Appendix D: Course Syllabus, Autumn 2011

INTRODUCTION TO THE PRACTICE OF STATISTICS (Stat 145) Autumn 2011 Syllabus

In our society, if you love dogs, cats, or goldfish you're considered normal and even nice. Say a kind word for statistics and you're regarded as a little mad. *Robert J. Samuelson (1945 -)*

Instructor:	Dr. J. B. Miller	**RA (The Voice):**	Mark Risser
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Logistics: This section of Stat 145 meets Mondays, Wednesdays, and Fridays from 9:30 -10:18AM in 100 Stillman Hall.

Required:
Text: *Intro Stats*3e (custom edition), by Dick DeVeaux, Paul Velleman, and Dave Bock
Technology: MyStatLab (comes with purchase of the text or visit http://pearsonmylabandmastering.com/ and use your instructor's access code)
Course Notes: Available on Carmen, print prior to coming to lecture.

Website: The official course website is carmen.osu.edu. Check Carmen periodically for announcements about the class and other class material.

Course Goals: This course satisfies the learning goals of the GEC Data Analysis requirement. In particular, in Statistics 145 students are expected to understand statistics and probability, comprehend mathematical methods needed to analyze statistical arguments, and recognize the importance of statistical ideas. Ideally, students also will become critical consumers of published statistical results by heightening their awareness of ways in which statistics can be improperly used to mislead, confuse, or distort the truth.

Course Objectives:
- To introduce you to methods of collecting data
    - By providing examples of random sampling methods
    - By explaining correct procedures for designing experiments and observational studies
    - By explaining uses and misuses of sample surveys
- To enable you to use statistical tools for presentation of data and to understand presentations of data
    - By discussing when different types of graphical displays are appropriate and explaining proper methods of constructing graphical displays
    - By using appropriate summary statistics to describe the distribution of data
    - By introducing statistical terminology used to describe data and distributions
- To enable you to analyze data
    - By using simple linear regression for bivariate data
    - By constructing and interpreting confidence intervals
    - By conducting and interpreting hypothesis tests
- To enable you to understand basic probability and statistical concepts
    - By presenting and using rules of probability
    - By discussing sampling distributions and the use of the Central Limit Theorem as the foundation of inference
- To enable you to evaluate statistical procedures and summaries

      o   By discussing assumptions and conditions for analysis procedures
      o   By identifying sources of bias in sampling, experiment, and survey methods
      o   By discussing appropriate nature and scope of conclusions for analysis procedures

Emphasis on the process of doing statistics: It is important to me that you learn to question what you are doing in statistics and that you concentrate on the concepts of the course instead of just the answers to particular questions. Understanding the process of doing statistics is important to your success as a user (and perhaps future practitioner) or statistics. Here are Dr. Miller's four steps involved in the process of doing statistics:

1. Think about what you want to do.
2. Check any conditions/assumptions to make sure that it is okay to proceed.
3. Do it. (This is usually the step that involved calculations.)
4. Communicate your results in context.

Statistics is not mathematics. We use mathematics as a tool to do statistics. Focusing on the process will help you become a better problem solver and a better budding statistician.

Homework: There are a total of 12 homework assignments due at various times during the quarter. Homework exercises and tentative due dates are listed at the end of the syllabus. The official due dates are listed in Carmen. Your lowest 2 homework scores will be dropped. It is highly suggested you do all of the homework assignments, since practice helps with understanding. If you miss submitting a homework assignment in MyStatLab, it will be counted as a dropped assignment, regardless of the reason.

      Solutions to the original textbook exercises used as the basis for the homework assignments will be posted on the course website. While the numbers in the solutions will not match the numbers in your assignment, they can serve as "model solutions" to show you what you would need to show on a quiz or exam.

MyStatLab: MyStatLab (MSL) comes with the purchase of a new text at one of the bookstores around campus or can be purchased on its own. You need to sign up using the appropriate course code for our lecture. This code will be posted in an announcement and on an instruction sheet in Carmen. Hints for using MSL:

- Start your homework early—waiting until an hour or two before the assignment is due has proven problematic for people both in terms of understanding and completion. You are encouraged to start homework as soon as we encounter the material. Note too that you can use the odd questions in the book as practice—the answers for these questions are in the back of the book.
- You are encouraged to write out your solutions on a separate sheet of paper so that you have complete solutions. For example, if a homework question in MSL asks you to give the bounds for a confidence interval, keep in mind that process is important in this course and that you will be expected to show this process for a worked problem on a quiz or exam. You can check your solutions against the solutions to the original textbook exercises that will be posted in Carmen.
- Do not enter your work in the answer box provided—MSL grades an answer, not work.
- Don't round until the end of an exercise, but do report your intermediate steps to the appropriate number of decimal places.
- Watch for the number of decimals requested by the program—this can vary based on the question being asked.
- Watch for the format of the answer—for example, if the answer is 65%, and the % sign shows after the box you type your answer in, you would enter 65 in the box.
- If you are returning to a problem in MSL after using one of the help tools in MSL or after logging out and logging back in, check to make sure that the numbers being used in the question are the same. These are algorithmically generated values and change after doing certain things in MSL.
- Use the technology support for MSL if you are having technology problems while doing your homework.
- Submit questions via "Ask My Instructor" if you have a question regarding a concept.
- If you believe that there is a rounding error in your homework assignment, submit the rounding error to Dr. Miller through "Ask My Instructor."

Quizzes: There will be two quizzes during the quarter. Quizzes will be given during recitation. The quiz dates are listed at the end of the syllabus. The official quiz dates will be listed in Carmen. Following a review session in recitation, you will be given approximately 25 minutes to take each quiz during that recitation period. Statistical tables will be provided as needed.

Exams: There will be one midterm exam during the quarter as well as a two-hour final exam. The final exam will be comprehensive with an emphasis on those topics covered after the midterm. Statistical tables will be provided as needed.

> **Common Midterm: Monday, October 17, 5:30-6:18 PM** (1187 Postle Hall)
> **Common Final Exam: Monday, December 5, 5:30-7:18 PM** (1187 Postle Hall)

If you have a work or class conflict with the scheduled time for the midterm or final exam, please let Dr. Miller know in writing (email is fine) as soon as possible (but no later than a week before) so we can make alternative arrangements.

Notes for use on the quizzes and exams: You may use one 3 x 5 inch note card (both sides), with whatever facts, formulas, or explanations you find helpful, on each quiz. One 8.5 x 11 inch sheet of paper (both sides), with whatever facts, formulas, or explanations you find helpful, may be brought to the midterm exam. Two sheets of paper (as described for the midterm) may be brought to the final exam.

Policy on missing a quiz or the midterm: If you know ahead of time that you cannot be there for a quiz or the midterm, make arrangements with your TA to take the quiz or midterm prior to the date it was scheduled. If you miss a quiz or midterm and have not made prior arrangements with your TA, you can request that the percent of your grade from the assessment you missed be added to the percent for your final exam. (For example, if you miss Quiz 1 and follow the instructions below, your final exam will count for 5% + 35% = 40% of your grade.) Note: This only applies to **one** missed quiz or midterm—this does not apply to missed homework assignments and will not apply to more than one missed quiz or midterm.

All requests must have valid excuses and must be submitted in writing (email is fine) within one week of the assessment and approved by Dr. Miller. If you do not make such arrangements, you will receive a zero for that assessment. In other words, this will not automatically be done for you. Please recognize that making your final count for more of the course places an extra burden on you to perform well on the final exam.

Re-grade policy for quizzes and the midterm: If you have a question about the grading of a quiz or your midterm, you may file an appeal with Dr. Miller. An appeal consists of a neatly written or typed note on 8.5 x 11 paper attached to your quiz or exam that explains what should be considered. All appeals must be filed with Dr. Miller within one week of receiving your quiz or exam back from your TA.

Full credit policy: Full credit for each homework or exam problem can only be earned through showing your justification for or work on each problem. Answers without work will **not** receive full credit.

Final Grade: Your final course grade will be based on the following weighting of assessment components:

Homework	20%
Recitation preparation	3%
Recitation participation	7%
Quiz 1	5%
Quiz 2	5%
Midterm	25%
Final exam (cumulative)	35%

The recitation preparation portion of your grade will be based on the completion of the lecture review quizzes in Carmen. The recitation participation portion of your grade will be determined by your TA based on recitation attendance and participation.

Final course grades will be assigned based on the following grading scale:

		B+	87 – 89	C+	77 – 79	D	60 – 69
A	93 – 100	B	83 – 86	C	73 – 76	F	below 60
A-	90 – 92	B-	80 – 82	C-	70 – 72		

Calculators: A calculator (with statistical functions) may be used for homework and exams. No cell phone calculators will be allowed during quizzes and exams.

Study Rooms and Help Hours: Our TAs hold office hours in 132 Cockins Hall starting the second week of classes. You are welcome to talk with any TA in the tutor room any time the tutor room is open. Specific hours for the tutor room and for the Statistics 145 TAs will be posted on Carmen.

Communication devices and technology: Use of communication devices and technology for activities other than class work is highly discouraged, as it can disrupt the learning process for yourself and others in the class.
> Exception: Texting to participate in the Poll Everywhere polls is encouraged. Other texting is not unexpected, but Dr. Miller would prefer that you not.

Expectations of Students with Respect to Technology:
- Log in to Carmen at least three times a week to check the schedule (it's good to get into the habit of checking Carmen daily for each of your courses).
  - Take lecture review/recitation preparation quizzes prior to each recitation.
  - Check announcements.
  - Check the calendar.
- Complete all homework assignments in MyStatLab.
- Participate in lecture (e.g., answers polls via text or online, ask questions) regardless of whether you attend face-to-face or via Adobe Connect.
- Add "Poll Stats" as a contact on your phone. The number you should add for "Poll Stats" is 37607, which is the number you text Poll Everywhere answers/questions to.
- If you attend lecture via Adobe Connect, make sure that your technology is updated and ready for each lecture (log in 5-10 minutes early to check updates and connections).
  - Note: Public Wi-Fi connections sometimes may not support the bandwidth necessary for Adobe Connect. Also, headphones may be handy to more effectively listen to lecture.
- If you attend lecture via Adobe Connect, add the following bookmarks:
  - http://go.osu.edu/Stat145 (Adobe Connect room)
  - http://PollEv.com (link for responses to Poll Everywhere questions via the web)
  - http://go.osu.edu/thevoice (will be monitored only on MWF 9:30-10:18AM)
- If you attend lecture via Adobe Connect, once you enter the Adobe Connect room,
  - Click the radio button next to "Enter as a Guest."
  - For your name, please enter your OSU name.n.
  - Click on "Enter Room."
- During lecture periods (MWF 9:30-10:18AM), anyone can see the questions being asked via Poll Everywhere by visiting http://go.osu.edu/statqs.
- Be respectful of your peers and the instructor regardless of whether you attend face-to-face or via Adobe Connect.
- Non-course-content-related technology issues, including issues with Carmen and Adobe Connect, should be directed to 8help@osu.edu. Or, you can fill out a self-service form at https://cio.osu.edu/selfservice/.

Student Responsibility: You are responsible for your own learning. We are here solely to facilitate your learning and understanding of the discipline of statistics. We will help you as much as we can, but learning the material is ultimately up to you. This includes:
- attending class meetings;
- getting assignments and notes from others or from Carmen if you miss class;
- asking questions when you have them, either in class or out of class;
- doing the assigned homework on time and participating in class; and
- contacting a member of the Stat 145 team if you are having difficulties or would like to know more about statistics.

E-mail Correspondence: In order to protect your privacy, all course e-mail correspondence must be done through a valid OSU name.n account. If you have not activated your OSU email account, you can activate your account at http://my.osu.edu/.

Academic Misconduct: Please help us to maintain an academic environment of mutual respect, fair treatment, and personal growth. You are expected to produce original and independent work for exams. Although students are often encouraged to work together on homework assignments, all students must submit their own written work in their own words. It is the responsibility of the Committee on Academic Misconduct to investigate or establish procedures for the investigation of all reported cases of student academic misconduct. The term "academic misconduct" includes all forms of student academic misconduct wherever committed; illustrated by, but not limited to, cases of plagiarism and dishonest practices in connection with examinations. Instructors shall report all instances of alleged academic misconduct to the committee (Faculty Rule 3335-5-487). For additional information, see the Code of Student Conduct (http://studentlife.osu.edu/pdfs/csc_12-31-07.pdf).

Addressing Issues of Differing Abilities: Any student who feels s/he may need an accommodation based on the impact of a disability should contact the instructor privately to discuss your specific needs. Please contact the Office for Disability Services (ODS) in 150 Pomerene Hall (phone: 292-3307) to coordinate reasonable accommodations for the course. ODS forms should be given to your instructor as early in the quarter as possible to be filled out by Dr. Miller and returned to you.

Course Admission and Section Changes: ADD and SECTION CHANGES are handled by our department staff after the SIS registration system closes. Students should go to 405A Cockins Hall and speak with Patty Shoults beginning Tuesday, September 27. The instructor and TAs do not sign paperwork associated with course registration.

Drop dates: The last day to drop the course without a 'W' appearing on your record is Friday, October 7. The last day to drop the course without petitioning is Friday, November 4.

Receiving an 'I' for the course: You cannot receive an incomplete for the course unless 70% of the work in the course has been completed. Extenuating circumstances will be handled on a case-by-case basis.

Tentative Course Schedule – Autumn 2011 – Stat 145

Day	Date	Chapter(s)	Topic
M	September 19		**no classes**
W	September 21		Introduction (Chapter 2 in recitation)
F	September 23	3	Contingency Tables
M	September 26	4/5	Graphing and Summarizing Categorical and Quantitative Data
W	September 28	4/5	Graphing and Summarizing Categorical and Quantitative Data
F	September 30	14/15	Probability
M	October 3	14/15	Probability
W	October 5	6	Normal Distribution
F	October 7	6	Normal Distribution
M	October 10	12	Sample Surveys
W	October 12	12/13	Sample Surveys; Experiments and Observational Studies
F	October 14	13	Experiments and Observational Studies
M	October 17		Review for Midterm; **Midterm 5:30-6:18 PM**
W	October 19		**no lecture**
F	October 21	18	Sampling Distributions
M	October 24	18	Sampling Distributions
W	October 26	18/19	Sampling Distributions and Confidence Intervals for One Proportion
F	October 28	19	Confidence Intervals for One Proportion
M	October 31	19	Confidence Intervals for One Proportion
W	November 2	20/21	Hypothesis Tests for One Proportion
F	November 4	20/21	Hypothesis Tests for One Proportion
M	November 7	22	Confidence Intervals and Hypothesis Tests for the Difference in Proportions
W	November 9	22	Confidence Intervals and Hypothesis Tests for the Difference in Proportions
F	November 11		**no classes**
M	November 14	23	Confidence Intervals and Hypothesis Tests for One Mean
W	November 16	23	Confidence Intervals and Hypothesis Tests for One Mean
F	November 18	7/8	Correlation and Simple Linear Regression
M	November 21	7	Correlation
W	November 23	7/8	Correlation and Simple Linear Regression
F	November 25		**no classes**
M	November 28	8/9	Simple Linear Regression
W	November 30	8/9	Simple Linear Regression
F	December 2		Review for final exam
M	December 5		**Final Exam 5:30-7:18 PM**

Homework Assignments and Tentative Due Dates

HW	Due Dates	Chapter(s)	HW	Due Dates	Chapter(s)
1	Wednesday, September 28	Chapter 3	7	Monday, October 31	Chapter 18
2	Monday, October 3	Chapters 4/5	8	Friday, November 4	Chapter 19
3	Wednesday, October 5	Chapters 14/15	9	Thursday, November 10	Chapters 20/21
4	Wednesday, October 12	Chapter 6	10	Wednesday, November 16	Chapter 22
5	Sunday, October 16	Chapter 12	11	Wednesday, November 23	Chapter 23
6	Friday, October 21	Chapter 13	12	Friday, December 2	Chapters 7/8/9

Quiz and Exam Dates

Quiz 1:   Thursday, October 6 (in recitation)
Common Midterm: Monday, October 17, 5:30-6:18 PM (1187 Postle Hall)
Quiz 2:   Tuesday, November 8 (in recitation)
Common Final Exam: Monday, December 5, 5:30-7:18 PM (1187 Postle Hall)