

STAT 1350: Elementary Statistics

Summer 2018

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



STAT 1350 is a 3-credit course. This particular section of the course is conducted online, with the exception of exams (see more details about exams later in the syllabus). This is a statistical literacy course designed to help you become thoughtful and critical consumers of statistics in everyday life. You will learn in this course about how data is produced, organized, and summarized. You will also learn about how samples of data can be used to make inferences about populations.

This course satisfies the learning goals of the *GE Data Analysis requirement*, which are to develop an understanding of the basic ideas of statistical reasoning, 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.

Teaching Team

Instructor: Dr. Michelle Everson (everson.50@osu.edu)

Office Location and Phone: 304C Cockins Hall, 614-292-3593

Office Hours: Tuesdays 10 a.m. – 12 p.m., and by appointment. (**Note:** There might be certain weeks when the instructor will have to change in-person office hours. Any changes will be announced ahead of time to the whole class via email.) For those who cannot attend in-person office hours, we can arrange to speak over the telephone, or to try to meet in other ways (e.g., online). Please contact the instructor if you ever wish to arrange alternative ways to get help.

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 assistants will also carefully monitor discussion boards and respond to questions posted within those forums 24 hours.

Teaching Assistants:

Anjali Agarwal (agarwal.213@osu.edu)

Yuyang Zhang (zhang.3042@osu.edu)

Lingfei Zhao (zhao.2412@osu.edu)

Note: More information about Teaching Assistant office hours will be announced during Week 1.

Email Correspondence

In order to protect your privacy, all course email correspondence *must* be done through a valid OSU name.number or Buckeyemail account, or through the Canvas email system. If you have not activated your OSU email account, you can activate your account at <https://acctmgt.service.ohio-state.edu>. **Note that it is your responsibility to make sure that any email messages you send to the instructor or one of the teaching assistants are received. If you send a message and do not get a reply within 48 hours, please send another message!** It is also your

responsibility to carefully read through correspondence received from the teaching assistants or the course instructor. *A lot of this correspondence will be through your OSU account, and you are responsible for any messages that might go to your “Junk” folder (in other words, check that folder on a regular basis!).* Please expect email announcements at the start of each week from the course instructor.

At the beginning of the semester, please look for an email message from one of the teaching assistants. You will each be assigned to a particular teaching assistant who will grade your work and attempt to help answer questions for you. This teaching assistant is the first person you should talk to when you have questions or concerns. If he or she cannot help you, the instructor will intervene.

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 (note we might sometimes refer to Carmen as Canvas). You should then see a link for the STAT 1350 site. Look carefully at the way the course site is set up. On the homepage of the course site, there are links to the different weeks of the semester, and clicking on those links takes you to a detailed overview that contains all materials you need for any given week. We suggest you start each new week by reading through the weekly overview, reading assigned textbook chapters, and watching lecture videos. *Although several things will be available to you on the course site at the beginning of the semester, not all assignments have been created or posted. We will slowly add to the course site in the coming weeks.* 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!

To learn more about the Instructor and Teaching Assistants, please visit the **Meet your Instructors** page, found by clicking on the **Course Logistics** button on the course homepage.

Required Materials

Text: *Statistics Concepts and Controversies* 9th edition by David Moore and William Notz

Note: An earlier version of the text is okay, as long as it's no older than the 7th edition. Also, although new textbooks come with access to a program called LaunchPad, we do not require the use of LaunchPad in STAT 1350. Students who are curious about this or who want to learn more should reach out to the instructor for details.

Software: There will be certain assignments this semester that will require the use of statistical software. To make these assignments easy for you to complete, we have chosen to use a free online program called StatKey. You can access StatKey at <http://www.lock5stat.com/statkey/index.html>. You will not be expected to use StatKey until Week 4 of the semester, and you will only be asked to use it to help complete lab activities. Details about how to use StatKey will be included in your lab activity handouts.

Calculator: A calculator will also be necessary for STAT 1350. Any type is fine, as long as the calculator is stand-alone (i.e., you cannot use the calculator on your phone during exams!)

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: <https://resourcecenter.odde.osu.edu/canvas/>)
- Students will need to be proficient with the MS Office Suite

Necessary equipment and technology:

- Computer: current Mac or PC
 - Mac minimum requirements: OSX 10.6 or later, 1GB RAM, 500MB free hard disk space
 - PC minimum requirements: 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: We suggest that you use Chrome or Firefox. If you choose to use Carmen Connect, please go to the following site to make sure your computer is correctly configured to use this tool: <http://resourcecenter.odde.osu.edu/carmenconnect/quickstart-checklist>
- Robust high-speed internet connection
- 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/>).

Grading

Final grades in the course will be determined based on the following scale, and based on the percentage of total points that you earn during the semester. **We do not curve the grades in STAT 1350.**

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

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

Assignment	Points
Lab Activities (11 Lab Activities for a total of 110 points; lowest score is dropped)	100 points
Homework Assignments (9 Homework Assignments for a total of 108 points; lowest score is dropped)	96 points
Midterm Exam (Tuesday, June 12 th , 5:20-6:15 p.m.)	100 points
Final Exam (Wednesday, July 25 th , 5-6:45 p.m.)	100 points
Total	396 points

More about Required Course Assignments

Again, you should start each new week by reading through the weekly overview, and you'll find that the overview contains lots of details about assignments and links to all activities, assignments, and resources you will need to work through for that week. We will also send you an email announcement at the start of each week with reminders about assignments and deadlines. 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.

Lab Activities and Homework Assignments

Please keep in mind that in this course, we automatically drop your lowest lab activity grade and your lowest homework assignment grade. **If you have to miss a lab activity, or if you forget to complete a homework assignment by the deadline (or miss the deadline), we will automatically take your first missed lab activity and your first missed homework assignment to be your lowest grades (in that you will receive 0 for not completing the assignments), no matter what the reason for missing these assignments is. For this reason, please do not ask us to make up this work.** If you have to miss additional work after these first two missed assignments, we will work with you to help you make up that additional missed work. We allow for these assignment grades to be dropped because we recognize that sometimes, unavoidable things happen that might affect your ability to complete your work and we do not want you to worry about having to make up work in these situations.

Lab activities: There are 11 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. You can also get to most lab activities by clicking on the **Assignments** link on the left side of the course page, or on the Quizzes link (for Lab #1 and Lab #11). Each activity will involve several questions that will require short answers, and, for most lab activities, you should save your work as a Word or PDF file and then submit it through the appropriate link within the weekly module. Most lab activities are due on **Fridays by 11:55 p.m.**, with the exception of Lab Activity #1 (due the first Sunday of the summer semester) and Lab Activity #11 (due the final Monday 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.

With the exceptions of Lab #1 and Lab #11, each lab activity is graded based on completeness and correctness. If you complete the activity, regardless of your answers, you will get 50% (or 5 points) on the assignment. The remaining 50% (or 5 points) of the grade is based on a random selection of problems that we will grade based on correctness. It is important that you answer all questions on each activity and ask for help if you need it! The teaching assistants will grade your lab activities and you can generally expect feedback within 7 days. Prior to sharing individual feedback with you, we will post an answer key for the lab activity within a day of the deadline so you can get immediate feedback. **Lab #1 and Lab #11 are based entirely on correctness.**

Keep in mind that we do attempt to provide detailed feedback on each of your lab activities. It is up to you to look carefully through that feedback and ask questions if you have concerns. Further, if you get full credit on a lab activity, this only means that you completed the activity and did well on the questions we selected to grade. You might have missed other, non-graded questions. For this reason, it's extremely important to look through the lab answer keys. You might see questions from the labs on your exams!

IMPORTANT clarification about Lab Activity #1:

Lab Activity #1 is a multiple-choice quiz about the syllabus. You can find the quiz by going to the Week 1 link on the homepage and reading through the Week 1 Overview, or by clicking on the **Quizzes** link on the left side of the screen. You will have one attempt at taking the syllabus quiz, and you will get credit for each question you get right on this quiz. You can take as much time as you need to complete the syllabus quiz, provided that you submit your quiz no later than Sunday, May 13th, at 11:55 p.m. We strongly encourage you to carefully read through this syllabus (or have it handy) before taking the syllabus quiz, and to take time to explore the course website, just to ensure that you get the highest grade possible. If it helps, we do have the Syllabus Quiz questions saved in PDF format (for you to look at and answer before submitting your answers through the Carmen quizzes tool). You can find a PDF copy of the questions when you click on the link for the Syllabus Quiz, or by going to the Week 1 Overview.

Homework: Links to homework assignments can be found within the weekly modules, or by going to the **Quizzes** link on the left side of the Carmen course page. To make sure you stay on top of the material in the course, there are WEEKLY homework assignments. Each homework assignment consists of 12 multiple-choice questions, and we set the assignments up this way to give you practice with the types of multiple-choice questions that will appear on your exams. Each question is worth 1 point, and you will complete these assignments through Carmen by the appropriate deadline. **All homework assignments are due on Sundays by 11:55 p.m.** 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 these 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, and you get just one attempt to work on each homework assignment. Once the deadline has passed, the assignment will be automatically graded and you will receive feedback. Please refer to the document “**Completing Homework Assignments and Reviewing Feedback**” in the **Course Logistics** section of the course website for details on how you can see feedback on your homework assignments. If you do not attempt to complete a homework assignment at all, you will not have any access to assignment feedback or to the correct answers for each homework question, so it’s to your advantage to at least try to work through each assignment and not completely skip any assignment. Please note that links to PDF copies of each homework assignment can be found in within the weekly overviews, or by clicking on the assignment link in the Quizzes area, just in case you’d like to print out the assignment and make note of your answers before officially submitting your work through the quiz tool.

IMPORTANT: We have learned that it is not easy to re-set homework assignments within Canvas. If you accidentally submit an assignment before you were ready to submit it, please contact the instructor as quickly as possible, and we will help you to complete that assignment in a different way.

Exams

This course has one midterm exam and a non-comprehensive (or non-cumulative) final exam.

The **Midterm Exam** will take place on **Tuesday, June 12th, at 5:20 p.m.**, and you will have 55 minutes to complete that exam. More details about the exact location of the exam will be sent out via email as we get closer to exam time. The **Final Exam** will take place on **Wednesday, July 25th, at 5 p.m.**, and you will have one hour and 45 minutes to complete that exam. Exams in STAT 1350 must be completed in a proctored setting. It is important that you make preparations to be available during these exam times and that you attempt to take these

exams on the Columbus campus with all other STAT 1350 students. If you cannot do this, you must contact the instructor at the start of the semester to make other arrangements. See more details below.

You should bring a photo ID with you to each exam and be prepared to share that ID when submitting your exam. Students who have an unavoidable conflict with an exam time should email the instructor (Dr. Everson) at least one week prior to each exam to make appropriate arrangements for taking an alternate or make-up exam. We always have alternate and make-up exam times that coincide with each exam date, and we'll share that information with the class as we get closer to each exam date.

- 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 other times, either in the instructor's office or 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. **If you need to take the exam in a different location away from the OSU campus, there may be proctoring fees. Please contact the instructor immediately to begin making preparations for exams if this will be an issue.**
- All exams are closed book. For each of the exams (the Midterm Exam and the Final Exam), students may use one 8.5 inch x 11 inch page of notes (front and back). You should also bring a calculator to the exams. Each exam will consist predominantly of multiple-choice questions similar to the types of questions you will work through as part of homework assignments; there will also be a few short-answer questions similar to the types of examples and problems that appear in lectures or lab activities.
- Devices such as cell phones with calculator *and* communication capabilities are not allowed. We also do not allow for iPads, laptops, or watches with communication capabilities to be used during an exam. If you are caught using any of these things, this will be considered academic misconduct (see more details about this later in the syllabus).
- Please note that it will be necessary for you to make an appointment to meet with the instructor if you would like to receive a copy of your graded midterm exam. Alternatively, in extreme circumstances, we can make arrangements to scan your work and send it to you. We do not return final exams.
- If you are late to an exam, had the wrong day on your schedule, or missed the exam for any unexcused reason, you might not be allowed to make it up and will receive a zero. Any missed exams with no communication to us within 24 hours (except for extreme emergencies) will receive a 0. If you have an emergency and are going to miss an exam please notify Dr. Everson as soon as possible so arrangements can be made. Please also have documentation (doctor's note, etc.) as to why you missed the exam. Your documentation must be approved prior to being allowed to take a make-up exam.
- Although fewer chapters are covered on the final exam, the final exam is often much more challenging for our students than the midterm exam, largely because the material gets more challenging as we go along in the course. Please keep this in mind as you prepare for the final exam.

Extra Credit

You each have the ability to earn up to 10 points of extra credit this semester by working on a Statistics Journal Assignment. You can read more about this assignment in a handout posted within the **Week 1 Overview** and in the **Course Logistics** section. Note this will be the **ONLY** opportunity you have to earn extra points toward your grade. **Please do not ask to complete any additional extra credit assignments at the end of the semester to boost your grade because we do not allow for this in STAT 1350.**

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 scores for the first missed lab activity and the first missed homework assignment. Make-up work for subsequent legitimate absences must be discussed with the instructor.

Disputes about Grades

If you feel that an assignment has been graded incorrectly or unfairly, you must speak with one of the teaching assistants or the course instructor within one week of getting your grade on that assignment. We will not re-grade assignments at the end of the semester if you are not satisfied at that time with your final course grade.

Academic Disability Services

The University strives to make all learning experiences as accessible as possible. If you anticipate or experience academic barriers based on your disability (including mental health, chronic or temporary medical conditions), please let me know immediately so that we can privately discuss options. To establish reasonable accommodations, I may request that you register with Student Life Disability Services. After registration, make arrangements with me as soon as possible to discuss your accommodations so that they may be implemented in a timely fashion. SLDS contact information: slds@osu.edu; 614-292-3307; 098 Baker Hall, 113 W. 12th Avenue.

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>.

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 watch or listen to the lecture videos and review the lecture notes since there are occasionally topics covered in lecture that are not covered in the book. Assignments are always due at 11:55 p.m. on either Fridays or Sundays, with the exception of Lab 11.

Date	Week	Topic	Readings	Assignments due
5/9-5/13	1	Data/Samples	Chapters 1 and 2	Lab 1 (5/13)
5/14-5/20	2	More on Sampling/Surveys	Chapters 3 and 4	Lab 2 (5/18)/Homework 1 (5/20)
5/21-5/27	3	Experiments	Chapters 5 and 6	Lab 3 (5/25)/Homework 2 (5/27)
5/28-6/3	4	Graphs/Summary Statistics	Chapters 10, 11 and 12	Lab 4 (6/1)/Homework 3 (6/3)
6/4-6/10	5	Normal Distributions/Review	Chapter 13	Lab 5 (6/8)/Homework 4 (6/10)
6/11-6/17	6	Midterm Exam (Tuesday, June 12 th , 5:20-6:15 p.m.)/Probability	Chapter 17	
6/18-6/24	7	Sampling distributions	Chapter 18	Lab 6 (6/22)/Homework 5 (6/24)
6/25-7/1	8	Confidence Intervals	Chapter 21	Lab 7 (6/29)/Homework 6 (7/1)
7/2-7/8	9	Hypothesis Testing	Chapter 22	Lab 8 (7/6)/Homework 7 (7/8)
7/9-7/15	10	More Hypothesis Testing	Chapter 23	Lab 9 (7/13)/Homework 8 (7/15)
7/16-7/22	11	Correlation and Regression	Chapters 14 and 15	Lab 10 (7/20)/Homework 9 (7/22)
7/23-7/27	12	Review/Final Exam (Wednesday, July 25 th , 5-6:45 p.m.)		Lab 11 (7/23)

Academic Misconduct

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/>.

We take academic misconduct very seriously in this course. If you are suspected of behaving dishonestly during an exam (e.g., copying from another student’s exam, allowing another student to copy from your exam, using materials or devices that are prohibited) or when completing any other required course assignment, this is grounds for us to file a report with the Committee on Academic Misconduct (COAM), and this may result in a failing grade in this course or an even more severe penalty.

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 instructors 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/>

The Ohio State University affirms the importance and value of diversity in the student body. Our programs and curricula reflect our multicultural society and global economy and seek to provide opportunities for students to learn more about persons who are different from them. We are committed to maintaining a community that recognizes and values the inherent worth and dignity of every person; fosters sensitivity, understanding, and mutual respect among each member of our community; and encourages each individual to strive to reach his or her own potential. Discrimination against any individual based upon protected status, which is defined as age, color, disability, gender identity or expression, national origin, race, religion, sex, sexual orientation, or veteran status, is prohibited.

Other Student Resources

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

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

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 review feedback on your progress in the course.** Further, while we realize you might be tempted to work ahead, keep in mind that our ultimate goal is for all students to get through the material at a similar pace. You are free to complete assignments much earlier than the posted deadlines if you work best that way, but we will not be able to grade your work and give you feedback until after official assignment deadlines. We also will not be able to have all assignments ready to go at the very beginning of the semester (we will work hard to be several weeks ahead of you, however, in terms of our posted content!).
- 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 (Monday or Tuesday), to your OSU email account.
- This is NOT a math class, but some math will be used in the course, and we have a Mathematics Review Guide posted in the **Course Logistics** section of the course site if you are concerned about your math skills. 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 Carmen Connect).

- 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. If you elect not to start a lab activity or a homework assignment until just a few hours before the due date, we might not be available to help you if you get stuck.
- 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 (which we link to in our weekly overviews) 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. This also means you might find the Midterm Exam to be easier than the Final Exam.