

Math 263 – Introduction to Statistics

Wheaton College, Spring 2021

Instructor: Dr. Peter Jantsch (Office: Meyer 179)

Meeting Time: MWF 2:15-3:25PM, ARM 132

Virtual meeting links (Zoom) will be posted on the course website

Office Hours: See website

Email: peter.jantsch@wheaton.edu

TA: Alex McKeaney (alex.mckeaney@my.wheaton.edu)

Course Website: <https://sites.google.com/my.wheaton.edu/m263-sp21>

Required Materials: *Introduction to Probability and Statistics*, Mendenhall, Beaver, Beaver, (15th edition); Cengage Learning

Note: All course resources, including a schedule, homework assignments, and grades will be posted on the course website and/or on Schoology. Students will also need a graphing calculator that has an Inverse T distribution function (TI-83s do NOT typically have this function). Students will need access to a laptop they can bring to class to access R Studio Cloud and to perform statistical analyses.

Catalog Description: An introduction to statistics, sampling theory, and statistical decision making from a solid mathematical basis for non-mathematics majors. Topics treated include discrete and continuous distributions, moments, hypothesis testing, correlation and multiple correlation, regression (linear, non-linear, multivariate), ANOVA, contingency tables with tests for independence, sampling theory, and rudimentary non-parametric statistics. Students will use selected software packages for data processing and analysis.

Christ at the Core Outcomes: Student's will...

- describe phenomena using mathematical, computational, or symbolic tools (such as graphs, formulas, tables, diagrams, and algorithms).
- solve problems or draw evidence-based inferences about phenomena using a variety of mathematical techniques.
- communicate logical arguments using structured reasoning and quantitative information.

Learning Objectives: Student's will...

- recognize the importance of data collection, identify limitations in data collection methods and other sources of statistical bias, and determine their implications and how they affect the scope of inference.
- use R/RStudio to summarize data numerically and visually, and to perform data analysis.
- have a conceptual understanding of the unified nature of statistical inference.
- determine ethical statistical practice, integrating a Christian worldview.
- apply estimation and testing methods to analyze single variables or the relationship between two variables in order to understand natural phenomena and make data-based decisions.
- model numerical response variables using a single explanatory variable or multiple explanatory variables in order to investigate relationships between variables.

Communication Policy: Course content, an updated schedule, and links to the virtual class sessions will be available on the course website, while grades and homework submission will be done through Schoology. **The best way to reach me is by email.** If I say something to you in person, feel free to remind me by email so I don't forget!

Content Delivery: All course lectures held in person will be simultaneously broadcast on Zoom, and recorded for those who are unable to attend synchronously. These recordings will be available on Schoology. In addition, I will post the course notes on the website following the class. At most 18 students may attend class in person, so you should anticipate attending class remotely at least once a week. A rotating schedule of seating assignments for in person attendance will be available online; please check it before coming to class. Either myself or the TA will have extra office hours each week that give priority to the remote students.

COVID-19 Transition Plan: If necessary, we will hold all course lectures remotely over Zoom. These lectures will be recorded for those who cannot attend synchronously. Homework will be turned in electronically for the entire semester, and assessments such as quizzes and homeworks will be administered remotely.

Grading Policies: Tentative exam dates and the recipe for your final grade are below. You can check your grades throughout the semester on the Schoology webpage. Due to FERPA privacy issues, I will only discuss grades in person, in virtual office hours, or through your official Wheaton email address.

Professionalism and Participation (see below): 4%

Quizzes and homework: 15%

R Labs: 20%

Exam 1: 18% (Feb 17 – Ch 1-4)

Exam 2: 18% (Apr 7 – Chapters 5-9)

Final Exam: 25% (Wednesday, May 5, 10:30am – Cumulative)

Grades will be assigned on the following scale.

A (≥ 93); A- (92-90); B+ (87-89); B (83-86); B- (80-82); C+ (77-79); C (73-76); C- (70-72); D+ (67-69); D (63-66); D- (60-62); F (< 60).

Participation: This includes things like participating in class sessions, attending class according to the in-person attendance schedule and following the covid-safe protocols, and actively collaborating with your group on labs.

Quizzes and Homework: Homework assignments will be posted on the course website throughout the semester. Assignments will consist of problems from the required textbook, and will be collected through upload to Schoology. If you handwrite your assignments, consider using the **Adobe Scan** app on your phone to create a .pdf file for submission.

I will also give in-class quizzes with problems similar to the assigned homework. You will not have to turn in any homework solutions for the material covered by the quiz. I will announce in advance whether a quiz or homework solutions are expected on the due date. Homework and quiz scores will be weighted equally.

Make-up quizzes and exams are only permitted under extenuating circumstances if proper documentation provided within one week of the missed assessment. Extenuating circumstances include illness, family

emergencies, and College-sanctioned athletic or academic events.

Academic Integrity/Inclusive Language: Acts of plagiarism and cheating steal from others while compromising your own integrity. Plagiarism represents the work of others as your own without citing a reference to the real source. Cheating violates the conditions under which an intended task was to be completed. The College expects all members of our Christian community to maintain the highest levels of academic honesty. Instances of academic dishonesty will result in disciplinary action and will be reported to Student Development. For academic discourse, spoken and written, the faculty expects students to use gender inclusive language for human being.

Extra Help: Please do not hesitate to drop in during office hours (or other times—just email me!) to discuss a homework problem or any aspect of the course. In addition, the TA for this course will be providing weekly help sessions. A schedule for help sessions can be found on the course webpage.

Provisions for Students with Disabilities: Wheaton College is committed to providing reasonable accommodations for students with disabilities. Any student with a documented disability needing academic adjustments is requested to contact the Academic and Disability Services Office as early in the semester as possible. Please call 630.752.5615 or e-mail las@wheaton.edu for further information. If you have any needs in this area, you are responsible for communicating these to me at the beginning of the semester and you must give me 48 hours notice before each exam/quiz if special accommodations need to be made.

Confidentiality and Mandatory Reporting: As an instructor, one of my responsibilities is to help create a safe learning environment on our campus. I also have a mandatory reporting responsibility related to my role as a faculty member. I am required to share information regarding sexual misconduct about a crime that may have occurred on Wheaton College's campus with the College. Confidential resources available to students include Confidential Advisors, the Counseling Center, Student Health Services, and the Chaplain's Office. More information on these resources and College Policies is available at www.wheaton.edu/sexualassaultresponse.

Classroom Conduct

Attendance: Please check the course website for a schedule of which students may attend class in person on a given day. By attending in person you agree to follow all the rules regarding face coverings, entering and exiting the classroom, and cleaning your spaces and equipment. If you do not want to follow these requirements, you may attend class virtually. Do not come to class if you are exhibiting any symptoms of COVID-19.

Zoom Etiquette: It is important to me that the students joining remotely are involved in the class discussion. When joining class remotely via ZOOM, please join with your audio off. When you have a question during class you may (1) use the “CHAT to everyone” feature to type your question, (2) use the “raise your hand” feature and wait for me to call on you, or (3) unmute yourself, politely interrupt me, and I will pause and give you time to ask your question. We will have one in-person student monitoring the chat to raise questions.

Entering/Leaving the classroom: Please enter and leave the classroom in the manner instructed to minimize close contact with others. Please clean your desk and work area before leaving. Yes, this seems silly and awkward, and yes, I will enforce it.

Technology: Laptops are only to be used for classrooms activities.

Face Coverings: In accordance with the Wheaton College Face Covering Policy and COVID-Safe, Thunder-Strong Commitment, signed by each student and faculty member, CDC-approved face coverings and social distancing are required while attending class. Failure to comply with wearing a face covering or social distancing will result in dismissal from the class session and an unexcused absence. Multiple violations can lead to dismissal from the class.