



STATISTICS 200: -SECTIONS 9- 12 ELEMENTARY STATISTICS FALL SEMESTER 2009

COURSE DESCRIPTION: Welcome to Stat 200. In today's world, we are seeing a major trend throughout both industry and government where decisions are data-driven. Statistics is a discipline dedicated to unraveling the mystery of making such decisions in the face of uncertainty. More precisely, statistics is the art and science of using sample data to make generalizations about populations. The objective of this course is to explore and apply basic statistical concepts and procedures that are used when analyzing data.

Course topics covered include methods for:

- collecting and summarizing sample data
- evaluating the accuracy of estimates obtained from sample data
- making statistical inferences about populations

What you should discover is that statistics is not just another math course. While you will be exposed to new terminology and concepts, much of the time you will use statistical software to solve problems that require quantitative solutions. You will not be inundated with repetitive calculations. Instead you will explore data with a context. Basic algebra is the only prerequisite. The second part of the course is more technical than the first half. Best wishes for much success in this course.

INSTRUCTOR:

- **Name & Office Location:** Patricia (Pat) Buchanan at 309 Thomas
- **Office Hours:** posted on the course web site
- **Phone:** (814)-865-6266
- **Email:** **must always** use the “Send Course Mail” option inside Angel under the “Communicate” tab in order to receive a response (**Do not send** from “course” roster)

TABLE 1: ROOMS & TIMES

Section	Lecture (Wed)	Computer Labs (Mon & Fri)
Section 1	111 Forum 9:05 AM	214 Boucke: 8:00 AM
Section 2	111 Forum 9:05 AM	214 Boucke: 9:05 AM
Section 3	111 Forum 9:05 AM	214 Boucke: 10:10 AM
Section 4	111 Forum 9:05 AM	214 Boucke: 11:15 AM

COURSE FORMAT:

- **Overview Lecture (Wed) in 111 Forum**
 1. **PowerPoint slides** will be posted in advance by 5:00 PM Tues - bring copy to lecture
 2. Presented information will be applied in labs, quizzes, exams, & homework
 3. **On-line lecture quizzes** will be posted to take after the lecture
- **Computer Labs (M & F)**
 1. Complete “lab activities” either individually or in small groups
 2. Lab Activities will include both data analysis & concept illustration often requiring the use of the statistical software package: Minitab
 3. **Be prepared to learn** - bring your textbook, calculator, and/or lecture notes (review in advance)
 4. Must attend lab at the time listed for your section
 5. **Lab Activity Quizzes:** take at the end of each lab

TEACHING ASSISTANTS (TA's): will

- post office location & office hours on Angel web site (get help at office hours)
- usually oversee the Mon computer labs
- answer questions about grade calculation
- help proctor exams & assist with approved make-ups

REQUIRED MATERIALS:

Textbook: Mind on Statistics, 3rd Edition, by Utts and Heckard (Don't need the CD)

1. both new and used copies are available
1. electronic chapters are available on web at: <http://pennstatestat.ichapterssites.com>
2. rent the textbook: <http://www.chegg.com>
3. copy is on reserve in Pattee Library

Simple Calculator (to complete homework assignments & lab activity calculations – won't need for exams)

TABLE 2: Chapters Covered & Corresponding Topics

Chapters	Topics
Chapter 1 (all sections)	Overview of Statistics, Populations, Samples
Chapter 2 (all sections)	Descriptive Methods: (one quantitative) & (one categorical) variable
Chapter 3: Sections 3.2	Margin of error, polls, & corresponding confidence interval
Chapter 4: Sections 4.1-4.3	Design of "Randomized Experiments" & "Observational Studies"
Chapter 5 (all sections)	Descriptive Methods: Regression & Correlation
Chapter 6: Sections 6.1 - 6.4	Chi-square Procedure: 2X2 tables (also relative risk, etc)
Chapter 8: Sections 8.1-8.4, 8.6	Random variables, Binomial distribution, & Normal distribution
Chapter 9: Sections 9.1, 9.2, 9.6, 9.9	Sampling Distributions
Chapter 10: (all sections)	Confidence Intervals: Population Proportion(s)
Chapter 11: Sections 11.1 – 11.4	Confidence Intervals: Population Mean(s)
Chapter 12: Sections 12.1 – 12.4	Hypothesis Tests: Population Proportion(s)
Chapter 13: Sections 13.1 – 13.5	Hypotheses Tests: Population Mean(s)
Chapter 14: Pages 609-613	Hypothesis test: Population Correlation (link to Population Slope test)
Chapter 15: Sections 15.1 & 15.2	Chi-square Procedures: other than 2X2 tables
Chapter 16: Sections 16.1 & 16.2	One-Way Analysis of Variance (ANOVA)

COURSE WEB SITE (ANGEL): <https://cms.psu.edu>: On the **Angel** web site, you will find posted:

- Course Syllabus & Course Calendar
- Lab Activities, Lecture Quizzes, & Homework (available at a later time for review in practice folder)
- Weekly Agenda's (including assigned homework and readings)
- Study Guides for exams (posted at least one week in advance)
- Power Point slides (bring to lecture on Monday)
- Announcements & Email Correspondence (check the web site daily during the week)
- Lab activity handouts and Data sets
- grades in Angel grade book grade (grade will appear as a "0" until the grade is recorded)

COURSE AGREEMENT: This syllabus serves as an agreement that begins on the first day of class & ends upon completion of the Final. With this course, you are responsible for:

- anything discussed in class & posted on the **ANGEL** website
- sending & replying to all course email by using the "**Send Course Mail**" option inside **Angel**
- checking email daily during the week
- coming to the class prepared to learn & finding enough time to make the appropriate commitment
- seeking appropriate & timely help if having problems
- following course policy which states that:
 1. final grades will **not** be changed for purposes of maintaining financial aid and/or academic progress or entrance into an academic program. (also grades will **not** be curved)
 2. all exams and quizzes must be taken during the schedule time (late make-ups not allowed)
- checking your grade on Angel as soon as you submit a quiz or HW (can't report weeks later)
- accepting that grades will be based on mastery of material (not just on attendance)
- accepting that individual extra credit will not be allowed
- calculating your grade based on information found in the Angel Grade book (use points)

PENN STATE PRINCIPLES: SHOULD FOLLOW WHILE AT PENN STATE

- I will respect the dignity of all individuals within the Penn State Community
- I will practice academic integrity
- I will demonstrate social and personal responsibility
- I will be responsible for my own academic progress and agree to comply with all University policies

ACADEMIC INTEGRITY: Academic integrity includes a commitment to not engage in or tolerate acts of falsification, misrepresentation or deception. Such acts of dishonesty violate the fundamental ethical principles of the Penn State community and compromise the worth of work completed by others. This course will follow the guidelines found under Academic Integrity (Section 49-20) of the University Faculty Senate Policies for Students.

THE PENN STATE HONOR CODE: “A good name is earned by fair play, square dealing and good sportsmanship in the classroom, on the athletic field and in all other college relations. We earnestly desire that this spirit may become a tradition at Penn State.”

DISABILITY POLICY: It is Penn State's policy to not discriminate against qualified students with documented disabilities in its educational programs. If you have a disability-related need for modifications in the course, contact both the instructor and the Office for Disability Services (116 Boucke) at the beginning of the semester.

COURSE REQUIREMENTS

Exams: (Best 3 out of 4 will count)

- include multiple choice questions (45-50) questions (study guides posted in advance)
- must take in University's Computerized Testing Center at 104 Pollock Building on scheduled date any time between (8 AM – 11 PM) - 60 minutes in length (late make-ups not given)
- will be given a piece of scratch paper at exam (can bring pencil) – nothing else allowed
- topics may carry over from previous exams if commonly missed
- **Refer to the limited make-up policy**

Final Exam:

- selectively comprehensive
- must take during scheduled final exam date (available on Mon September 28 – can not take early)
- must take in University's computerized testing center at 104 Pollock Building on scheduled date

Homework (HW): Best 6 out of 8 will count

- Homework will be submitted inside Angel by a scheduled time and date (quiz format)
- **No make-ups given under any circumstances** because automated & have drops
- check Angel Grade Book immediately after submit HW
- not responsible for computer glitches (also don't take at last minute)
- on Week it is due: available Mon 12:30 PM – Tues 4:00 AM
- can take twice if like (best score will count)

Lab Activity Quizzes (LAQ): Best 18 out of 22 will count

- taken inside Angel after each lab activity (without help from the instructor or TA)
- must take in 214 Boucke during scheduled lab times
- **No make-ups given under any circumstances** because automated & have drops
- consist of about 20 questions based on concepts covered in lectures and activities
- check Angel Grade book immediately after to submission to see if grade was recorded

Lecture Quizzes (LQ): Best 11 out of 14 will count)

- will be posted after the lecture is given and have until next day at 4:00 AM to complete
- complete lecture quiz based on a key topics discussed in lecture on Angel
- **No make-ups given under any circumstances** because automated & have drops
- check Angel Grade book immediately after submission to see if grade was recorded
- not responsible for computer glitches (also don't take at last minute)

MAKE-UP POLICY: In general make-ups will not be given. Specifically:

- **Lab Activity Quizzes, Homework, & Lecture Quizzes: no make-ups under any circumstance** because drops are in place & the quizzes are automated (**so don't ask!**) This includes any computer problems that may occur.
- **Exams:** If you have University-related excuse or religious conflict, you must provide appropriate documentation prior to the exam. Arrangements will be made at this time. **Late exams will not be given under any circumstance.** All other situations must use the drop option.

TABLE 3: SUMMARY OF COURSE REQUIREMENTS

Requirement	Pts/Effort	Overall Pts	Overall Percent (%)
Exams (keep best 3 of 4)	110	330	33%
Final Exam	249	249	24.9%
Lab Activity Quizzes (LAQ)* - keep best 18 out of 22	12	216	21.6%
Homework (HW)* - keep best 6 out of 8	25	150	15%
Lecture Quizzes (LQ)* - keep best 11 out of 14	5	55	5.5%
Total		1000	100%

□*no make-ups so don't ask because the answer will be "no"

FINAL GRADES: Final grades will be based on 1000 possible points. Point ranges for final grades are found in **Table 4**. Do not expect the grades to be curved. Grades will be posted in the Angel Grade Book and appear as points.

TABLE 4: POINT RANGES FOR FINAL GRADES*

Final Grade	Point Totals
A	(920-1000+) points
A-	(900-919) points
B+	(870-899) points
B	(820-869) points
B-	(800-819) points
C+	(750-799) points
C	(700-749) points
D	(600-699) points
F	< 599 points

*Do not convert your grade to percents and then round to the next higher grade. The grade book is kept in points. . Course Instructor does not calculate grades.

Special Fall 2009 Flu Protocols

In compliance with Pennsylvania Department of Health and Centers for Disease Control recommendations, **students should NOT attend class or any public gatherings while ill with influenza.** Students with flu symptoms will be asked to leave campus if possible and to return home during recovery. The illness and self-isolation period will usually be about a week. It is very important that individuals avoid spreading the flu to others.

Most students should be able to complete a successful semester despite a flu-induced absence. Faculty will provide students who are absent because of illness with a reasonable opportunity to make up missed work. Ordinarily, it is inappropriate to substitute for the missed assignment the weighting of a semester's work that does not include the missed assignment or exam. Completion of all assignments and exams assures the greatest chance for students to develop heightened understanding and content mastery that is unavailable through the weighting process. The opportunity to complete all assignments and exams supports the university's desire to enable students to make responsible situational decisions, including the decision to avoid spreading a contagious virus to other students, staff, and faculty, without endangering their academic work.

Students with the flu do not need to provide a physician's certification of illness. However, ill students should inform their teachers (but not through personal contact in which there is a risk of exposing others to the virus) as soon as possible that they are absent because of the flu.

If you have questions about academic policy-related issues, please call the Associate Dean/Chief Academic Officer of your college. For health-related questions you can email Dr. Margaret Spear, director, University Health Services, at uhsinfo@sa.psu.edu.

Policy for this class with regard to illness/flu:

Individual make-ups will **not** be allowed during the semester because there are a certain drops with each group of requirements. The instructor can not be running individual make-ups for 680 students. Moreover, keys will be posted so that students can check their answers.) If any adjustment will be made it will take place with the final, an option that would be available to the entire class. (But at this point, this option is not available.)

Fall 09: Sections 9-12

Wk	Dates: Sections 1-4	
1	Mon Aug 24	Data Survey
1	Wed Aug 26	Intro Lecture
1	Fri Aug 28	Practice LAQ (information covered on HW1 and Exam1)
2	Mon Aug 31	LAQ1
2	Wed Sept 2	Lecture 1 (LQ1)
2	Fri Sept 4	LAQ2
3	Mon Sept 7	No Class (HW1)
3	Wed Sept 9	Lecture 2 (LQ2), LAQ3
3	Fri Sept 11	Exam 1
4	Mon Sept 14	No Class
4	Wed Sept 16	Lecture 3 (LQ3)
4	Fri Sept 18	LAQ4
5	Mon Sept 21	LAQ5 (HW2)
5	Wed Sept 23	Lecture 4 (LQ4)
5	Fri Sept 25	LAQ6
6	Mon Sept 28	LAQ7 (HW3)
6	Wed Sept 30	Lecture 5 (LQ5), LAQ8
6	Fri Oct 2	Exam 2
7	Mon Oct 5	No Class
7	Wed Oct 7	Lecture 6 (LQ6)
7	Fri Oct 9	LAQ9
8	Mon Oct 12	LAQ10 (HW4)
8	Wed Oct 14	Lecture 7 (LQ7)
8	Fri Oct 16	LAQ11
9	Mon Oct 19	LAQ12 (HW5)
9	Wed Oct 21	Lecture 8 (LQ8), LAQ13
9	Fri Oct 23	Exam 3
10	Mon Oct 26	No Class
10	Wed Oct 28	Lecture 9 (LQ9)
10	Fri Oct 30	LAQ14
11	Mon Nov 2	LAQ15 (HW6)
11	Wed Nov 4	Lecture 10 (LQ10)
11	Fri Nov 6	LAQ16
12	Mon Nov 9	LAQ17 (HW7)
12	Wed Nov 11	Lecture 11 (LQ11), LAQ18
12	Fri Nov 13	Exam 4
13	Mon Nov 16	No Class
13	Wed Nov 18	Lecture 12 (LQ12)
13	Fri Nov 20	LAQ19
14	Mon Nov 30	No Class
14	Wed Dec 2	Lecture 13 (LQ13)
14	Fri Dec 4	LAQ20
15	Mon Dec 7	LAQ21 (HW8)
15	Wed Dec 9	Lecture 14 (LQ14)
15	Fri Dec 11	LAQ22
16	Mon Dec 14 – Fri Dec 18	Final Exam (date won't be available until Mon Sept 28) – Do not make plans to leave campus early – can't take early