

The Ohio State University
Environment and Natural Resources 2000
Data Analysis
Fall Semester 2019 – 3 credits

- Course Website: Information will be posted on Canvas.
- Instructor: Kristi Lekies, Ph.D., Associate Professor
Room 320C Kottman Hall (office)
Room 210 Kottman (main office and mailbox)
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lekies.1@osu.edu
Office hours: Tuesdays 11-12 or by appointment
- Teaching Assistant: Briahna Hendy, Graduate Teaching Associate
Room 247 Kottman Hall
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Office hours: Wednesdays 12-1 and Fridays 11-12 or by appointment
- Class Meeting Times: Tuesday & Thursday 9:10-10:05 102 Kottman Hall (lecture)
Wednesday 9:00-11:00 114 Kottman Hall (Lab Group 1)
Friday 9:00-11:00 231A Kottman Hall (Lab Group 2)
- Course Overview: This is an introductory data analysis course which will focus on understanding and applying basic statistical concepts, problem solving, and interpreting the results of statistical analysis. Topics include descriptive statistics, variability, correlation, regression, probability, the normal distribution, samples, sampling distributions, confidence intervals, hypothesis testing, analysis of variance, Chi-square tests, and interpretation of findings. We will also cover the presentation of findings and use statistical software programs. The overall goal is to obtain an appreciation and working knowledge of statistics and data analysis procedures that will be useful in understanding academic and other literature, preparing for advanced statistics courses, and involvement in research.
- Objectives: Through this course, students will:
- understand basic statistical concepts and terminology
 - be able to solve problems applying the appropriate statistical concepts and methods
 - be able to interpret and communicate the results of statistical analyses
 - learn statistical software programs for data analysis (SPSS and Excel)
 - gain a greater appreciation for statistics and data analysis

This course meets a General Education requirement in Data Analysis. According to the OSU guidelines:

“Courses in Data Analysis develop students’ understanding of basic concepts of statistics and probability, comprehension of methods needed to analyze and critically evaluate statistical arguments, and recognition of the importance of statistical ideas. Students will develop skills in drawing conclusions and critically evaluating results based on data.”

Textbook: (Required) Spatz, C. (2016). *Basic Statistics: Tales of Distributions*, 12th Edition. Conway, Arkansas: Outcrop Publishers.

(Recommended) Urdan, Timothy C. *Statistics in Plain English*, 2nd or 3rd Edition.

A copy will be on reserve at the Food, Agricultural, and Environmental Sciences Library in the Agricultural Administration Building.

Other Materials: Basic calculator. Note: Calculators on phones are not permitted.

Method of Instruction:

The course meets three times per week, with two lectures and a computer lab session. Lectures will be used to present material; the computer lab will provide an opportunity to learn and use statistical software, review key concepts, and participate in small group activities. Daily attendance is expected, in order to best learn the material and get the most from this course. If you are aware of a time in which you will not be able to attend class, please talk with the instructor in advance. In case of illness or emergency, contact the instructor as soon as possible.

Grading:

Your grade will be based on the following:

1. First exam – 200 points
 2. Second exam – 200 points
 3. Final exam – 200 points
 4. Weekly homework assignments – 1-3 pages (12) – 240 points
 5. Computer lab activities (12) – 120 points
 6. Weekly online quizzes (10) – 20 points
 7. Assignment Journal article analysis – 1-2 pages - 20 points
- Total 1000 points

More information about the assignments and activities will be presented in class. All assignments are due at the start of class unless otherwise stated.

Letter Grade	Percentage
A	93-100%
A-	90-92%
B+	87-89%
B	83-86%
B-	80-82%
C+	77-79%
C	73-76%
C-	70-72%
D+	67-69%
D	60-66%
E	Below 60

Policies:

1. *Cell phones and laptops:* No cell phones, surfing the Internet, checking e-mail or Facebook, doing assignments or other classes, or text messaging allowed in class or lab unless designated for a specific learning activity by the instructor. You are expected to be attentive in order to follow the presentation of material, examples of problems, and computations.
2. *Recording and photography:* No recording of lectures or photography is allowed in class unless you receive special permission to do so. If you are concerned about your ability to follow along in class, please talk with the instructor and meet with the teaching assistant.
3. *Homework:* Assignments are to be turned in during class on the day they are due. Any assignments turned in after the conclusion of the class period will be considered late and will receive a 10% penalty. For each additional day (24 hours) the assignment is late, a 10% penalty will be deducted from the final grade. No assignment will be accepted after 3 days in which it is due, unless documentation of a valid excuse is provided. Scanned and e-mailed copies are not accepted.

You will be given **one waiver** of the late penalty in the event you are ill, stuck in traffic, oversleep, or forget the assignment at home. In this case, the assignment must be turned in by the end of the day it is due or the late paper policy will apply unless special arrangements are made with the instructor. The instructor should be notified as soon as possible.

All homework assignments must be written legibly, with answers clearly marked by circling or putting a box around them. All pages must be stapled together.

3. *Computer lab:* Unless otherwise specified, all lab sections will meet in either Kottman Hall 114 or 231A. On some occasions, the class will meet in another location. All computer lab activities will be turned in the day of the lab. Therefore, if you miss lab, you will not earn points for the day unless excused or special arrangements are made with the instructor.

You are expected to attend the computer lab section that you signed up for. Only in limited situations and with *prior* permission of the instructor, will you be allowed to change lab sections.

4. *Exams*: Exams will take place on the specified dates and times. Only in rare, extenuating circumstances can they be taken early or late, and this will require documentation by university authorities.
5. *Online quizzes*: Throughout the semester, 10 weekly online quizzes will be assigned for you to complete (2 points each). These quizzes are based on reading from the textbook and material covered in lecture. With the exception of the first week of class, the quizzes will be given on the same weeks as lab, with a bonus quiz the week of Lab 12. To get credit, the quiz must be completed by each Friday at 5 p.m. The quizzes are not graded, but are designed to help you further understand the concepts.
6. *Concerns*: If you have concerns about the course, please schedule a time to meet with the instructor or teaching assistant to discuss them. Any questions regarding grades must be received within one week of receiving the grade.

Accommodation of students with disabilities:

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.

Student Concerns:

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. If you or someone you know are suffering of 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 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 Prevention Hotline at 1-800-273-TALK or at suicidepreventionlifeline.org

Academic Misconduct:

Academic misconduct of any kind will not be tolerated. Examples of academic misconduct include, but are not limited to, cases of plagiarism and dishonest practices in connection with examinations. If you have a question about approaches and procedures and

what constitutes academic misconduct, ask the instructor. Faculty Rule 3335-5-487 will be followed in cases of academic misconduct – “Instructors shall report instances of alleged academic misconduct to the committee (on academic misconduct).” For additional information, see the Code of Student Conduct <http://studentlife.osu.edu/csc/>.

Sexual Misconduct/Relationship Violence:

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

Diversity:

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.

Class schedule and important dates:

- Week of August 20: Introduction to data analysis; frequency distributions and graphs (Chapters 1-2)
- Week of August 27: Measures of central tendency and variability (Chapters 2-4)
Quiz 1 due Friday, August 30 at 5 p.m.
- Week of Sept. 3: Measures of variability; other descriptive statistics (Chapters 4-5)
Homework 1: Due Tuesday, Sept. 3
Quiz 2 due Friday, Sept. 6 at 5 p.m.
- Week of Sept. 10: Other descriptive statistics; correlation (Chapters 5-6)
Homework 2: Due Tuesday, Sept. 10
Quiz 3 due Friday, Sept. 13 at 5 p.m.
- Week of Sept. 17: Regression and probability (Chapters 6-7)
Homework 3: Due Tuesday, Sept. 17
Quiz 4 due Friday, Sept. 20 at 5 p.m.
- Week of Sept. 24: Theoretical distributions (Chapter 7)
Homework 4: Due Tuesday, Sept. 24
Quiz 5 due Friday, Sept. 27 at 5 p.m.

- Week of Oct. 1: Samples, sampling distributions, and confidence intervals (Chapter 8)
Exam 1: Tuesday, October 1
Quiz 6 due Friday, Oct. 4 at 5 p.m.
- Week of Oct. 8: Samples, sampling distributions and confidence intervals (Chapter 8)
Homework 5: Due Tuesday, Oct. 8
Fall break October 10-11, no class
No computer lab, no quiz
- Week of Oct. 15: Hypothesis testing: One sample designs (Chapter 9)
Homework 6: Due Tuesday, Oct. 15
Quiz 7 due Friday, Oct. 18 at 5 p.m.
- Week of Oct. 22: Hypothesis testing: Two sample designs (Chapters 9-10)
Homework 7: Due Tuesday, Oct. 22
Quiz 8 due Friday, Oct. 25 at 5 p.m.
- Week of Oct. 29: Hypothesis testing: Two sample designs (Chapter 10)
Homework 8: Due Tuesday, Oct. 29
Quiz 9 due Friday, Nov. 1 at 5 p.m.
- Week of Nov. 5: Hypothesis testing: Two sample designs (Chapters 10)
Homework, 9: Due Tuesday, Nov. 5
Exam 2: Thursday, November 7
No computer lab, no quiz
- Week of Nov. 12: Analysis of variance: One way classification (Chapter 11)
Quiz 10 due Friday, Nov. 15 at 5 p.m.
- Week of Nov. 19: Analysis of variance: One factor repeated measures (Chapter 12)
Homework 10: Due Tuesday, November 19
Bonus quiz due Friday, November 22 at 5 p.m.
- Week of Nov. 26: Analysis of variance, Chi-square tests (Chapters 12-14)
Homework 11: Due Tuesday, November 26
No class on Thursday, November 28 (Thanksgiving)
No computer lab, no quiz
- Week of Dec. 3: Chi-square tests (Chapter 14)
Homework 12: Due Tuesday, Dec. 3 (last day of class)
Assignment: Due Tuesday, December 3 at 5 p.m.
No computer lab, no quiz
- Final Exam: December 6 (Friday), 8:00-9:45 a.m.