



## STATISTICS: 1450 INTRODUCTION TO THE PRACTICE OF STATISTICS SPRING 2019

### Course overview

#### Instructor

Laura Jones ([jones.5810@osu.edu](mailto:jones.5810@osu.edu))      Tuesdays/Thursdays 6:20p–7:30p (both in CH 212B)

Virtual Hours via Carmen Connect <http://www.go.osu.edu/ccst1450bw>  
(hours may be adjusted to better accommodate student needs and/or instructor flexibility)  
The hours for both in-person and virtual meetings will be posted on the Carmen homepage.

#### Teaching Assistants

Chenggong Han ([han.1071@osu.edu](mailto:han.1071@osu.edu))      Travis Somers ([somers.49@osu.edu](mailto:somers.49@osu.edu))  
Jordan Vasko ([vasko.30@osu.edu](mailto:vasko.30@osu.edu))      Yuyang Zhang ([zhang.3042@osu.edu](mailto:zhang.3042@osu.edu))

#### Contact Information for other Students and/or Instructors

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#### Course description

Algebra-based introduction to data analysis, experimental design, sampling, probability, inference, and linear regression. Emphasis 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

- Course Coordinator & Instructor** Dr. Baker keeps all STAT 1450 students abreast of global updates and important developments with the course. Laura Jones manages the overall course structure with instructional resources and lecture presentations.
- Teaching Assistants** This quartet of TAs will provide additional support to groups of students. They will evaluate the completion of weekly recitation activities and help facilitate course discussions.
- Tutors** The TAs and Mrs. Jones will provide support through online and in-person office hours. The traditional Math/Stat Learning Center (MSLC) offers additional assistance on a walk-in basis in Cockins (CH) 132. The Math/Stat Learning Center (MSLC) is open  
M- R 9:10am – 6:15pm & Fridays 9:10am – 1:40pm  
**Although you are more than welcome to go there at any time, to receive credit for attending office hours, you must go when one of our TAs is present, AND you must check in with them.** Their hours are posted on the homepage of the Carmen website. 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.

## Dr. Baker'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 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*. The ebook, quizzes, and homework assignments are all located within this resource.

It is recommended that you purchase both a textbook and *Sapling* (our HW management system). Note that purchasing the Sapling access code includes an ebook.

<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 \$100.

We will be using the 8<sup>th</sup> edition of Intro. to the Basic Practice of Statistics course  
Here is how to access the course online....

### 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.
- **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.

## 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

- CarmenConnect text, audio, and video chat. If you need technical assistance, either call 8-help, or refer to the online instructions:  
<https://ocio.osu.edu/elearning/services/tools/carmenconnect/>.
- Use of *Sapling*, 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, or Firefox (Chrome is not supported by Sapling, Carmen, or CarmenConnect. Further CarmenConnect recommendations are listed on this website under “Hardware and Mobile Recommendations:”  
<https://ocio.osu.edu/elearning/services/tools/carmenconnect/> )
- 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

Assignment or category	Percentage	Your Grade
<b>Exam 1</b> (Mon., Feb. 18 <sup>th</sup> , 5:20 p.m.; Hitchcock 131)	<b>20%</b>	
<b>Exam 2</b> (Mon., Mar. 25 <sup>th</sup> , 5:20 p.m.; McPherson 1000)	<b>20%</b>	
<b>Final Exam</b> (Mon., April 29 <sup>th</sup> , <u>8:00 p.m.</u> ; Campbell 200)	<b>25%</b>	
<b>Quizzes</b> (11 total, 1.25% each, 1 is dropped)	<b>12.5%</b>	
<b>Homework Assignments</b> (11 total, 1.25% each, 1 is dropped)	<b>12.5%</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>	

Commented [JLL1]:

*Students are encouraged to take exams on the OSU campus.*

*If this is not possible, then students should identify a pre-approved proctoring site. The Ohio State University (OSU) Testing Center (<http://registrar.osu.edu/testing/>) is an acceptable proctoring site and offers appointments Monday-Friday 8a – 5p. Most other institutions (e.g., Columbus State Community College or Franklin University) also offer proctoring for a fee. **Students must pre-arrange proctoring site testing with both the instructor and proctoring site at least three weeks before the first available exam time.***

*I am also acutely aware that many of you might have evening commitments. Please email both myself and either of the TAs if you cannot take the midterms during their scheduled times. The other options are:*

*Tuesday, February 19<sup>th</sup> 7a (TBD) or 3p (TBD)  
Tuesday, March 26<sup>th</sup> 7a (TBD) or 3p (TBD)*

**Homework is due by 11:59 p.m. on Fridays. Recitations are due by 11:59 p.m. on Saturdays. Quizzes are due by 11:59 p.m. on Sundays.**

*The exact due dates are included on the Carmen homepage.*

*The Final Exam is comprehensive.*

*Alternate offerings of the Final Exam will be determined before Spring Break.*

## Late assignments

Late submissions will not be accepted.

## 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

## Course Registration and Completion

Students will be able to work with department staff on any ADD and SECTION changes. Students can begin communicating with Jean Scott (Cockins Hall 408A), Monday, January 14<sup>th</sup>.

Date	Event
Friday, January 11 <sup>th</sup>	The last day to add the course without instructor permission.
Friday, January 18 <sup>th</sup>	The last day to register and avoid additional fees.
<i>*Please note that students who are dropped for non-payment are not guaranteed re-enrollment.*</i>	
Friday, February 1 <sup>st</sup>	The last day to drop without a 'W' appearing on your record.
Friday, March 22 <sup>nd</sup>	The last day to drop the course without petitioning.

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

## Faculty feedback and response time

I am providing the following list to give you an idea of my intended availability throughout the course. (Remember that you can call **614-688-HELP** at any time if you have a technical problem with Carmen, CarmenConnect, or JMP, or the *Sapling* tech support 1-800-936-6899.

### Grading and feedback

Midterm examination scores will be available within **7 days**.

### E-mail

I will reply to e-mails within **24 hours**.

## 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).

The course content is presented in 2 different formats. You can choose whichever resonates the best with you:

1. PowerPoints with recorded explanations – To access this option, you must download the PowerPoint and then play the slideshow from the beginning.
2. Lecture videos – Dr. Baker, our course coordinator, has created videos explaining the content.

Both options contain the same content and will be available under the Modules tab in Carmen.

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. Our course’s Teaching Assistant (TA) will provide motivational videos at the beginning of each week remind you of short-term announcements and expectations.

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 in to 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 and live sessions: REQUIRED**  
Attending at least 1 virtual or in-person 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, January 14, 2019 which is also



when we will begin documenting attendance. To receive credit virtually, you must log in AND participate in the discussion. To receive credit in-person, you must attend a session AND check-in with the person hosting it.

- **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 videos. Completion and accuracy counts for 2% of the overall 10% for 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](https://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](https://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>.

## Course Schedule

Week	Dates	Topics, Readings, Assignments, Deadlines
1	Mon. 1/7 – Sun. 1/14	<b>Chapter 1</b> (Picturing Distributions with Graphs) <b>Chapter 2</b> (Describing Distributions with Numbers)
2	Mon. 1/14 – Sun. 1/20	<b>Chapter 3</b> (The Normal Distributions) <b>H.W. &amp; Qz. Due</b>
3	Mon. 1/21 – Sun. 1/27	<b>Chapter 4</b> (Scatterplots) <b>H.W. &amp; Qz. Due</b>
4	Mon. 1/28 – Sun. 2/3	<b>Chapter 5</b> (Regression) <b>H.W. &amp; Qz. Due</b>
5	Mon. 2/4 – Sun. 2/10	<b>Chapter 6</b> (Two-Way Tables) <b>H.W. &amp; Qz. Due</b> <b>Chapter 8</b> (Producing Data: Sampling)
6	Mon. 2/11 – Sun. 2/17	<b>Chapter 9</b> (Producing Data: Experiments) <b>H.W. &amp; Qz. Due</b> <b>Chapter 12</b> (Introducing Probability)
7	<b>Mon. 2/18 – Sun. 2/24</b>	<b>Exam 1 Monday 2/18 (Covering Chapters 1-6, 8, &amp; 9)</b> <b>Chapter 13</b> (General Rules of Probability) <b>Chapter 15</b> (Sampling Distributions)
8	Mon. 2/25 – Sun. 3/3	<b>Chapter 16 (Confidence Intervals: The Basics)</b> <b>H.W. &amp; Qz. Due</b> <b>Chapter 17 (Tests of Significance)</b>
9	Mon. 3/4 – Sun. 3/10	<b>Chapter 18</b> (Inference in Practice) <b>H.W. &amp; Qz. Due</b>
<b>Spr. Brk.</b>	<b>Mon. 3/11 – Sun. 3/17</b>	<b>***** Spring Break *****</b>
10	Mon. 3/18 – Sun. 3/24	<b>Chapter 20</b> (Inference about a Population Mean)
11	<b>Mon. 3/25 – Sun. 3/31</b>	<b>Exam 2 Monday 3/25 (Covering Chapters 12, 13, 15, 16 - 20)</b> <b>Chapter 21</b> (Comparing Two Means) <b>H.W. &amp; Qz. Due</b>
12	Mon. 4/1 – Sun. 4/7	<b>Chapter 22</b> (Inference about a Population Proportion) <b>H.W. &amp; Qz. Due</b>
13	Mon. 4/8 – Sun. 4/14	<b>Chapter 23</b> (Comparing Two Proportions) <b>H.W. &amp; Qz. Due</b>
14	Mon. 4/15 – Sun. 4/21	<b>Chapter 25</b> (Two Categorical Variables) <b>H.W. &amp; Qz. Due</b>
<b>Finals Week</b>	<b>Mon. 4/22 – Mon. 4/29</b>	<b>Comprehensive Final Exam on Monday 4/29 8p Campbell 200</b>