The Ohio State University  
Environment and Natural Resources 2000  
Data Analysis  
Fall Semester 2016 – 3 credits

Course Website: Information will be posted on Carmen.

Instructor: Kristi Lekies, Ph.D., Associate Professor  
Room 320C Kottman Hall (office)  
Room 210 Kottman (main office and mailbox)  
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Office hours: By appointment

Teaching Assistant: Chris Eidson, Graduate Teaching Associate  
Room 454 Kottman Hall  
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Office hours: Thursdays 1-2 and Fridays 11-12 or by appointment

Class Meeting Times:  
Tuesday & Thursday 8:00-8:55  102 Kottman Hall (lecture)  
Wednesday 9:00-11:00  231A 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.”


(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 (12) – 240 points
5. Computer lab activities (12) – 120 points
6. Weekly online quizzes – 20 points
7. Assignment Journal article analysis – 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.
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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. This policy will be strictly enforced. Using electronic devices in class is disruptive to learning for yourself and other students sitting near you. Violations of this policy may result in a warning from the instructor and points deducted from your final grade.

2. **Recording and photography**: No recording of lectures or photography allowed in class. 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 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 Kottman Hall 231. 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.

For each lab session, you will be assigned a short problem to complete at the beginning of lab. You will meet with a designated partner or work group for the first 5-10 minutes of lab to discuss the problem. Independent and group work must be completed to receive full credit for lab.

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.

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**Accommodation of students with disabilities:**

Any student with a documented disability who may require special accommodations should let the instructor know as early in the quarter as possible to receive effective and timely accommodations. The office for Disability Services (150 Pomerene Hall; 292-3307; 292-0901 TDD) verifies the need for accommodations and assists in the development of accommodation strategies.

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**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).”
Class schedule and important dates:

Week of August 23:  Introduction to data analysis; frequency distributions and graphs (Chapters 1-2)

Week of August 30:  Measures of central tendency and variability (Chapters 2-4)

Week of Sept. 6:  Measures of variability; other descriptive statistics (Chapters 4-5)
                 Homework #1: Due Tuesday, Sept. 6

Week of Sept. 13:  Other descriptive statistics; correlation (Chapters 5-6)
                 Homework #2: Due Tuesday, Sept. 13

Week of Sept. 20:  Regression and probability (Chapters 6-7)
                 Homework #3: Due Tuesday, Sept. 20

Week of Sept. 27:  Theoretical distributions (Chapter 7)
                 Homework #4: Due Tuesday, Sept. 27

Week of Oct. 4:   Samples, sampling distributions, and confidence intervals (Chapter 8)
                 Exam 1: Tuesday, October 4

Week of Oct. 11:  Samples, sampling distributions and confidence intervals (Chapter 8)
                 Homework #5: Due Tuesday, Oct. 11
                 Fall break October 13-14, no class
                 No computer lab

Week of Oct. 18:  Hypothesis testing: One sample designs (Chapter 9)
                 Homework #6: Due Tuesday, Oct. 18

Week of Oct. 25:  Hypothesis testing: Two sample designs (Chapter 10)
                 Homework #7: Due Tuesday, Oct. 25

Week of Nov. 1:   Hypothesis testing: Two sample designs (Chapter 10)
                 Homework #8: Due Tuesday, Nov. 1

Week of Nov. 8:   Analysis of variance: One way classification (Chapter 11)
                 Homework #9: Due Tuesday, Nov. 8
                 Exam 2: Thursday, November 10
                 No computer lab

Week of Nov. 15:  Analysis of variance: One way classification (Chapter 11)

Week of Nov. 22:  Analysis of variance: One factor repeated measures (Chapter 12)
Homework #10: Due Tuesday, November 22
No class on Thursday, November 24 (Thanksgiving)
No computer lab

Week of Nov. 29: Analysis of variance, Chi-square tests (Chapters 12-14)
Homework #11: Due Tuesday, November 29

Week of Dec. 6: Chi-square tests (Chapter 14)
Homework #12: Due Tuesday, Dec. 6
Assignment: Due Tuesday, Dec. 6
No computer lab
Last day of class is Tuesday, Dec. 6

Final Exam: December 13 (Tuesday), 8:00-9:45 a.m.