** Attendance is mandatory, and you need to be in class on time. You can miss two classes without penalty. Each additional absence results in a deduction of 1% of the total number of points achievable for the course from your total points, up to a maximum penalty of 10%. You will receive a bonus of 2% for perfect attendance, or 1% if you have just one absence.
- **OLI reading and quizzes :** You will be required to read the material online, and complete some online quizzes. You can take each online quiz only once.
- **CAOS test:** For assessment purposes you will be asked to take this test both at the beginning and the end of the semester. The CAOS test (Comprehensive Assessment of Outcomes in a first Statistics Course) consists of 40 items, is taken on line, and usually takes 30 to 45 minutes to complete.

Grade Components:

Exam 1	15%
Exam 2	15%
Exam 3	15%
Final exam	20%
Homework	15%
OLI reading and quizzes, in-class quizzes	10%
Project	5%
CAOS	5%

Grading Scheme:

90-100%:	A
80-89%:	B
68-79%:	C
55-67%:	D
<55%:	F

+/- grading system will be used

Final Exam: For the 12pm class: Thursday, May 14, 12:45-2:45pm
For the 2pm class: Monday, May 12, 3:00-5:00pm

Remarks:

- In case of an emergency make sure to contact me as soon as possible to make appropriate arrangements for late assignments and exams.
- Newspapers or materials from other classes have no place in the classroom once the class is underway.
- I expect you to be on time to class, and to not leave early.
- Electronic devices: Please have consideration for others and remember to turn off your cell phone, pager, etc. during every class period!

University Policy for Adds and Drops

Please make sure to read the university policy for adds and drops.

Student Conduct and Cheating: You are expected to act according to "Student Conduct Code" (see current College Catalog or Schedule of Classes). Cheating will not be tolerated. During tests all extraneous objects are to be removed from your workspace. Violators are subject to instructor and college disciplinary action. Keep your work original.

Specific course learning outcomes

- Learn how to construct and interpret graphical and numerical summaries of data
- Understand many of the fundamental ideas of statistics, such as variability, distribution, association, sampling
- Understand how the nature of data collection methods affects the scope of the conclusions that can be drawn from statistical studies (especially cause and effect); the role of probability in sampling and experiments
- Learn the normal distribution and the Central Limit Theorem
- Learn the basics of statistical inference: estimation, assessing statistical significance, statistical reasoning; apply and interpret the results of a variety of statistical techniques
- Analyze and assess statistical arguments, such as those found in the popular press and scholarly publications;
- Learn about correlation and regression
- Communicate knowledge of statistical ideas effectively

G.E. Student Learning Outcomes

As a course that fulfills the above mentioned General Education requirement, this class will address the following Student Learning Outcomes (SLO's) that have been established by the Mathematics Department:

- **SLO 1** Represent, understand and explain mathematical information symbolically, graphically, numerically and verbally.
- **SLO 2** Develop mathematical models of real-world situations and explain the assumptions and limitations of those models.
- **SLO 3** Use models to make predictions, draw conclusions, check whether the results are reasonable, and find optimal results using technology where necessary and appropriate.
- **SLO 4** Demonstrate an understanding of the nature of mathematical reasoning including the ability to prove simple results and/or make statistical inferences.

Examples of activities that will involve the SLO's are given below:

SLO 1: Summarizing distributions with numerical measures such as mean, median, standard deviation, interquartile range; making and interpreting dotplots, histograms, stem plots, bar charts, scatterplots; describing relationships with least squares regression equations; standard scores (Z-scores). A majority of homework and examination questions will involve verbal statements that involve statistical interpretations.

SLO2: The normal and other distributions; random number tables to represent populations; simulation; least squares regression equations; tests of significance.

SLO3: Probability models; confidence intervals and tests of significance; statistical pitfalls; choosing the sample size; using experimental design to reduce variability. The Minitab statistical software will be used frequently in class and for homework to generate statistical graphs, perform simulations, and make statistical computations.

SLO4: Understanding the logic and structure of methods of statistical inference is a critical aspect of the course. This includes making correct interpretations and conclusions for confidence intervals and tests of significance.