THE OHIO STATE UNIVERSITY

STATISTICS: 1450
INTRODUCTION TO THE PRACTICE OF STATISTICS
SUMMER 2017

Course overview

Instructor

Dr. Jonathan R. Baker baker.375@osu.edu (614) 688 - 4546

Virtual Hours via Carmen Connect http://www.go.osu.edu/ccst1450bw

MR 1130a – 12p

(hours may be adjusted to better accommodate student needs and/or instructor flexibility)

(only if the Virtual Hours cannot work for you, then…)

Teaching Assistants

Hancock Tang tang.723@osu.edu Shuqi Zhou zhou.2239@osu.edu

Contact Information for other Students and/or Instructors

_____ _____ _____

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. He also provides the overall course structure with instructional resources and lecture videos.

Teaching Assistants H.Tang, and S.Zhou will provide additional support to groups of students. They will evaluate the completion of weekly recitations activities and help facilitate course discussions.
Students are expected to be active participants in these discussions as they are 2% part of the overall course grade.

Tutors The TAs and I will provide support through online and in-person office hours. The traditional Math/Stat Learning Center (MSLC) will only be available during the AU & SP semesters.

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

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

Personal Vision Statement for STAT 1450:	**Personal Commitment to STAT 1450:**
By successfully completing STAT 1450 I will: •	To successfully complete STAT 1450, I must: •
•	•
•	•

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 text and *Sapling* (our HW management system).
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 $150.

We will be using the 8th edition of Intro. to the Practice of Statistics course
Here is how to access the course online….

- Go to www.saplinglearning.com/login to log in or create an account.
- Under Enroll in a new course, you should see Courses at Ohio State University. Click to expand this list and see courses arranged by subject. Click on 'Introduction to Statistics' to see the terms that courses are available.
- Click on the term to expand the menu further (note that Semester 1 refers to the first course in a sequence and not necessarily the first term of the school year).
- Once the menus are fully expanded, you'll see a link to our specific course (STAT 1450 - Summer18). Click on the link.
- Enter the key code: **baker**
- Review the system requirements.
- To access your ebook click on the image of the cover on the right sidebar of your course site. Create an account or log in with an existing Macmillan Learning eBook account.
- **Need Help?** Our technical support team can be reached by phone or by webform via the Student Support Community. Here are their hours and contact information: https://community.macmillan.com/docs/DOC-6915-students-still-need-help.

The following link includes more detailed instructions on how to register for your course:
https://community.macmillan.com/docs/DOC-5972-sapling-learning-registering-for-courses.

Required supplemental materials

JMP is the statistical software for this course. JMP is free for you per your LaunchPad purchase.
Click on 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
Midterm (Mon., June 25th, 6:00 p.m.; 18th Ave. Bldg. (EA) 160)	**30%**	
Final Exam (Mon., July 30th, *6:00 p.m.*; 18th Ave. Bldg. (EA) 160)	**35%**	
Quizzes (9 total, 1 is dropped)	**12.5%**	
Homework Assignments (9 total, 1 is dropped)	**12.5%**	
Participation in Virtual Learning Environment (2% Discussion Boards, 2% Virtual Office Hours, 2% Checkpoints & 4% Recitation Activities)	**10%**	
Total	**100**	

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 Monday, June 25th exam. The other option is:

Tuesday, June 27th 12noon (TBD_____)

Homeworks are due by 11:59 p.m. on Fridays. Quizzes are due by 11:59 p.m. on Sundays. The exact due dates are included with the course calendar.

The Final Exam is comprehensive. I can consider a Friday July 27th, offering of the exam… But, students who cannot attend the Monday evening final should pursue:

Tuesday, August 1st 12noon (TBD _____)

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

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 **12 hours.**

Discussion board

I will check messages in the discussion boards every **24 hours**.

Attendance, participation, and discussions

Instructional Units

The curriculum for this course has been primarily sub-divided into chapters. Each chapter will consist of Guided Notes, videos, 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 videos will enable you to *play-> stop -> rewind -> play* concepts until you have developed adequate mastery).

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 videos. 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 office hour each week is required. The TAs and I will provide an array of times to accommodate you.
- **Participating in discussion forums**: **2+ TIMES PER WEEK**
  You are expected to post your own response to each topic, and to respond to at least one classmate's response. Each week will feature one or two topics.
- **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 of the checkpoints also counts 2% of the overall 10% for Participation in Virtual Learning.

Discussion and communication guidelines

The following are my expectations for how we should communicate as a class.
Above all, please remember to be respectful and remember that this is a university course, and not a casual dialogue occurring via a cellular phone.

- **Writing style**: While there is no need to participate in class discussions as if you were writing a research paper, you should remember to write using proper grammar, spelling, and punctuation. Be selective in the usage of emoticons.
- **Tone and civility**: Maintaining a supportive learning community is critical. Everyone must feel safe and comfortable expressing their opinions. Attempt to obtain clarification with an individual (including myself) privately and respectfully.
- **Citing your sources**: Please include the exact page number (of the textbook or notes) and/or exercise when requesting assistance. For online sources, use links and reference the last time the link was accessed.
- **Saving your work**: Consider composing your academic posts in a word processor, where you can save your work, and then copying into the Carmen discussion.

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 3rd 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 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

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, May 8th.

Date	Event
Friday, May 11th	The last day to add the course without instructor permission.
Friday, May 18th	The last day to register and avoid additional fees.
Please note that students who are dropped for non-payment are not guaranteed re-enrollment.	
Friday, June 1st	The last day to drop without a 'W' appearing on your record.
Friday, July 13th	The last day to drop the course without petitioning.

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

Accommodations for accessibility

Students with disabilities that have been certified by the Office for Disability Services will be appropriately accommodated and should inform the instructor of their needs as soon as possible. The Office for Disability Services is located in 098 Baker Hall, 113 W. 12th Ave.; telephone 292-3307, TDD 292-0901; email ods@osu.edu; http://www.ods.osu.edu/

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 or 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

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	Weds. **5/9 –** Sun. **5/13**	**Chapter 1** (Picturing Distributions with Graphs) **Chapter 2** (Describing Distributions with Numbers)
2	Mon. **5/14 –** Sun. **5/20**	**Chapter 3** (The Normal Distributions
3	Mon. **5/21 –** Sun. **5/27**	**Chapter 4** (Scatterplots) **Chapter 5** (Regression)
4	Mon. **5/28 –** Sun. **6/3**	**Chapter 6** (Two-Way Tables) **H.W. & Qz. Due** **Chapter 8** (Producing Data: Sampling)
5	Mon. **6/4 –** Sun**. 6/10**	**Chapter 9** (Producing Data: Experiments) **H.W. & Qz. Due**
6	Mon. **6/11 –** Sun. **6/17**	**Chapter 12** (Introducing Probability) **H.W. & Qz. Due** **Chapter 13** (General Rules of Probability)
7	Mon. **6/18 –** Sun. **6/24**	**Chapter 15** (Sampling Distributions) **H.W.& Qz. Due**
8	Mon. **6/25 –** Sun. **7/1**	**Midterm Monday 6/25** (Covering Chapters 1-6, 8, 9, 12, 13, & 15) **Chapter 16** (Confidence Intervals: The Basics) **H.W. & Qz. Due**
9	Mon. **7/2 –**Sun. **7/8**	**Chapter 17** (Tests of Significance) **H.W. & Qz. Due** **Chapter 18** (Inference in Practice)
10	Mon. **7/9 –** Sun. **7/15**	**Chapter 20** (Inference about a Population Mean) **H.W. & Qz. Due** **Chapter 21** (Two Sample Problems)
11	Mon. **7/16 –** Sun. **7/22**	**Chapter 22** (Inference about a Population Proportion) **H.W. & Qz. Due** **Chapter 23** (Comparing Two Proportions)
12	Mon. **7/23 –** Sun. **7/29**	**Chapter 25** (Two Categorical Variables) **H.W. & Qz. Due**
Finals Week	Mon. **7/30 – Weds.8/1**	**Comprehensive Final Exam Monday 7/30 6p 18th Ave Bldg. (EA 160)**