

## **Stat 200: Elementary Statistics (Spring 2005)**

### **Sections 10-12: Course Syllabus**

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#### **COURSE DESCRIPTION**

Statistics is the art and science of using sample data to make generalizations about populations. The topics covered in this course include:

- methods for collecting and summarizing data
- methods for evaluating the accuracy of sample estimates
- techniques for making statistical inferences

Users of statistics -- researchers, government agencies like the Census Bureau and the Bureau of Labor Statistics, companies like the automakers and drug industry, etc. -- make extensive use of the computer in applying statistical methods to their problems. So will you! You will have lots of practice in analyzing data from a variety of areas and should be well prepared for problem-solving involving statistics in the rest of your college courses, as well as gaining an understanding of the role of statistics in your daily life.

#### **COURSE WEB SITE**

The course web site, ANGEL, will contain important course materials, so you should plan to access the site regularly. In particular, it will give reading and homework assignments and contain links to datasets for use in the computer labs.

#### **REQUIRED RESOURCES**

1. The textbook, **Mind on Statistics**, 2<sup>nd</sup> Edition, by Utts and Heckard. It can be purchased at the usual bookstores. .
2. A simple (low-cost) scientific calculator (for exams)—to do square roots and arithmetic.

#### **COURSE FORMAT**

- There will be Individual and Group Readiness Quizzes (RAQs). These will be given in the Computer Labs. The Individual RAQs will consist of 14-18 multiple choice questions. The Group RAQ will be on the same set of questions and be given immediately after the Individual RAQ. About half of the items will be on previously discussed topics and the other half on new material not previously covered.
- Lectures will be given in the LGMs (Large Group Meetings on Wednesdays).
- In the computer labs you will be working on 'activities' in pairs or small groups to apply what was learned in the readings. Lab activities will be collected and graded.
- Extra classes may be scheduled to go over homework and other coursework periodically.
- Some classes and labs will be reserved for work involving the integration of course content, such as evaluating scientific articles and completing group projects.

- It is anticipated that at least 3 hours of 'tutorial' sessions will be set up weekly, to provide assistance to you in understanding concepts and with difficulties you may have on homework. They may also be used to get answers to questions about the reading assignments prior to the quizzes. They are not designed as 'lectures' or to solve homework problems, but rather to give you feedback on the material.

## SUMMARY OF COURSE REQUIREMENTS

<b>What?</b>	<b>When and Where?</b>	<b>Points?</b>	<b>Percent?</b>
Midterm Exams (2)	In LGMs (dates to be determined)	140	14%
Final Exam	See University Schedule	200	20%
Projects (2 or 3)	In Labs (dates to be determined)	200	20%
RAQs (5)	Labs (Ind: 160pts; Group: 80pts; drop lowest)	240	24%
Lab Activities	Labs (Drop lowest 4)	75	7.5%
Lab Quizzes	Labs (16-20; drop lowest 2)	75	7.5%
Homework	Most Weeks (drop lowest two)	70	7.0%
	<b>Total</b>	<b>1000</b>	<b>100%</b>

## SOME DETAILS ABOUT COURSE REQUIREMENTS

### Readiness Assessment Quizzes (RAQs)

There will be five Readiness Assessment Quizzes throughout the semester. You should refer to the course web site to determine when the RAQs will take place and what will be covered on each of the RAQs.

The RAQs, which will contain only multiple-choice and true-false questions, will be conducted as follows:

1. About 50% of the questions will be on material that you have been asked to read previously and 50% on previous material discussed in LGMs and labs, and one or two questions related to homework. You are expected to read and review topics before each quiz so that you will understand the basic concepts, and the questions on the RAQs will determine how well you understand those concepts.
2. Each student will take the test individually, with responses on a Scantron (bubble) sheet. Students will then take the same quiz again, but will be permitted (encouraged) to confer with members of a 'group' (to be established in the labs) on answers to the questions. Students will again submit their answers on a bubble sheet.

At the end of the semester, each student will receive an Individual RAQ (IRQ) Grade and a Group RAQ (GRQ) Grade.

## Group Projects

Some of the class meetings in the course will be reserved for group project work involving the integration of course content, such as evaluating scientific articles, analyzing experimental data, and discussing case studies. Groups will be given time to work on the projects during the week's class and labs. For each assigned project, each group will be asked to submit one written report.

## Homework

Tentatively, it is anticipated that there will be about 12 homework assignments to be handed in during the semester, plus a 'special HW Assignment' that will count as two assignments.. Each homework will be graded on a 10 point basis. At the end of the semester, the 2 lowest scores will be used to obtain an overall 'Homework Score'. One or two HW questions will be randomly chosen for inclusion on RAQs

## Academic Integrity

Academic integrity, which is the pursuit of scholarly activity free from fraud and deception, is an educational expectation at Penn State. This course will follow the guidelines found in Section 49-20 of the University Faculty Senate Policies for Students.

## COURSE GOALS

At the end of this course, you should be able to:

1. Understand the reasoning by which findings from sample data can be extended to larger, more general populations.
2. Critically evaluate the results of scientific studies.
3. Design, conduct, and analyze a scientific research study.
4. Read statistical summaries.
5. Analyze data using statistical software.
6. Study and understand examples and applications from a variety of fields.
7. Learn independently and work cooperatively.

## FINAL GRADE

<b>Final Grade</b>	<b>Cut Points</b>	<b>Cut Percents</b>
A	930 and 430 on Exams/Individual RAQs	93
A-	900 and 420 on Exams/RAQs	90
B+	880 and 410 on Exams/RAQs	87
B	820 and 390 on Exams/RAQs	83
B-	800	80
C+	770	77
C	700	70
D	600	60
F	below 600	below

The lower bounds could be lowered if the course work is judged to be different than in previous semesters. This judgment will be made in consultation with the other Stat 200 instructors after all of the course work is graded.

## **COURSE RULES**

We will adhere to the following:

1. Make-up policy. No "make-ups" will be given for missed RAQs and Activities. You must supply documentation of reasons for missing an exam.
2. **Assignments will not be accepted after the announced due date** unless a change is made.
3. Students are responsible for all announcements and supplements given within any lecture.
4. Cheating will be punished in accordance with University guidelines.

## **IMPORTANT COURSE ADMINISTRATION DATES**

Please note that as a student registered for this course, you are responsible for taking care of certain administrative details *before* the following university-wide deadlines:

Late Registration & Drop/Add Period	Jan. 10-Jan. 19
Spring Break	March 7-March 11
Final Exam Conflict-Filing Period	Feb. 7-Feb. 20
Late Drop Deadline	April 8
Classes End	April 29
Final Exams	May 2-May 6