

STAT 1350: Elementary Statistics

Spring, 2015

“Statistical thinking will one day be as necessary for efficient citizenship as the ability to read and write.”

--H.G. Wells

Instructor: Dr. Michelle Everson

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Office Location and Phone: 415 Cockins Hall, 614-292-3593

Office Hours: Online hours through CarmenConnect Wednesday 1-2 p.m. (beginning 1/21) and Sundays 7 to 8 p.m.; face-to-face office hours available by appointment. A link to Carmen Connect can be found in the **Course Information** section of the course website.

Note: The instructor will respond to email as quickly as possible, no later than 24 hours after the email has been sent. The instructor and teaching assistant will also carefully monitor discussion boards and respond to discussion posts within 24 hours.

Teaching Assistant: Katie Jurgens

email: jurgens.9@osu.edu

Office Hours: To be announced

Course Goals

This course satisfies the learning goals of the *GEC Data Analysis requirement*, which are to develop an understanding of the basic ideas of statistics, statistical reasoning, and probability, to comprehend methods needed to analyze and critically evaluate statistical arguments, and recognize the importance of statistical ideas. The course seeks to encourage students to actively think about statistical issues arising in real problems and to understand the basic statistical techniques used to generate, summarize, and draw conclusions from data.

Getting Started with the Online Course

The best way to get started with the course is to spend some time exploring the course website. Go to www.carmen.osu.edu to log on to Carmen. You should then see a link for the STAT 1350 site. Look carefully at the resources on the homepage, and then click the **Content** tab near the top to get to the Table of Contents. From there, you can review more information about the course and see the overviews for each week. Note that not all course overviews will be posted at the beginning of the semester, but we will slowly add more and more to the course site. We hope the course site will be relatively easy for you to navigate, but if you are ever in doubt about anything, let us know! We also encourage you to watch the introductory video on the course homepage.

Required Materials

Text: *Statistics Concepts and Controversies* 8th edition by David Moore and William Notz

Software: Students in this course will use the JMP software. JMP can be used freely on the computers in the Thompson and 18th Avenue libraries. OSU students can also freely download this software, and we encourage you to do this since you will need to use the software beginning Week 4 to complete lab assignments and a course project. It is important that you make sure you obtain access to JMP very early in the semester. We cannot help you if you wait until the day before an assignment is due in order to try to download JMP. See the **JMP Resources** section (in the **Content** area of Carmen, within the **Course Information** area) for handouts that explain how you can access and install JMP for the PC and the Mac. If you have any difficulties with this, please contact 8-HELP by phone (614-688-4357) or email (8help@osu.edu), or visit the Buckeye Bar in the Thompson Library.

Calculator: A simple calculator (with a square root key) will also be necessary for STAT 1350.

Course Technology

The baseline technical skills necessary for this online course are as follows:

- Successful students will possess basic computer and web-browsing skills
- Students will be familiar with navigating Carmen (the following website may help you if you encounter difficulties with Carmen: <http://odee.osu.edu/resourcecenter/carmen>)
- Students will need to be proficient with the MS Office Suite

Technology skills necessary for this specific course:

- CarmenConnect text, audio, and video chat. If you need technical assistance, either call 8-HELP, or refer to the online instructions: <http://resourcecenter.odee.osu.edu/carmenconnect>.

Necessary equipment and technology:

- Computer: current Mac or PC
 - Mac minimum requirements for JMP: OSX 10.6 or later, 1GB RAM, 500MB free hard disk space
 - PC minimum requirements for JMP: Pentium 4 or higher, Windows XP or later (Home Basic Editions not supported), 1GB RAM, 500MB free hard disk space, and True (24bit+) color with resolution 1024x768 or greater.
- Internet Browser: Internet Explorer 6 or later, or Firefox (Chrome is not supported by Carmen, or CarmenConnect. Further CarmenConnect recommendations are listed on this website <http://resourcecenter.odee.osu.edu/carmenconnect>)
- Robust high-speed internet connection
- Webcam: built-in or external webcam, fully installed
- Microphone: built-in laptop or tablet mic or external microphone
- It is assumed that all students have access to Adobe Reader (to view PDF files: <http://get.adobe.com/reader/>) and to the MS Office Suite (in order to use Word and Excel). You should also have Adobe Flash Player installed (<http://get.adobe.com/flashplayer/>).

IMPORTANT NOTE: It is not required that you use CarmenConnect in this course, but we strongly encourage you to try to use CarmenConnect as a way of communicating with the instructor and/or teaching assistant. We will use this platform for online office hours, and we want you to feel comfortable using it as well. To help you, we are happy to arrange one-on-one CarmenConnect sessions with anyone who requests this, just so we can make sure this technology works for you. If you do not use CarmenConnect, it's not essential that you have a webcam or a microphone to complete this course.

Grading

Your final grade in this course will depend on the following. Each of these assignments is discussed in more detail below.

Assignment	Points	Approximate percentage toward grade
Homework assignments (10 points each for 80 points ; lowest will be dropped)	70 points	17%
Lab activities (10 points each for 100 points; lowest will be dropped)	90 points	22%
Data from Everyday Life Project (three parts)	50 points	12%
Midterm Exam #1 (Monday, February 23, 2015, 5:20-6:15 p.m.)	50 points	12%
Midterm Exam #2 (Monday, March 30, 2015, 5:20-6:15 p.m.)	50 points	12%
Final Exam (Monday, May 4, 2015, 6-7:45 p.m.)	100 points	25%
Total	410 points	100%

Final grades in the course will be determined based on the following scale, and based on the percentage of total points (including extra credit) that you earn during the semester.

Grade	A	A-	B+	B	B-	C+	C	C-	D+	D	E
Min %	93%	90%	87%	83%	80%	77%	73%	70%	67%	60%	≤59%

More about Completing Required Course Assignments in the Online Course

To help you navigate through the online environment, we have attempted to create a very consistent structure from week to week. When you log on to the Carmen site and click on the **Content** tab, you will see that each week shows up as a section within the Table of Contents, and there is an overview that goes along within each week. When you click on the link for the weekly overview, you will see a new template that includes all objectives for the week and links to lecture videos and all assignments and activities for the week. There are weekly deadlines that need to be met within the online course, but there

is flexibility in terms of when you can do your work, and we will consistently monitor the course site and jump in whenever necessary to help you.

Homework: Links to homework assignments can be found within many weekly modules. Each homework assignment consists of 10 true/false and multiple-choice questions. Each question is worth 1 point, and you will complete these assignments through Carmen by the appropriate deadline. Although the assignments are set up using the Quiz tool in Carmen, they are not “quizzes” in the traditional sense. You can have as much time as you need to complete assignments before the deadline and you can use any resources you would like, but once you officially submit your work to be graded, you cannot change any of your answers. Once the deadline has passed, the assignment will be automatically graded and you will receive feedback. Homework assignments will always be due on **Sundays by 11:55 p.m.** The lowest homework score will automatically be dropped from your grade.

Lab activities: There are several lab activities that you will complete during the semester. These activities provide you with opportunities to apply and extend what you are learning in your reading and through lectures. During the weeks in which you have lab activities, links to the activities will be posted within the weekly overview. Each activity will involve several questions that will require short answers, and you should save your work as a Word or PDF file and then submit it through the appropriate Dropbox link within the weekly overview. Lab activities are always due on **Fridays by 11:55 p.m.**, with the exception of Lab Activity #1 (a quiz about the syllabus and course website) which will be due the first Sunday of the semester (at 11:55 p.m.). We strongly encourage you to start the activities early and to post questions about the activities in the appropriate Carmen discussion forums if you need help (separate forums will be set up each week for questions related to the content for the week). Ideally, the lab activities will provide you with opportunities to interact with your peers and help your peers. The lowest lab activity score will be dropped from your grade. The teaching assistant will grade your lab activities and you can generally expect feedback within 7 days.

Data from Everyday Life Project: During Weeks 2 through 5, you will keep track of data about your personal life. You will select two quantitative variables of your choice that you can measure on a daily basis and that you believe might be related in some way to each other. You will use this data to prepare two short, typed reports that will involve graphing the data using JMP, describing the data using appropriate summary statistics computed in JMP, and attempting to better understand relationships between your variables. You will submit your project in three parts, and this is all detailed more thoroughly in the **Data from Everyday Life Project** handout on Carmen. You can find this handout in the **Course Information** section on the Carmen site. Note that the first part of your project involves collecting the data, and you will need to submit your data at the end of Week 6 of the semester (by **Sunday, February 22nd**, at **11:55 p.m.**). Other project deadlines will also be on Sundays.

Exams: This course has two common midterms and a common final. Exams will all be on Mondays. It is important that you make preparations to be available during the exam times listed above and that you attempt to take these exams on campus with all other STAT 1350 students. More details about the exact locations of the exams will be sent out as we get closer to exam time. Students who have an unavoidable conflict should e-mail the instructor at least one week prior to each exam to make appropriate arrangements for taking an alternate or make-up exam. If you will be unable to take the exam with other STAT 1350 students at the times we have designated on campus, we can attempt to make arrangements for you to take the exams at the campus testing

center. The Ohio State University (OSU) Testing Center (<http://registrar.osu.edu/testing/>) is an acceptable proctoring site, and offers appointments Monday-Friday 8a.m. to 5 p.m. Students must pre-arrange proctoring site testing with both the instructor and proctoring site at least three weeks before the first available exam time, and there may be fees for proctoring. All exams are closed book. For the midterm exams, students may use one 8.5 x 11 page of notes (front and back). For the final exam, students may use two 8.5 x 11 pages of notes (front and back). You should also bring a calculator and a photo ID to the exams. Devices such as cell phones with calculator *and* communication capabilities are not allowed. Devices such as iPods are also prohibited at the exam. For both midterm exams, students can make requests to have their exams re-graded if they believe certain problems were not graded correctly. Requests for re-grading of exams must be made in writing. These requests should contain a complete description of the reason for grade adjustment as well as the student's name. More details about re-grading requests will be made available after the midterm exams.

Late and Missed Work

Late Work: *Absolutely no late work will be accepted.* You should allow sufficient time to complete homework assignments, lab activities, and the course project so that you can get help if you need it. Computer failures, lost files and other technical difficulties are not valid excuses for submitting an assignment late. It is for this reason that we do allow you to drop one homework assignment and one lab activity from your grade.

Missed Work: Students who are unable to attend an exam for a legitimate unavoidable reason may take a make-up exam only if the student provides suitable documentation of the absence and takes the make-up in a timely manner. Students who miss a lab activity or homework assignment for a legitimate reason should use their dropped score for the first absence. Make-up work for subsequent legitimate absences must be discussed with the instructor.

Extra Credit

Up to 10 extra credit points will be awarded to you this semester. More information about how to obtain extra credit will be shared with you when such opportunities are available. We strongly encourage you to take advantage of opportunities to earn extra credit because we do not give out more than 10 extra credit points.

Tips for Success in the Course

We are here to help you be successful in the course, but a lot of your success will be up to you. From our own experience with this course and with other online courses, we believe the following can help you to do well in this course.

- You are responsible for your learning. Distance courses afford flexibility in how you learn, where you learn, and when you learn, but it is critical that you manage your time wisely. You should expect to spend a minimum of 9 hours weekly in this course. You should also expect to log on to Carmen at least two or three times per week to review weekly overviews, watch and listen to recorded lectures, complete lab activities, complete homework assignments, and keep up with important news and announcements posted on the home page of the course site.

- On a weekly basis, the instructor will send out an email message to the entire class to remind you about important due dates. You are responsible for these email messages, and they will be sent at the start of each week, to your OSU email account.
- This is NOT a math class. This is a critical thinking class. Our goal is to help you make wise and educated decisions at work and in life. We recognize that some of you might be nervous about the course, but we want you to know that we are here to help you. Please take advantage of opportunities to post questions in discussion forums and to answer questions posted by your peers. Teaching others can be a great way to help you learn important material. Also, please do not hesitate to contact the instructor or teaching assistant if you feel you need extra help or if you want to arrange times to meet in person (or meet through CarmenConnect).
- Your peers can be an excellent source of information. We encourage you to collaborate with your peers on different assignments and help each other, but keep in mind that you must submit your own individual work. Also, you cannot collaborate on exams!
- We strongly encourage you to avoid working on assignments until the very last minute. We want to help you if you run into problems, and it can be challenging for us to help if you do not ask questions in a timely manner.
- Try to find ways to organize the material you will see on the course website. This can be incredibly helpful when it comes time to studying for exams. Print out the slides that accompany each lecture video (these slides are saved as PDF handouts so you can take notes as you are watching and listening to lectures), and print out your graded lab assignments. Review your answers to homework questions and contact us to talk about any problems you missed. Purchase a binder where you can sort your printed notes and assignments by chapters or topics.
- Material will get more challenging as we go through the semester. Because of this, you may need to spend more time studying material that is covered later in the semester versus material covered earlier in the semester.

Addressing Issues of Differing Abilities

Any student who feels he or she may need an accommodation based on the impact of a disability should contact the instructor privately to discuss specific needs. Students with documented disabilities must also contact the Student Life Disability Services office in 150 Pomerene Hall (phone: 292-3307) to coordinate reasonable accommodations for the course. Forms from this office must be given to your instructor as early in the semester as possible to be filled out and returned to you.

Accessibility of course technology: This online course requires use of Carmen (Ohio State's learning management system) and other online communication and multimedia tools. If you need additional services to use these technologies, please request accommodations with me.

OSU accessibility resources: Further information and links regarding accessibility at OSU can be found here: <http://ada.osu.edu/resources/Links.htm>.

Other Student Resources

Students can find information about academic services available at OSU on this website:

<http://artsandsciences.osu.edu/current-students/university-resources>, and about general student services on this website: <http://ssc.osu.edu>.

Course Outline

The following is a general outline of the course, and it is subject to change at the discretion of your instructor. Any changes will be announced on Carmen. Ideally, you should attempt to complete readings before watching and listening to the accompanying lecture video(s). It is expected that everyone listen to the lectures and review the lecture notes since there are occasionally topics covered in lecture that are not covered in the book.

Date	Week	Topic	Readings	Assignments due
1/12-1/18	1	Data/Samples	Chapters 1 and 2	Lab 1
1/19-1/25	2	More on Sampling/Surveys	Chapters 3 and 4	Lab 2/Homework 1
1/26-2/1	3	Experiments/Measuring	Chapters 5, 6, and 8	Lab 3
2/2-2/8	4	Do numbers make sense?/Graphs	Chapters 9 and 10	Lab 4/Homework 2
2/9-2/15	5	Graphs/Summary Statistics	Chapters 11 and 12	Lab 5
2/16-2/22	6	Summary Statistics	Chapter 12/Review	Project Part 1/Homework 3
2/23-3/1	7	Midterm 1 /Normal Distributions	Chapter 13	
3/2-3/8	8	Correlation/Regression	Chapters 14 and 15	Lab 6/Homework 4
3/9-3/15	9	Regression/Probability	Chapters 15 and 17	Lab 7/Homework 5/Project Part 2
3/16-3/22		SPRING BREAK		
3/23-3/29	10	More Probability	Chapter 18/Review	Homework 6
3/30-4/5	11	Midterm 2 /Confidence Intervals	Chapter 21	Lab 8
4/6-4/12	12	More Confidence Intervals/Hypothesis Testing	Chapters 21 and 22	Lab 9/Homework 7/Project Part 3
4/13-4/19	13	More Hypothesis Testing	Chapters 22 and 23	Lab 10/Homework 8
4/20-4/26	14	Review	Review	
4/27	15	Last day of instruction is April 27		
5/4		Final Exam	Final	

Academic Misconduct

Please help us to maintain an academic environment of mutual respect, fair treatment, and personal growth. Cheating, plagiarism and other forms of academic dishonesty will not be tolerated and will be dealt with procedurally in accordance with University Rule 3335-31-02 (oaa.osu.edu/procedures).

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/csc/>.

The Ohio State University’s Code of Student Conduct (Section 3335-23-04) defines academic misconduct as: “Any activity that tends to compromise the academic integrity of the University, or subvert the educational process.” Examples of academic misconduct include (but are not limited to) plagiarism, collusion (unauthorized collaboration), copying the work of another student, and possession

of unauthorized materials during an examination. Ignorance of the University's Code of Student Conduct is never considered an "excuse" for academic misconduct, so I recommend that you review the Code of Student Conduct and, specifically, the sections dealing with academic misconduct. <http://studentlife.osu.edu/csc/>.

If we suspect that a student has committed academic misconduct in this course, we are obligated by University Rules to report our suspicions to the Committee on Academic Misconduct (COAM). If COAM determines that you have violated the University's Code of Student Conduct (i.e., committed academic misconduct), the sanctions for the misconduct could include a failing grade in this course and suspension or dismissal from the University. In short, if you are considering doing something that might be unethical, then resist and refrain from pursuing it. This will help you in college and well-beyond.

If you have any questions about the above policy or what constitutes academic misconduct in this course, please contact the instructor.

Creating a Respectful and Safe Class Environment

We want STAT 1350 to be an environment where you can feel safe to express your thoughts and ideas about what you are learning about. You can expect fair, consistent, and respectful treatment from the entire Stat 1350 teaching team. We expect all students to treat fellow students, TAs, and lecturers, with respect in your behavior, attitude and communications, be they in-person discussions or email. Again, the OSU Code of Student Conduct, is at <http://studentlife.osu.edu/csc/>