THE OHIO STATE UNIVERSITY

STATISTICS: 1450
INTRODUCTION TO THE PRACTICE OF STATISTICS
AUTUMN 2018

Course overview

Instructor & Office Hours

Jonathan Baker baker.375@osu.edu   TR 7:30a – 8a before class in lecture (SU220)

T 9:10a – 10:05a Cockins 304B; M, W, R by appt.

Teaching Assistant (to be completed by student)

_____   _____   _____

Contact Information for other Students and/or Instructors

_____   _____   _____

Coordinator of all STAT 1450 Offerings

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

Meeting Days/Times

Lecture: TR 8:00 – 8:55a.m. SU 220   *Recitation:*   _____ at _____

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

1450 Coordinator   Dr. Baker, keeps all STAT 1450 students abreast of updates and important developments with the course.

Lecturers   Provide the overarching view of clusters of concepts.

Teaching Assistants   Use weekly recitations to reinforce & extend content covered in lecture. Students are expected to be active participants in these sessions that generally occur Fridays at 8a, 9:10a, or 11:30a.

Tutors   Offer assistance on a walk-in basis in Cockins (CH) 132.
The Math/Stat Learning Center (MSLC) is open
            M- R 9:10a – 6:15p & Fridays 9:10a – 1:40p.

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 General Education (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:
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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 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 $100.

 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 – Fall 18 Morn). 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.

ADDITIONAL STUDENT INSTRUCTIONS

- Find the Sapling Learning content section on your instructor's course page in Canvas.
- Click on any Sapling assignment link to launch the assignment.
- Select your access option 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.

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

Top Hat

We will use the *Top Hat* software to elicit student responses during lectures. Students will use their smart phones to text responses to questions posed. You may download the Top Hat app, or, use the direct link below. Your username must be your name.# (e.g., carter.5).

Top Hat course name: **STAT 1450 TR Morn (AU '18)**

Direct Link: https://app.tophat.com/517621   6-digit course code: 517621

Required supplemental materials

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

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.

Make-Up Mid-term Examinations

The established exam dates and times are a priority for both students and university officials. Valid and documented absences during exam dates require final pre-approval from Dr. Baker. In requesting a make-up exam you must communicate with both your TA and Dr. Baker. Your performance on the final exam items most associated with the missed exam will count as the missed exam grade with up to an additional 10% point deduction. If you miss an exam because of an emergency, contact Dr. Baker immediately to request a makeup exam. You'll need to provide evidence of need for rescheduling this exam. These exams will be offered at 7a & 3p.

Grading and faculty response

Grades

Assignment or category	Percentage	Your Grade
Exam 1 (Mon., Oct. 1st, 5:20 p.m.; Hitchcock 131)	**20%**	
Exam 2 (Mon., Nov. 5th, 5:20 p.m.; Independence 100)	**20%**	
Final Exam (Mon., December 10th, _6:00 p.m._; University Hall 0014)	**25%**	
Quizzes (11 total, 1.25% each, 1 is dropped)	**12.5%**	
Homework Assignments (11 total, 1.25% each, 1 is dropped)	**12.5%**	
Attendance & Participation (5% for Lecture, 5% for Recitation)	**10%**	
Total	**100**	

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 section calendar.
   Make-up Exams (with appropriate documentation, see pg.7) will be offered:
      Tuesday, October 2nd   7a (CH 232)   or   3p   (AA 242)
      Tuesday, November 14th   7a (CH 232)   or   3p   (CH 218)

   The Final Exam is comprehensive.
   Alternate offerings of the Final Exam will be
   Friday, December 8th 10a – 11:45a (_TBD__) & Tuesday, December 12th 7a – 8:45 (_TBD_).

Late assignments

Late submissions will not be accepted.

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), Tuesday, August 28th.

Date	Event
Friday, August 24th	The last day to add the course without instructor permission.
Friday, August 31st	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, September 14th	The last day to drop without a 'W' appearing on your record.
Friday, October, 26th	The last day to drop the course without petitioning.

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 **2 recitations**.

E-mail
All course e-mail correspondence must be done through a valid OSU name.n account.
Expect a 24-hour response time when communicating with TAs and lecturers.
We are here to support you, but just not quite in a true "on-demand" sense**.**

Additional Policies, Resources, & Information

Student participation and responsibility
We expect you to be actively engaged in the learning process. You are responsible for your learning. Schedule a minimum of 6 hours to prepare for this course. This equates to 9 hours weekly when the 3 hours for lecture and recitation attendance are included. Successful students perform a variety of positive academic behaviors like: reviewing the Carmen page, downloading notes, being proactive in contacting a TA or classmate as necessary, etc... Please seek assistance in managing any non-academic responsibilities prior to any potential for under-performance.

Electronic devices
As a courtesy to fellow classmates, all cellular phones and other electronic devices must be silenced during lectures and recitations. Your engagement with the class will require an attentiveness for note-taking. If necessary, TAs and lecturers can request that students place these devices out of plain view if their usage is deemed irrelevant to instruction.

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*

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; 614-292-3307; slds.osu.edu; 098 Baker Hall, 113 W. 12th Avenue.

Grade Appeals

Your TAs are highly capable and follow established rubrics in evaluating your work. Only in the rarest of cases will an exam grade need to be appealed. In these situations:

     a) (within 1 week of receipt of your assessment) Inform your TA of the issue in writing

     b) Attach a statement of the issue at-hand to your work and submit to Dr. Baker

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 or calling 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 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.

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 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.

Autumn 2018 STAT 1450 TR 8a Calendar *Major Monday Assessments*

Date & Time		Location	Assessment (Grade)
Monday, October 1st 5:20p – 6:25p		Hitchcock 131	1st Midterm ( )
Monday, November 5th 5:20p – 6:25p		Independence Hall 100	2nd Midterm ( )
Monday, December 10th 6:00p – 7:45p		University Hall 0014	Final Exam ( )

Tuesdays	*Thursdays*
August 21 Chp.1 Picturing Distributions with Graphs	**August 23** Chp.2 Describing Distributions with Numbers (thru 2.4)

August 28
    Chp. 2 Describing Distributions with Numbers
	August 30 **HW 1 Due F 8/31 Qz.1 Due Su 9/2**
	    Chp. 3 The Normal Distributions (thru 3.4)

September 4
    Chp. 3 The Normal Distributions
	September 6 **HW 2 Due F 9/7 Qz.2 Due Su 9/9**
	    Chp. 4 Scatterplots & Correlation

September 11
    Chp. 5 Regression (thru 5.2)
	September 13 **HW 3 Due F 9/14 Qz.3 Due Su 9/16**
	    Chp. 5 Regression

September 18
    Chp. 6 Two-Way Tables
	September 20 **HW 4 Due F 9/21 Qz.4 Due Su 9/23**
	    Chp. 8 Producing Data: Sampling

September 25
    Chp. 9 Producing Data: Experiments
	September 27
	    Exam 1 Review *Covering Chapters 1-6, 8, & 9*
	    Chp. 12 Introducing Probability

October 2
    Chp. 13 General Rules of Probability
	October 4 **HW 5 Due F 10/5 Qz.5 Due Su 10/7**
	    Chp.13 General Rules of Probability

October 9
    Chp.15 Sampling Distributions
	October 11 **HW 6 Due M 10/15 Qz.6 Due M 10/15**
	    No Lecture – Fall Break

October 16
    Chp.16 Confidence Intervals: The Basics (thru 16.2)
	October 18 **HW 7 Due F 10/19 Qz.7 Due Su 10/21**
	    Chp. 16: Confidence Intervals: The Basics
	    Chp. 17: Tests of Significance: The Basics (thru 17.2)

October 23
    Chp.17: Tests of Significance: The Basics
    Chp.18: Inference in Practice
	October 25 **HW 8 Due F 10/26 Qz.8 Due Su 10/28**
	    Chp.20 Inference about a Population Mean (thru 20.4)

October 30
    Chp.20 Inference about a Population Mean
	November 1
	    Exam 2 Review *Covering Chapters 12,15,13,16-20*
	    Chp. 21 Two Sample Problems (thru 21.3)

November 6
    Chp.21 Two Sample Problems
	November 8 **HW 9 Due F 11/9 Qz.9 Due Su 11/11**
	    Chp.22 Inference about a Pop. Proportion (thru 22.3)

November 13
    Chp.22 Inference about a Pop. Proportion
	November 15 **HW 10 Due F 11/167 Qz.10 Due Su11/18**
	    Chp. 23 Comparing Two Proportions (thru 23.3)

November 20
    Chp. 23 Comparing Two Proportions
	November 22 **(No Assignments Due this weekend).**
	    No Lecture – Thanksgiving Day

November 27
    Chp. 25 Two Categorical Variables (thru 25.3)
	November 29 **HW 11 Due F 11/30 Qz.11 Due Su12/2**
	    Chp. 25Two Categorical Variables

December 4
    Review for a manageable cumulative final exam.
	December 6 **(Final Exam Monday, December 10th)**
	    No Lecture – Reading Day