INTRODUCTION TO THE PRACTICE OF STATISTICS (Stat 1450)
Spring 2013 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. Jackie Miller
Office: 419 Cockins Hall
Office Hours: Tuesdays 9:30-11:00AM or by appointment
Office Phone: 614-688-4546
E-mail: miller.203@osu.edu (E-mail is preferable to voicemail.)

Logistics: This section of Stat 1450 meets Tuesdays and Thursdays from 8:00-8:55AM in 100 Stillman Hall. Recitations meet on Thursdays from 10:20-11:15AM or 11:30AM-12:25PM in EA 2x5 (209 W. 18th Avenue). Please check your schedule for the time and room for your recitation.

Required Text: The Basic Practice of Statistics 6e (custom edition), by David Moore, Bill Notz, Mike Fligner
Technology: JMP Software (free through the OCIO, details follow later in the syllabus)
Course Notes: Available on Carmen, print prior to coming to lecture.
Website: The official course website is carmen.osu.edu. Check Carmen frequently (at least three times per week) for announcements about the class and other class material.

The Role of Lectures: Lectures are meant to be a time for introduction of concepts and ideas, for an overarching view of how concepts fit together with one another, and for a few examples. We will use Top Hat Monocle for in-class polls and for a “backchannel” (details follow later in the syllabus).

The Role of Recitations: Recitations in Stat 1450 are not a review of the lecture. Instead, the recitation TAs will begin each recitation with questions that may arise from lecture. Then your TAs will move on to examples and activities based on the concepts addressed in lecture.

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 1450 TAs will be posted on Carmen.

College of Arts and Sciences General Education (GE) Goals & Expected Learning Outcomes:
Statistics 1450 is a Data Analysis course in the Quantitative and Logical Skills category of the GE Requirements.
Goals: Students develop skills in drawing conclusions and critically evaluating results based on data.
Expected Learning Outcomes: Students understand basic concepts of statistics and probability, comprehend methods needed to analyze and critically evaluate statistical arguments, and recognize the importance of statistical ideas.

Course Objectives:
- Introduce you to the process of doing statistics
- Introduce you to methods of collecting data by
  - Providing examples of methods of random sampling
  - Explaining correct procedures for designing experiments and observational studies
  - Explaining uses and misuses of sample surveys
- 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
  - Using appropriate summary statistics to describe the distribution of data
• Introducing statistical terminology used to describe data and distributions
  • Enable you to analyze data by
    o Using simple linear regression for bivariate data
    o Constructing and interpreting confidence intervals
    o Conducting and interpreting hypothesis tests
• Enable you to understand basic probability and statistical concepts by
  o Presenting and using rules of probability
  o Discussing sampling distributions and the use of the Central Limit Theorem as the foundation of inference
• Enable you to evaluate statistical procedures and summaries by
  o Discussing assumptions and conditions for analysis procedures
  o Identifying sources of bias in sampling, experiment, and survey methods
  o Discussing appropriate nature and scope of conclusions for analysis procedures
  o Questioning results that are presented to you and/or that you encounter outside of the course

**Emphasis on the Process of Doing Statistics:** Dr. Miller finds it important that you learn to question what you are doing in statistics and 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 involves 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.

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

- Homework: 15%
- Recitation participation: 5%
- Exam 1: 25%
- Exam 2: 25%
- Final exam (cumulative): 30%

- The recitation participation portion of your grade will be determined by your TA based on both attendance at and participation in recitation. One unexcused absence from recitation is allowed, but we encourage you to attend all recitation meetings.

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

- A+ 93 – 100
- A 90 – 92
- B+ 87 – 89
- B 83 – 86
- C+ 77 – 79
- C 73 – 76
- D 60 – 69
- E below 60

Note that we do not use the D+ in Stat 1450.

We do not know if there is a curve for grades until after the final exams have been graded and Dr. Miller has studied the grades. At that point, the cutoff points for each letter grade are determined (and will be no stricter than the grading scale listed above). Please do not ask for special consideration for your grade after your final grade has been determined.

- There is no extra credit offered in the course unless announced.

**Weighted Grades versus Points Grades:** Note that your final grade in the course is a weighted grade. You cannot add up the number of points you earned and divide by the number of possible points. Instead, take the number of points earned divided by the possible points for that assignment and multiply by the weight of that assignment. For example, if you earn 83 of 100 possible points on the final exam, you have 83/100*30 = 24.9 of the 30 possible “points” towards your total grade in the course. Carmen shows you the weighted grade that you have for each assessment.
**Homework:** There are a total of 12 homework assignments due at various times during the term. Homework will be graded for both completion and accuracy, each worth 50% of an assignment’s points. Homework exercises and tentative due dates are listed at the end of the syllabus. Your lowest 2 homework scores will be dropped. It is highly suggested that you do all of the homework assignments, because practice helps with understanding. **If you miss turning in a homework assignment, it will be counted as your dropped assignment, regardless of the reason.**

Homework must be turned in by 3:00PM on the due date. You may turn your homework in during lecture or recitation or you may turn it in to the drop box outside of 413 Cockins Hall (the box to the right of the door that is marked for Stat 1450). When putting homework in the drop box, make sure that “Stat 1450” and your TA’s name are on your homework. Failure to put your TA’s name on an assignment put in the drop box may result in a lost assignment. **No late assignments will be accepted.** Solutions to homework assignments will be posted on the course website.

When you turn in homework, write your name in pen on each page submitted and staple all pages together. For homework assignments submitted close to a quiz or test date, we suggest that you make a copy of your work so that you can compare your work to the posted solutions.

Points will be deducted from homework assignments for any of the following: 1) no TA name; 2) no staple; 3) “fringy things” on the edge of your paper. And, if you forget to put your name on the assignment, that might result in a score of zero, unless our detective skills are impeccable.

**Homework Tips:**
- Start your homework early—waiting until the day 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.
- Don’t round until the end of an exercise, but do report your intermediate steps to the appropriate number of decimal places.

**JMP:** JMP is the statistical software we will use in this course. We are using JMP because it is (1) free for you to download and use and (2) similar to statistical packages you will see later in your studies and in your careers.

Your TAs will use JMP during recitation as appropriate, but you should also expect to put in time outside of recitation doing data analysis with JMP for homework.

To install JMP on your computer, click on “Order Services” at [https://osuitsm.service-now.com/selfservice/](https://osuitsm.service-now.com/selfservice/), log in, click on “Site Licensed Software Request,” and select the version of JMP that is appropriate for your computer.

**Exams:** There are two exams during the term as well as a final exam. The final exam will be comprehensive with an emphasis on those topics covered after the two exams. Statistical tables will be provided as needed.

- **Exam 1:** Wednesday, February 13, 6:30-7:25PM (location TBA)
- **Exam 2:** Wednesday, March 20, 6:30-7:25PM (100 Independence Hall)
- **Final Exam:** Wednesday, April 24, 6:00-7:45PM (location TBA)

If you have a work or class conflict with the scheduled time for any exam, let Dr. Miller know by email as soon as possible so that alternative arrangements can be made.

**Notes for Use on Exams:** One 8.5 x 11-inch sheet of paper (double-sided), with whatever facts, formulas, examples, or explanations you find helpful, may be brought to each of Exams 1 and 2. You may handwrite or type your sheet of notes. Two sheets of paper (as described for Exams 1 and 2) may be brought to the final exam. Statistical tables will be provided on exams as needed.

**Policy on Missing an Exam:** If you know ahead of time that you cannot be there for an exam, make arrangements with your TA to take the exam prior to the date it was scheduled. If you miss an exam and have not made prior arrangements with your TA, you can request that the percent of your grade from the assessment you missed be calculated from your final exam. (For example, if you miss Exam 1 and follow the instructions below, your final exam will count for 25% + 30% = 55% of your grade.) Note: This only applies to one missed
exam—this does not apply to missed homework assignments and will not apply to more than one missed exam.

All requests must have valid excuses and must be submitted by email as soon as possible and approved by Dr. Miller. If you do not make arrangements with Dr. Miller, 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 Exams: If you have a question about the grading of an exam, 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 exam that explains what should be considered. All appeals must be filed with Dr. Miller within one week of receiving your exam back from your TA.

Full Credit Policy for Homework and Exams: Full credit for each problem on homework and exams can only be earned through showing your justification for or work on each problem. Answers without work may not receive full credit.

Options for Attending Lecture (choice can be made daily):
- Face-to-face in our regular lecture room at our regular lecture time.
- Online via Carmen Connect at our regular lecture time (see details below in the “Expectations” section).
- Note: lectures are also recorded and posted on Carmen for later viewing.

Top Hat Monocle and the Backchannel: We will use Top Hat Monocle to create a “backchannel.” The backchannel is a tool for you to use during lecture to ask questions of each other or of me, to answer others’ questions, and to comment about what is happening during lecture. I will watch the backchannel during lecture so that I can answer questions as well, but I will also rely on you to help each other out. I hope that the backchannel allows us the opportunity to create community among those in the class, regardless of how you choose to attend lecture. See “Expectations of Students with Respect to Technology” below for more details on the backchannel.

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).
  - Check announcements.
  - Check the calendar.
- Participate in lecture (e.g., answers polls and ask/answer questions via Top Hat Monocle) regardless of whether you attend face-to-face or via Carmen Connect.
- Add “Poll Stats” as a contact on your phone. The number you should add for “Poll Stats” is 315-636-0905, which is the number you text Top Hat Monocle answers to.
- If you attend lecture via Carmen 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 Carmen Connect. Also, headphones may be handy to more effectively listen to lecture.
- If you attend lecture via Carmen Connect, add the following bookmarks:
  - [http://go.osu.edu/stat1450m](http://go.osu.edu/stat1450m) (Carmen Connect room)
  - [http://go.osu.edu/jbm](http://go.osu.edu/jbm) (will be monitored only on TuTh 8:00-8:55 AM)
- If you attend lecture via Carmen Connect, once you enter the Carmen Connect room,
  - Click the radio button next to “Enter as a Guest.”
  - For your name, please enter your OSU name
  - Click on “Enter Room.”
- During lecture periods (TuTh 8:00-8:55 AM), anyone can see the questions being asked and comments being made on the backchannel by visiting [http://go.osu.edu/jbm](http://go.osu.edu/jbm).
- Be respectful of your peers and the instructor regardless of whether you attend face-to-face or via Carmen Connect.
• Non-course-content-related technology issues, including issues with Carmen and Carmen Connect, should be directed to help@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. Taking ownership of your education will make learning any subject you study far more meaningful than it would be otherwise. The Stat 1450 instructional team is here 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 homework assignments on time;
• participating in class; and
• contacting a member of the Stat 1450 team if you are having difficulties or would like to know more about statistics.

You are responsible for all material covered in class, in the assigned readings, and in homework problems.

Calculators: Any basic scientific (that can raise to a power, take a square root) or graphing calculator is fine. No cell phone (or other electronic devices with calculator functions) will be allowed during exams.

Communication Devices and Technology: When using technology during class, please be respectful of others.

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/.

An email should look more like a letter than a text message. Please make an attempt to be professional when corresponding with members of the Stat 1450 team via email.

If I do not respond to your email within 48 hours, please send me a reminder. Occasionally my mailbox gets quite full, and I want to make sure to respond to everyone.

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 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 me privately to discuss your specific needs. Students with documented disabilities must also contact the Office of Disability Services (ODS) in 150 Pomerene Hall (phone: 292-3307) to coordinate reasonable accommodations for the course. ODS forms must be given to Dr. Miller as early in the semester as possible to be filled out and returned to you.

Student Support Services at Ohio State: Our Carmen course has a section called “Student Support Services at OSU.” In that section, you will find links for several offices on campus that are classified as Academic Support and Tutoring, Commuter and Off-Campus Resources, Counseling and Wellness, Disability Services, and Support for a Diverse Community. It is important to me that you know the resources available to you as a student, so I wanted to make sure that you have quick links to these resources.
Course Admission and Section Changes: ADD and SECTION CHANGES handled by our department staff after the SIS registration system closes. Students should go to 405A Cockins Hall and speak with Megan Woodall beginning Wednesday, January 16 at 7:30AM. 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, February 1. The last day to drop the course without petitioning is Friday, March 22.

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. Extemuating circumstances will be handled on a case-by-case basis.

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**Exam Dates**

Exam 1: Wednesday, February 13, 6:30-7:25PM (location TBA) (Chapters 1-9)
Exam 2: Wednesday, March 20, 6:30-7:25PM (100 Independence Hall) (Chapters 10-12, 14/16/18 confidence intervals)
Final Exam: Wednesday, April 24, 6:00-7:45PM (location TBA) (cumulative, with more emphasis after Exam 2)