



THE OHIO STATE UNIVERSITY

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# STATISTICS: 1450 INTRODUCTION TO THE PRACTICE OF STATISTICS SUMMER 2020

## Course Overview

### Instructor & Office Hours

Laura Jones [jones.5810@osu.edu](mailto:jones.5810@osu.edu)

Virtual Hours via Carmen Zoom <https://osu.zoom.us/j/6075869886>

All scheduled virtual office hours will be posted on the Carmen homepage by the second week of classes.

### Teaching Assistants

Shuyuan Lou ([lou.59@osu.edu](mailto:lou.59@osu.edu))

Rui Zhang ([zhang.9473@osu.edu](mailto:zhang.9473@osu.edu))

### Course Description

Algebra-based introduction to data analysis, experimental design, sampling, probability, inference, and linear regression. The inference practices will involve confidence intervals and hypothesis tests for a population mean (both with sigma known and unknown) and a population proportion, the difference between 2 population means and 2 population proportions, paired data, and the Chi-square test of independence. Emphasis will be put on applications, statistical reasoning, and data analysis using statistical software. This 3-credit hour course expects all students to have completed a baccalaureate-level mathematics course.

## Your Support System

- 1450 Coordinator & Instructor** Professor Jones keeps all STAT 1450 students abreast of updates and important developments with the course along with managing the overall course structure with instructional resources and lecture presentations.
- Teaching Assistants** This duo of TAs will provide additional support to groups of students. They will evaluate the completion of weekly recitations activities and help facilitate course discussions.
- Tutors** The TAs and Professor Jones will provide support through **online office hours** which will be posted on the Carmen homepage. The Statistics Department (Cockins 404) does keep a list of private tutors, if necessary.

## Primary Course Goal:

- To develop skills in drawing conclusions & critically evaluating results based on data.

## Course Objectives:

- To introduce you to correct data collection methods through random sampling, experimental design & surveys
- To enable you to use statistical tools for presentation and descriptions of data
- To enable you to understand basic probability rules and sampling distributions as the foundation of inference
- To enable you to analyze data through linear regression, confidence intervals, and hypothesis tests
- To enable you to evaluate statistical procedures in the context of assumptions, biases, and extrapolation.

## Course Learning Outcomes

This course satisfies the General Education requirement in Data Analysis.

By the end of this course, students should successfully be able to:

- Understand basic concepts of statistics and probability.
- Comprehend methods needed to analyze and critically evaluate statistical arguments.
- Recognize the importance of statistical ideas.

## Professor Jones's Vision for Your Completion of STAT 1450

- You will become proficient in collecting, organizing, analyzing, and interpreting data
- You will become competent in the use of data analysis software.
- You will interpret findings and improve in your ability to justify your results.
- Your metacognition and desire to reflect upon what you have learned will be heightened.
- You will respond to a problem by: considering any relevant assumptions, analyzing, and effectively communicating your results.
- You will gain a greater appreciation for statistics (and the mathematics that underpins our work)
- You will complete the Data Analysis General Education (GE) requirement.

## Personal Vision Statement & Commitment

<b>Personal <u>Vision Statement</u> for STAT 1450:</b>	<b>Personal <u>Commitment</u> to STAT 1450:</b>
By successfully completing STAT 1450 I will:	To successfully complete STAT 1450, I must:
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•	•
•	•

# Course Materials

## Required Course Materials

This course requires electronic access to the accompanying web-based materials via *Sapling Plus*. The ebook, quizzes, and homework assignments are all located within this resource.

If you prefer a physical textbook along with our online homework system, it can be purchased through the book store.

<http://ohiostate.bncollege.com/webapp/wcs/stores/servlet/BNCBHomePage?storeId=33552&catalogId=10001&langId=-1> . Learners who pursue this option tend to prefer: using a physical textbook for supplemental annotation, relying on resources that can function independent of Internet functionality. The cost is under \$200.

We will be using the 8<sup>th</sup> edition of Intro. to the Basic Practice of Statistics course. If you prefer the ebook option (under \$100), please refer to the instructions below.

### STUDENT REGISTRATION INSTRUCTIONS

The following link includes more detailed instructions on how to register for your course: <https://macmillan.force.com/macmillanlearning/s/article/Students-Register-for-Sapling-Learning-courses-via-your-school-s-LMS>

- Log into STAT 1450 through Carmen.
  - Click the MacMillan App in the left navigation panel.
  - Click the Sapling Learning link (note: if you encounter an error message or blank screen, you will need to adjust your browser settings and/or disable pop-up blockers).
  - Agree to Macmillan Learning terms of use and end user agreement.
  - Select your access option (credit card payment, use an activation code, or request trial access). Click on any Sapling assignment link to launch the assignment.
  - Follow the associated steps and continue to your assignment page.
  - You are now enrolled in the course and can access future assignments through the links on your instructor's course page.
  - To access your ebook click on the image of the cover on the right sidebar of your course site. Create an account or login with an existing Macmillan Learning ebook account.
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- **Need Help?** Our technical support team can be reached by phone, chat, or by email via the Student Support Community. To contact support please open a service request by filling out the webform: <https://macmillan.force.com/macmillanlearning/s/contactsupport>

## Required Supplemental Materials

JMP is the statistical software for this course. JMP is free.

Click on [www.jmp.com/macmillan](http://www.jmp.com/macmillan).

Enter SE146414253X as the 12-digit authorization code.

Proceed to download and install JMP-Student Edition.

OR

Request it through the university at <https://ocio.osu.edu/software/directory/slwin>

## Highly Recommended Materials

Texas Instruments 84 (or higher) Graphing Calculator.

## Course Technology

### Baseline Technical Skills Necessary for Online Courses

- Successful students will possess basic computer and web-browsing skills
- Students will be familiar with navigating Carmen
- Students will need to be proficient with the MS Office Suite

### Technology Skills Necessary for this Specific Course

- CarmenZoom text, audio, and video chat. If you need technical assistance, either call 614-688-HELP, or refer to the online instructions: <https://resourcecenter.odee.osu.edu/carmenzoom>
- Use of *Sapling Plus*, which you must purchase (see above). If you need technical assistance, either call tech support at 1-800-936-6899.

### Necessary equipment

- 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, Firefox, or Chrome
- Robust high-speed internet connection
- Webcam: built-in or external webcam, fully installed
- Microphone: built-in laptop or tablet mic or external microphone

## Grading and Faculty Response

**Grades** – The following is the **ONLY** credit that will be offered. Please refrain from asking for additional work as a means to boost your grade. This is unfair to offer to 1 student and is impractical to offer to the whole class.

Assignment or category	Percentage
<b>Midterm</b> (Mon, June 29 <sup>th</sup> , 5:00 pm – 6:00 pm through Carmen)	<b>30%</b>
<b>Final Exam</b> (Mon, August 3 <sup>rd</sup> , 5:00 pm – 7:00 pm through Carmen )	<b>35%</b>
<b>Quizzes</b> (7 total, 1.67% each, 1 is dropped)	<b>10%</b>
<b>Homework Assignments</b> (11 total, 1.67% each, 2 are dropped)	<b>15%</b>
<b>Participation in Virtual Learning Environment</b> (3% Virtual Office Hours, 2% Checkpoints, & 5% Recitation Activities)	<b>10%</b>
<b>Total</b>	<b>100</b>

***Homework is due by 11:59 p.m. on Fridays. Recitations are due by 11:59 p.m. on Sundays. Quizzes are due by 11:59 p.m. on Mondays. There is also the expectation that you weekly attend a weekly virtual office hour session.***

*The exact due dates are on the course calendar that is included at the end of this document and on the Carmen Homepage. Dropped assignments are worked into the grading, so late submissions will not be accepted.*

### Exams

The midterm and final exam must be taken through Carmen with Proctorio enabled. For Proctorio to be fully operational, you will need a webcam and microphone. It will require you to enable your webcam so that a picture can be taken of your ID and a sweep of the room can be performed. You and your screen will be recorded throughout the exam process. Any opened tabs will be closed, and no new ones will be allowed to be opened. No re-entry is allowed which means that the test must be taken in one sitting. You will also need to use the Chrome browser with the chrome extension found at [getproctorio.com](http://getproctorio.com). If you have a conflict with an exam, you must contact Professor Jones **at least 1 week in advance of the scheduled exam time**. Requests received after this may receive a grade deduction.

## Course Registration and Completion

Students should work with department staff on any ADD and SECTION changes. Students should contact Jean Scott (Cockins Hall 408A [jscott@stat.osu.edu](mailto:jscott@stat.osu.edu)).

Date	Event
Friday, May 15 <sup>th</sup>	The last day to add the course without instructor permission.
Friday, May 22 <sup>nd</sup>	Last day to add a Summer Full Term course without petitioning <i>*Please note that students who are dropped for non-payment are not guaranteed re-enrollment.*</i>
Friday, June 5 <sup>th</sup>	The last day to drop without a 'W' appearing on your record.

FYI, Incompletes will only be awarded when 70% of the coursework has been completed.

## Grading Scale

93–100: A  
 90–92.9: A-  
 87–89.9: B+  
 83–86.9: B  
 80–82.9: B-  
 77–79.9: C+  
 73–76.9: C  
 70–72.9: C-  
 67–69.9: D+  
 60–66.9: D  
 Below 60: E

## Instructor Feedback and Response Time

### Grading and Feedback

Midterm examinations will be available within **7 days**.

### E-mail

All course e-mail correspondence must be done through a valid OSU name.# account.

Expect a 24-hour response time when communicating with TAs and Prof Jones.

We are here to support you, but just not quite in a true “on-demand” sense.

## Attendance and Participation

### Instructional Units

The curriculum for this course has been primarily sub-divided into chapters. Each chapter will consist of Guided Notes, PowerPoints with recorded explanations, examples, and practice exercises. This quartet of resources replace common components of the lecture-recitation classroom-based learning experience. These resources even transcend traditional instruction since (for example) learning can occur both asynchronously (any time and any place) and in an “on-demand” capacity (i.e., the PowerPoint lectures give you flexibility; you can choose to play

the slideshow from the beginning, view the slides individually and listen to the recordings where needed, and scroll back and forth through the slides at your own pace).

Just like with any tool, its value is not maximized when its usage is minimized. I encourage my students in traditional sections to attend class. Similarly, I expect you to access the resources at the beginning of each week. The topics within each chapter are further divided into discrete sections with succinct presentations. I will also access course analytics to confirm your utilization rates.

This course is designed with the needs of distance learners in mind. The course content, instructional support services, weekly assessments, and communication with instructors can all occur online.

## Student Participation Requirements

Because this is a distance-education course, your attendance is based on your online activity and participation. The following is a summary of everyone's expected participation:

- **Logging in: AT LEAST TWICE PER WEEK**  
Be sure you are logging into the course in Carmen each week, including weeks with holidays or weeks with minimal online course activity. (During most weeks you will probably log in many times.) If you have a situation that might cause you to miss an entire week of class, discuss it with me *as soon as possible*.
- **Office hours: REQUIRED**  
Attending at least 1 virtual office hour **each week** is required. (Note the weeks will run Monday through Sunday.) The TAs and I will provide an array of times to accommodate you. Office hours will begin Monday, May 18 which is also when we will begin documenting attendance.
- **Strategically Placed Checkpoints: REQUIRED & COMPLETE THEM AS THEY APPEAR**  
Each cluster of topics has a corresponding set of questions pertaining to the material presented. These items provide short quick reviews of key concepts presented in the lectures. Completion and accuracy of your answers also counts towards 2% of the overall 10% of Participation in Virtual Learning.

## Other Course Policies & Resources

### Accommodations for Extenuating Circumstances

#### Opportunities to Complete Assessments Beyond Initial Due Dates

The established windows of availability provide ample opportunity for administration and submission of all assessments. The inability to take any assessment must be supported with legitimate 3<sup>rd</sup> party documentation. Where appropriate, make-up exams can be administered; and due dates for other assessments could be extended.



## Grade Appeals

The TA and I will be fair in evaluating your work. If there is a discrepancy, then please describe the situation in writing and submit to both of us for review.

## Student Responsibility

You are responsible for your learning. Distance courses afford flexibility in how you learn. But, it is critical that you manage your time and invest a minimum of 9 hours weekly in this course. Please seek assistance in managing any non-academic responsibilities prior to any potential for under-performance.

Successful students perform a variety of positive academic behaviors like: reviewing the Carmen twice a week, reviewing the weekly learning units the first half of each week, and completing all homework assignments, recitations, and quizzes during the second half of each week.

## Academic Integrity Policy

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 I suspect that a student has committed academic misconduct in this course, I am obligated by University Rules to report my suspicions to the Committee on Academic Misconduct.** 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 me. Other sources of information on academic misconduct (integrity) to which you can refer include:

- The Committee on Academic Misconduct web pages ([COAM Home](#))
- *Ten Suggestions for Preserving Academic Integrity* ([Ten Suggestions](#))
- *Eight Cardinal Rules of Academic Integrity* ([www.northwestern.edu/uacc/8cards.htm](http://www.northwestern.edu/uacc/8cards.htm))

## Accommodations for Accessibility

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](mailto:slds@osu.edu); 614-292-3307; [slds.osu.edu](http://slds.osu.edu); 098 Baker Hall, 113 W. 12<sup>th</sup> Avenue.

### Requesting Accommodations

If you would like to request academic accommodations based on the impact of a disability qualified under the Americans with Disabilities Act and Section 504 of the Rehabilitation Act of 1973, please contact the Office for Disability Services at [614-292-3307](tel:614-292-3307) or [ods@osu.edu](mailto:ods@osu.edu) to register for services and/or to coordinate any accommodations you might need in your courses at The Ohio State University. Go to <http://ods.osu.edu> for more information.

### 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.

- [Carmen \(Desire2Learn\) accessibility](#)
- Streaming audio and video
- Synchronous course tools

### 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 (Including: Mental Health, Relationship Violence & Diversity)

As a student you may experience a range of issues that can cause barriers to learning, such as strained relationships, increased anxiety, alcohol/drug problems, feeling down, difficulty concentrating and/or lack of motivation. These mental health concerns or stressful events may lead to diminished academic performance or reduce a student's ability to participate in daily activities. The Ohio State University offers services to assist you with addressing these and other concerns you may be experiencing. If you or someone you know are suffering from any of the aforementioned conditions, you can learn more about the broad range of confidential mental health services available on campus via the Office of Student Life's Counseling and Consultation Service (CCS) by visiting [ccs.osu.edu](http://ccs.osu.edu) or calling [614-292-5766](tel:614-292-5766). CCS is located on the 4th Floor of the Younkin Success Center and 10th Floor of Lincoln Tower. You can reach an on call counselor when CCS is closed at [614-292-5766](tel:614-292-5766) and 24 hour emergency help is also available through the 24/7 National Suicide Prevention Hotline at 1-800-273-TALK or at [suicidepreventionlifeline.org](http://suicidepreventionlifeline.org).

**Title IX** makes it clear that *violence and harassment based on sex and gender are Civil Rights offenses subject to the same kinds of accountability and the same kinds of support applied to offenses against other protected categories (e.g., race)*. If you or someone you know has been sexually harassed or assaulted, you may find the appropriate resources at <http://titleix.osu.edu> or by contacting the Ohio State Title IX Coordinator, Kellie Brennan, at [titleix@osu.edu](mailto:titleix@osu.edu). 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>.

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.

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>.

### Major Monday Assessments

Date & Time	Location	Assessment
Monday, June 29 <sup>th</sup> 5:00 pm – 6:00 pm	Remotely	Midterm
Monday, August 3 <sup>rd</sup> 5:00 pm – 7:00 pm	Remotely	Final Exam

### Schedule for the Semester

Week	Dates	Content	Assignments
1	Wed 5/13 – Sun 5/17	Chapters 1 & 2	Recitation 1 Due Sun 5/17
2	Mon 5/18 – Sun 5/24	Chapter 3	HW 1 Due Fri 5/22 Recitation 2 Due Sun 5/24 Quiz 1 Due Tues 5/26
3	Tues 5/26 - Sun 5/31	Chapters 4 & 5	HW 2 Due Fri 5/29 Recitation 3 Due Sun 5/31
4	Mon 6/1 – Sun 6/7	Chapters 6 & 8	HW 3 Due Fri 6/5 Recitation 4 Due Sun 6/7 Quiz 2 Due Mon 6/8
5	Mon 6/8 – Sun 6/14	Chapter 9	HW 4 Due Fri 6/12 Recitation 5 Due Sun 6/14 Quiz 3 Due Mon 6/15
6	Mon 6/15 – Sun 6/21	Chapters 12 & 13	HW 5 Due Fri 6/19 Recitation 6 Due Sun 6/21
7	Mon 6/22 – Sun 6/28	Chapter 15	HW 6 Due Fri 6/26 Recitation 7 Due Sun 6/28

			<p>Checkpoints for Chs 1-6,8,9,12,13,15 Due Sun 6/28</p> <p>Quiz 4 Due Mon 6/29</p>
8	Mon 6/29 – Sun 7/5	<p>Midterm</p> <p>Chapter 16</p>	<p>Midterm on Mon 6/29 at 5 pm (Chs 1-6,8,9,12,13,15)</p> <p>HW 7 Due Fri 7/3</p> <p>Recitation 8 Due Sun 7/5</p>
9	Mon 7/6 – Sun 7/12	<p>Chapters 17 &amp; 18</p>	<p>HW 8 Due Fri 7/10</p> <p>Recitation 9 Due Sun 7/12</p> <p>Quiz 5 Due Mon 7/13</p>
10	Mon 7/13 – Sun 7/19	<p>Chapters 20 &amp; 21</p>	<p>HW 9 Due Fri 7/17</p> <p>Recitation 10 Due Sun 7/19</p> <p>Quiz 6 Due Mon 7/20</p>
11	Mon 7/20 – Sun 7/26	<p>Chapters 22 &amp; 23</p>	<p>HW 10 Due Fri 7/24</p> <p>Recitation 11 Due Sun 7/26</p> <p>Quiz 7 Due Mon 7/27</p>
12	Mon 7/27 – Sun 8/2	<p>Chapter 25</p>	<p>HW 11 Due Fri 7/31</p> <p>Recitation 12 Due Sun 8/2</p>

			Checkpoints for Chs.16-18, 20-23,25 Due Sun 8/2  Optional Quiz on Chs 23 & 25
Finals Week	Monday 8/3	Final Exam at 5 pm	Enjoy your break!