# COMM 6661: Statistical Applications in Communication I

Monday and Wednesday 9:35 - 10:55
Journalism Building 224

Instructor: Robert Bond, Derby Hall 3072, bond.136@osu.edu
Office Hours: Wednesday 11:30-1:00 and by appointment.

**Course Description**

This course is the first in a sequence of graduate methodology classes required of all students enrolled in the M.A. or Ph.D. program in Communication. Students will acquire working familiarity with the basic principles and theory of descriptive and inferential statistics. Topics will include elementary sampling and issues related to data collection, data description, association, probability, and fundamentals of hypothesis testing and inference. Students will gain experience practicing their learning through various assignments using R, with an emphasis on writing the reproducible code.

**Course Goals**

Upon completion of this course, students will:

1. Understand descriptive statistics, including measures of central tendency and dispersion.
2. Understand the building blocks of inferential statistics, including basic statistical tests like the t-test and correlation test.
3. Gain familiarity with the statistical software package R, including how to write code to analyze data.
4. Be able to describe the results of statistical tests in written and oral formats for others to understand their results.

**Course Materials**

1. **Textbook:** Andy Field, Jeremy Miles, and Zoë Field. 2012. Discovering Statistics Using R. SAGE. ISBN: 9781446200452.
   This book is available at the OSU bookstore and on Amazon, among other outlets.
2. Any supplementary articles assigned are available via Carmen.

**Course Format**

The course will be held in an in-person format. If it becomes necessary to do so, we will pivot to Zoom for course meetings, but we will try to avoid doing so.

**Requirements**

**Midterm exam (25% of course grade)**
There will be a take-home examination on **October 20 and October 22** that requires you to demonstrate that you are comfortable with the methods and concepts outlined in the course thus far. The midterm will be completed outside of the classroom, using open notes and open book, but should not be approached casually because of this.

**Final exam (25% of course grade)**
You will be given a take home final exam on the last day of class that is **due no later than 12PM on December 16**. A dataset will be distributed to you and your job will be to read the data (import the data to statistical software), do any needed data manipulation, conduct several analyses, and interpret and describe the results. You may turn in the exam early if desired.

**Take-home assignments (50% of course grade)**
At several points during the semester you will be given a homework assignment to complete. The due date of each assignment will be announced when the assignment is distributed (typically one week after being assigned). **You may NOT work with other students when working through the assignments, and you must submit your own *independently written* answers for each problem.**

My grading system is largely a percentage based system where 93%+ = 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+, 63% - 66.9%+ = D, 60% - 62.9% = D-, less than 60% = E. I reserve the right to modify this system downward depending on the distribution of grades. In other words, if only one student exceeds the 90% threshold, but five hit 89%, I may choose to move the cutoff for an A- to 89%.

**Schedule of Lectures and Readings**

A note on course scheduling: scheduling readings for this course is difficult, as I prefer to spend extra time on concepts that students find difficult, and those concepts vary from class to class. As such, I have provided the following course schedule that should *closely approximates* the actual reading schedule we will have for the course. That said, if we get ahead or behind the schedule it is incumbent that the student be aware of this through class attendance and/or announcements on Carmen. I will make every effort to ensure that the dates for the midterm exam do not change. It is likely, however, that the schedule for the readings will change slightly throughout the course of the semester.

Course introduction

- August 27
    - Course introduction and discussion

Statistical building blocks, part 1

- READ: Discovering Statistics, Chapter 1
- September 3, 8, and 10
    - Lecture on introductory statistical concepts, part 1
    - Introduction to using R, packages, writing code

Statistical building blocks, part 2

- READ: Discovering Statistics, Chapter 2
- September 15 and 17
    - Lecture on introductory statistical concepts, part 2
    - More basics on using R

Using R for statistical analysis

- READ: Discovering Statistics, Chapter 3
- September 22 and 24
    - Lecture on coding practices
    - In-depth in-class time on using R for statistical analysis

Data exploration

- READ: Discovering Statistics, Chapter 4
- September 29 and October 1
    - Lecture on data visualization and applications to statistical analysis
    - In-class activities using R to graphically display data, and to make inferences using data visualization

Assumptions in statistical analysis

- READ: Discovering Statistics, Chapter 5
- October 6, 8 and 13
    - Lecture on common statistical assumptions and their application to statistical tests
    - In-class activities using R to evaluate statistical assumptions, transform data

Midterm review and catch up – October 15

MIDTERM EXAM – October 20 and 22

Measures of association

- READ: Discovering Statistics, Chapter 6
- October 27, 29 and November 3
    - Lecture on association between variables, with an emphasis on correlation
    - In-class activities using R to conduct tests of correlation, visualize two variables together

Creating composite variables

- READ: Frey, Felix "Test theory, Classical Test Theory", in *The international encyclopedia of media psychology*, van den Bulck, J. (Ed.)
- November 5, 10, and 12
    - Lecture on composite variables, classical test theory
    - In-class activities using R to create and evaluate composite variables

Introduction to Regression
- READ: Discovering Statistics, Chapter 7
- November 17, 19 and 24
    - Lecture on association between variables, with an emphasis on correlation
    - In-class activities using R to conduct tests of correlation, visualize two variables together

Comparing means

- READ: Discovering Statistics, Chapter 9
- December 1, 3 and 8
    - Lecture on comparisons of means, with an emphasis on t-tests
    - In-class activities using R to conduct tests of comparisons of means, visualization of t-tests

December 10 – any catch up needed, review, and take-home final exam assigned and discussed

**Final exam due – December 16 at noon**

**Course policies and miscellaneous**
**(these are standard course policies taken from: https://ugeducation.osu.edu/academics/syllabus-policies-statements/standard-syllabus-statements)**

## Academic misconduct

Academic integrity is essential to maintaining an environment that fosters excellence in teaching, research, and other educational and scholarly activities. Thus, The Ohio State University and the Committee on Academic Misconduct (COAM) expect that all students have read and understand the University's Code of Student Conduct, and that all students will complete all academic and scholarly assignments with fairness and honesty. Students must recognize that failure to follow the rules and guidelines established in the University's Code of Student Conduct and this syllabus may constitute Academic Misconduct.

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 please review the Code of Student Conduct and, specifically, the sections dealing with academic misconduct.

If an instructor suspects that a student has committed academic misconduct in this course, the instructor is obligated by University Rules to report those suspicions to the Committee on Academic Misconduct. If COAM determines that a student violated the University's Code of Student Conduct (i.e., committed academic misconduct), the sanctions for the misconduct could include a failing grade in the course and suspension or dismissal from the University.

If students have questions about the above policy or what constitutes academic misconduct in this course, they should contact the instructor.

## Artificial Intelligence and Academic Integrity

There has been a significant increase in the popularity and availability of a variety of generative artificial intelligence (AI) tools, including ChatGPT, Sudowrite, and others. These tools will help shape the future of work, research and technology, but when used in the wrong way, they can stand in conflict with academic integrity at Ohio State.

All students have important obligations under the Code of Student Conduct to complete all academic and scholarly activities with fairness and honesty. Our professional students also have the responsibility to uphold the professional and ethical standards found in their respective academic honor codes. Specifically, students are not to use unauthorized assistance in the laboratory, on field work, in scholarship, or on a course assignment unless such assistance has been authorized specifically by the course instructor. In addition, students are not to submit their work without acknowledging any word-for-word use and/or paraphrasing of writing, ideas or

other work that is not your own. These requirements apply to all students undergraduate, graduate, and professional.

To maintain a culture of integrity and respect, these generative AI tools should not be used in the completion of course assignments unless an instructor for a given course specifically authorizes their use. Some instructors may approve of using generative AI tools in the academic setting for specific goals. However, these tools should be used only with the explicit and clear permission of each individual instructor, and then only in the ways allowed by the instructor.

**Religious Accommodations**

Ohio State has had a longstanding practice of making reasonable academic accommodations for students' religious beliefs and practices in accordance with applicable law. In 2023, Ohio State updated its practice to align with new state legislation. Under this new provision, students must be in early communication with their instructors regarding any known accommodation requests for religious beliefs and practices, providing notice of specific dates for which they request alternative accommodations within 14 days after the first instructional day of the course. Instructors in turn shall not question the sincerity of a student's religious or spiritual belief system in reviewing such requests and shall keep requests for accommodations confidential.

With sufficient notice, instructors will provide students with reasonable alternative accommodations with regard to examinations and other academic requirements with respect to students' sincerely held religious beliefs and practices by allowing up to three absences each semester for the student to attend or participate in religious activities. Examples of religious accommodations can include, but are not limited to, rescheduling an exam, altering the time of a student's presentation, allowing make-up assignments to substitute for missed class work, or flexibility in due dates or research responsibilities. If concerns arise about a requested accommodation, instructors are to consult their tenure initiating unit head for assistance.

A student's request for time off shall be provided if the student's sincerely held religious belief or practice severely affects the student's ability to take an exam or meet an academic requirement **and** the student has notified their instructor, in writing during the first 14 days after the course begins, of the date of each absence. Although students are required to provide notice within the first 14 days after a course begins, instructors are strongly encouraged to work with the student to provide a reasonable accommodation if a request is made outside the notice period. A student may not be penalized for an absence approved under this policy.

If students have questions or disputes related to academic accommodations, they should contact their course instructor, and then their department or college office. For questions or to report discrimination or harassment based on religion, individuals should contact the Civil Rights Compliance Office.

**Disability Statement (with Accommodations for Illness)**

The university strives to maintain a healthy and accessible environment to support student learning in and out of the classroom. If students

anticipate or experience academic barriers based on a disability (including mental health and medical conditions, whether chronic or temporary), they should let their instructor know immediately so that they can privately discuss options. Students do not need to disclose specific information about a disability to faculty. To establish reasonable accommodations, students may be asked to register with Student Life Disability Services (see below for campus-specific contact information). After registration, students should make arrangements with their instructors as soon as possible to discuss your accommodations so that accommodations may be implemented in a timely fashion.

If students are ill and need to miss class, including if they are staying home and away from others while experiencing symptoms of viral infection or fever, they should let their instructor know immediately. In cases where illness interacts with an underlying medical condition, please consult with Student Life Disability Services to request reasonable accommodations.

slds@osu.edu

https://slds.osu.edu/

098 Baker Hall, 113 W. 12th Ave

614-292-3307 phone

**Intellectual Diversity**

Ohio State is committed to fostering a culture of open inquiry and intellectual diversity within the classroom. This course will cover a range of information and may include discussions or debates about controversial issues, beliefs, or policies. Any such discussions and debates are intended to support understanding of the approved curriculum and relevant course objectives rather than promote any specific point of view. Students will be assessed on principles applicable to the field of study and the content covered in the course. Preparing students for citizenship includes helping them develop critical thinking skills that will allow them to reach their own conclusions regarding complex or controversial matters.

**Grievances and Solving Problems**

According to University Policies, if you have a problem with this class, you should seek to resolve the grievance concerning a grade or academic practice by speaking first with the instructor or professor. Then, if necessary, take your case to the department chairperson, college

dean or associate dean, and to the provost, in that order. Specific procedures are outlined in Faculty Rule 3335-8-23. Grievances against graduate, research, and teaching assistants should be submitted first to the supervising instructor, then to the chairperson of the assistant's department.

**Creating an Environment Free from Harassment, Discrimination, and Sexual Misconduct**

The Ohio State University is committed to building and maintaining a welcoming community. All Buckeyes have the right to be free from harassment, discrimination, and sexual misconduct. Ohio State does not discriminate on the basis of age, ancestry, color, disability, ethnicity, gender, gender identity or expression, genetic information, HIV/AIDS status, military status, national origin, pregnancy (childbirth, false pregnancy, termination of pregnancy, or recovery therefrom), race, religion, sex, sexual orientation, or protected veteran status, or any other bases under the law, in its activities, academic programs, admission, and employment. Members of the university community also have the right to be free from all forms of sexual misconduct: sexual harassment, sexual assault, relationship violence, stalking, and sexual exploitation.

To report harassment, discrimination, sexual misconduct, or retaliation and/or seek confidential and non-confidential resources and supportive measures, contact the Civil Rights Compliance Office (CRCO):

Online reporting form: http://civilrights.osu.edu/

Call 614-247-5838 or TTY 614-688-8605

civilrights@osu.edu

The university is committed to stopping sexual misconduct, preventing its recurrence, eliminating any hostile environment, and remedying its discriminatory effects. All university employees have reporting responsibilities to the Civil Rights Compliance Office to ensure the university can take appropriate action:

- All university employees, except those exempted by legal privilege of confidentiality or expressly identified as a confidential reporter, have an obligation to report incidents of sexual assault immediately.
- The following employees have an obligation to report all other forms of sexual misconduct as soon as practicable but at most within five workdays of becoming aware of such information: 1. Any human resource professional (HRP); 2. Anyone who supervises faculty, staff, students, or volunteers; 3. Chair/director; and 4. Faculty member.