



On-Campus Course Syllabus

STA 201 L1

Introduction to Statistics

Spring 2023

Class Information

Day and Time: Mondays and Wednesdays, 9:30-10:45am

Room Number: E201

Contact Information

Instructor Name: Dr. Brandon Seitzler

Instructor Email: bseitzler@criswell.edu

Instructor Phone: 214.818.1309

Instructor Office Hours: Mondays: 10:45-11:45am; Tuesdays: 9:15-11am; Thursdays: 11:30am-12:45pm

Course Description and Prerequisites

An introductory course covering data collection, analysis, presentation, and interpretation of data and probability. Topics include descriptive statistics, estimation, confidence intervals, hypothesis testing, and correlation and regression. (This course satisfies for a Math/ Natural Science course.)

Course Objectives

At the end of this course, the student should be able to:

1. Define and summarize research design and data collection principles and concepts.
2. Create and interpret graphical data summaries.
3. Calculate and interpret summary statistics.
4. Calculate probabilities.
5. Perform hypothesis tests.

Adam Smith reminds us that when we were born none of us could do statistics. When you feel lost this semester, find solace in Smith's words. What you are experiencing is normal:

"The difference of natural talents in different men is, in reality, much less than we are aware of; and the very different genius which appears to distinguish men of different professions, when grown up to maturity, is not upon many occasions so much the cause, as the effect of the division of labour. The difference between the most dissimilar characters, between a philosopher and a common street porter, for example, seems to arise not so much from nature, as from habit, custom, and education. When they came into the world, and for the first six or eight years of their existence, they were, perhaps, very much alike, and neither their parents nor playfellows could perceive any remarkable difference. About that age, or soon after, they come to be employed in very different occupations. The difference of talents comes then to be taken notice of, and widens by degrees, till at last the vanity of the philosopher is willing to acknowledge scarce any resemblance."

Adam Smith, *The Wealth of Nations* (New York: The Modern Library, 1965), 15-16.

Required Textbooks

Diez, David M., Christopher D. Barr, Mine Cetinkaya-Rundel. *OpenIntro Statistics*. 4th ed. 2019.

Note that OpenIntro Statistics, 4th ed. may be downloaded for free at openintro.org/os. Physical copies are also available to purchase on Amazon. I recommend that you purchase a physical copy.

Recommended Reading

- www.khanacademy.org - Use this website to catch up on any basic math skills that you find lacking.
- www.pewforum.org - Use this website to inspire a passion for statistics and social science research.

Course Requirements and Assignments

- Attendance/Participation (10%): Class attendance, preparation and participation are **required**. At the beginning of each class students will sign in and indicate whether they read that week's required assignment. **Half of your attendance/participation grade is for attendance and the other half is for preparation** (it will be hard to participate if you didn't prepare). If you miss classes in this course you will fall behind very quickly. If you read the chapter before class our time together will make much more sense to you. If you are not in class by 9:40am, you will be counted absent.
- Homework (30%): Homework assignments are open book but should be completed individually. The homework assignments are due at the start of class the day they are due.
- 2 Exams (30% each): Students will have two exams over the course of the semester. These exams are not cumulative. All exams are in class and open note/open book.
- All late assignments will be penalized 10% per day.
- Additional in-class quizzes and assignments will not count toward your final grade.

Course/Classroom Policies and Information

- The ideas expressed by readings, resources, and outside guests in this course should not be interpreted as implying the instructor's or college's endorsement. Course materials and outside speakers are selected for their perceived value in helping to meet the course goals and objectives.
- At all times and especially when we are working in and with the community you are expected to exhibit the college's graduate profile:
 - **Ambassadors** who communicate effectively across various platforms and contexts.
 - **Cultivators** who seek to understand diverse populations and develop purposeful relationships.
 - **Peacemakers** who pursue truth and righteousness through mercy and reconciliation.
 - **Problem-solvers** who think critically, creatively, and collaboratively.
 - **Professionals** who demonstrate competence in their field of study and intentionality in their vocation.
- You may not have your cell phone anywhere in sight during class.
- The one exception to my cell phone rule is using your cell phone as a calculator or to look something up online as a part of class participation. Other than these two exceptions, phones belong in bags.
- You may not use your laptop during class for anything other than class-related activities.

- Instructors work closely with the Student Success Manager. To help provide resources to students who may need it most, I will communicate the names of students who have two consecutive absences, low grades, or any other signs that they may be struggling. The Student Success Manager will reach out to these students and help find appropriate resources.
- The descriptions and timelines contained in this syllabus are subject to change at the discretion of the Professor.

Class Attendance

Students are responsible for enrolling in courses for which they anticipate being able to attend every class session on the day and time appearing on course schedules, and then making every effort to do so. When unavoidable situations result in absence or tardiness, students are responsible for acquiring any information missed. Instructors are not obliged to allow students to make up missed work. Per their independent discretion, individual instructors may determine how attendance affects students' ability to meet course learning objectives and whether attendance affects course grades.

Campus Closure

To ensure the health and safety of students and employees, college administrators may decide it is necessary on rare occasions to close the campus. Once this decision is announced, instructors will contact students to provide further details regarding the campus closure's impact on those courses. Students are responsible to watch for communication from their instructors and respond appropriately. (Unless otherwise specified by the instructor in this syllabus, this communication will be sent to the student's Criswell College e-mail account.)

In order to make progress toward the courses' objectives, instructors have the freedom during most campus closures to require students to participate in activities as alternatives to meeting on campus. An instructor may, for example, hold class remotely (through Zoom) at the scheduled time, provide a recording of a class or presentation for students to watch independently, or assign other activities that students are to accomplish before returning to campus. Students are responsible for accomplishing these alternative activities as well as any course requirements listed in this syllabus during the period of the campus closure. If, during the period of the campus closure, personal circumstances prohibit a student from accomplishing these alternative activities or course requirements and assignment listed in the syllabus during the campus closure, the student is responsible for communicating with the instructor as soon as possible. Instructors will not penalize students who do not have the means to accomplish the alternative activities during the period of the campus's closure and will work with students whose circumstances during the campus closure prohibited their timely completion of course requirements and assignments in the syllabus.

Grading Scale

| | | |
|----|--------|------------------------------------|
| A | 93-100 | 4.0 grade points per semester hour |
| A- | 90-92 | 3.7 grade points per semester hour |
| B+ | 87-89 | 3.3 grade points per semester hour |
| B | 83-86 | 3.0 grade points per semester hour |
| B- | 80-82 | 2.7 grade points per semester hour |

| | | |
|----|-------|------------------------------------|
| C+ | 77-79 | 2.3 grade points per semester hour |
| C | 73-76 | 2.0 grade points per semester hour |
| C- | 70-72 | 1.7 grade points per semester hour |
| D+ | 67-69 | 1.3 grade points per semester hour |
| D | 63-66 | 1.0 grade point per semester hour |
| D- | 60-62 | 0.7 grade points per semester hour |
| F | 0-59 | 0.0 grade points per semester hour |

Incomplete Grades

Students requesting a grade of Incomplete (I) must understand that incomplete grades may be given only upon approval of the faculty member involved. An "I" may be assigned only when a student is currently passing a course and in situations involving extended illness, serious injury, death in the family, or employment or government reassignment, not student neglect.

Students are responsible for contacting their instructors prior to the end of the semester, plus filing the appropriate completed and approved academic request form with the Registrar's Office. The "I" must be removed (by completing the remaining course requirements) no later than 60 calendar days after the close of the term or semester in which the grade was awarded, or the "I" will become an "F."

Academic Honesty

Absolute truth is an essential belief and basis of behavior for those who believe in a God who cannot lie and forbids falsehood. Academic honesty is the application of the principle of truth in the classroom setting. Academic honesty includes the basic premise that all work submitted by students must be their own and any ideas derived or copied from elsewhere must be carefully documented.

Academic dishonesty includes, but is not limited to:

- cheating of any kind,
- submitting, without proper approval, work originally prepared by the student for another course,
- plagiarism, which is the submitting of work prepared by someone else as if it were his own, and
- failing to credit sources properly in written work.

Institutional Assessment

Material submitted by students in this course may be used for assessment of the college's academic programs. Since programmatic and institutional assessment is done without reference to specific students, the results of these assessments have no effect on a student's course grade or academic standing at the college. Before submitting a student's work for this type of assessment, the course instructor redacts the work to remove anything that identifies the student.

Institutional Email Policy

All official college email communications to students enrolled in this course will be sent exclusively to students' institutional email accounts. Students are expected to check their student email accounts regularly and to respond in an appropriate and timely manner to all communications from faculty and administrative departments.

Students are permitted to setup automatic forwarding of emails from their student email accounts to one or more personal email accounts. The student is responsible to setup and maintain email forwarding without assistance from college staff. If a student chooses to use this forwarding option, he/she will continue to be responsible for responding appropriately to all communications from faculty and administrative departments of the college. Criswell College bears no responsibility for the use of emails that have been forwarded from student email accounts to other email accounts.

Disabilities

Criswell College recognizes and supports the standards set forth in Section 504 of the Rehabilitation Act of 1973, the Americans with Disabilities Act (ADA) of 1990, and similar state laws, which are designed to eliminate discrimination against qualified individuals with disabilities. Criswell College is committed to making reasonable accommodations for qualifying students, faculty, and employees with disabilities as required by applicable laws. For more information, please contact the Student Services Office.

Intellectual Property Rights

Unless otherwise specifically instructed in writing by the instructor, students must neither materially nor digitally reproduce materials from any course offered by Criswell College for or with the significant possibility of distribution.

Resources and Supports

Canvas and SONIS: Criswell College uses Canvas as its web-based learning tool and SONIS for student data. Students needing assistance with Canvas should contact the Canvas Help Support line at (844) 358-6140. Tech support is available at this number, twenty-four hours a day. Students needing help with SONIS should contact the Campus Software Manager at studenttechsupport@criswell.edu.

Student Services: The Student Services Office exists to foster and encourage success in all areas of life—physical, intellectual, spiritual, social, and emotional. Students are encouraged to reach out for assistance by contacting the office at 214.818.1332 or studentservices@criswell.edu. The Student Services Office also works with local counseling centers to ensure that every student has access to helpful mental health resources. More information is located on the college website at [Criswell College Mental Health Resources](#), and students may contact the Director of Student Services if they have any questions.

Wallace Library: Students can access academic resources and obtain research assistance by contacting or visiting the Wallace Library, which is located on campus. For more information, email the Wallace Library at library@criswell.edu. Offsite login information is available in Canvas in the “Criswell Student Training Course” under “Library Information.”

Tutoring Center: Students are encouraged to consult with tutors to improve and enhance their skills and confidence in any subject matter taught at the college. Tutors have been recommended by the faculty to ensure that the tutor(s) are qualified to serve the student body. Every tutor brings experience and expertise in an effort to provide the proper resources for the subject matter at hand. To consult with a tutor, students can visit the

Tutoring Center located on the second floor in room E203, or schedule an appointment by emailing tutoringcenter@criswell.edu or by calling 214.818.1373.

Course Outline/Calendar

| | Readings Due | Assignments Due |
|---|---|-------------------------|
| Week 1 – Course Introduction | | |
| Monday 1/16 | No Class – MLK Day | None |
| Wednesday 1/18 | None | None |
| Week 2 | | |
| Monday 1/23 | <ul style="list-style-type: none"> • 1.1 Case Study: using stents to prevent strokes • 1.2 Data Basics • 1.3 Sampling principles and strategies • 1.4 Experiments | |
| Wednesday 1/25 | | |
| Week 3 | | |
| Monday 1/30 | <ul style="list-style-type: none"> • 2.1 Examining numerical data • 2.2 Considering categorical data • 2.3 Case study: malaria vaccine | |
| Wednesday 2/1 | | • HW #1 due |
| Week 4 | | |
| Monday 2/6 | <ul style="list-style-type: none"> • 3.1 Defining probability • 3.2 Conditional Probability | |
| Wednesday 2/8 | | |
| Week 5 | | |
| Monday 2/13 | • 4.1 Normal Distribution | |
| Wednesday 2/15 | | • HW #2 due |
| Week 6 | | |
| Monday 2/20 | • Ch. 5 Foundations for inference | |
| Wednesday 2/22 | | |
| Week 7 | | |
| Monday 2/27 | • Ch. 5 Foundations for inference | |
| Wednesday 3/1 | | • HW #3 due |
| Week 8 | | |
| Monday 3/6 | • Review and catch-up day | |
| Wednesday 3/8 | | • Midterm Exam in class |
| Week 9 – Spring Break – No Class | | |
| Monday 3/13 | None | None |
| Wednesday 3/15 | None | None |
| Week 10 | | |
| Monday 3/20 | • Ch. 6 Inference for categorical data | |
| Wednesday 3/22 | | |
| Week 11 | | |
| Monday 3/27 | • Ch. 6 Inference for categorical data | |

| | | |
|----------------|---|-----------------------|
| Wednesday 3/29 | | • HW #4 due |
| Week 12 | | |
| Monday 4/3 | • Ch. 7 Inference for numerical data | |
| Wednesday 4/5 | | |
| Week 13 | | |
| Monday 4/10 | • Ch. 7 Inference for numerical data | |
| Wednesday 4/12 | | • HW #5 due |
| Week 14 | | |
| Monday 4/17 | • Ch. 8 Introduction to linear regression | |
| Wednesday 4/19 | | |
| Week 15 | | |
| Monday 4/24 | • Ch. 8 Introduction to linear regression | |
| Wednesday 4/26 | | • HW #6 due |
| Week 16 | | |
| Monday 5/1 | • Ch. 9 Multiple and logistic regression | |
| Wednesday 5/3 | | |
| Week 17 | | |
| Monday 5/8 | • Final Exam review in class | |
| Wednesday 5/10 | | • Final Exam in class |

The descriptions and timelines contained in this syllabus are subject to change at the discretion of the Professor.