



BOISE STATE UNIVERSITY
COLLEGE OF ARTS AND SCIENCES
Department of Mathematics

MATH 254 Introduction to Statistics

2022-2023 MMACHS Room 11

FOUNDATIONS OF THE DISCIPLINE COURSES are part of Boise State's University Foundations curriculum, which is designed to broaden and enhance the more focused study done within each major, so students can discover more ideas, develop different ways of knowing, and connect with more people.



FOUNDATIONS OF MATHEMATICS GOALS

Apply knowledge and the methods of reasoning characteristic of mathematics to solve college-level mathematical problems.

- Read, interpret, and communicate mathematical concepts.
- Represent and interpret information/data.
- Select, execute, and explain appropriate strategies/procedures when solving mathematical problems.
- Apply quantitative reasoning to draw appropriate conclusions and support them.

Jump to:

[Office Hours](#)

[Homework](#)

[Late Work](#)

[Course Calendar](#)

[Quizzes](#)

[Academic Honesty](#)

[Daily Materials](#)

[Assessments](#)

[University Learning Outcomes](#)

[Team Based Learning](#)

[Grading](#)

[Important Dates](#)

Course and Meeting time: 2022-2023, Math 254, MMACHS Room 11 Period 2a and 2b

Instructor: Margo Hollingsworth

Office hours: T/Th/F 7:30-7:55 am, M/W 2:20-3:00 pm

Contact information: Room 11 (office), hollingsworth.margo@westada.org, or message on Schoology.

Course description: Descriptive techniques for quantitative data, observational studies and experiments, bias vs. variability, 1- and 2-sample inferential procedures for means and proportions, simple linear regression and chi-square testing for independence and goodness of fit, recognizing when a statistical procedure is appropriate, and interpretation of results. One way ANOVA and their hypotheses using statistical software will also be addressed.

Course Requirements: Students must have a cumulative grade point average above 2.7 to register for the BSU course. A GPA of 3.0 or higher is suggested for enrollment.

Course Calendar

All assignments in this course will be shared with students via a Google document so they have an overview of what is expected of them each week. This gives me the ability to easily make small changes based on student understanding, school cancellations, etc. It will be linked within their Schoology course. The plan for the year can be found [here](#).

Daily Materials

1. Consumable materials: Pencils, erasers, lined paper and a **red or other brightly colored** pen are needed daily. **Blue or black pens are not acceptable, nor are highlighters.** Calculator batteries are also considered consumable.
2. Your workbook *Learning Through Practice: Doing Statistics* should be brought to class daily. It is yours to keep. The first copy will be provided to you free of charge, if you need a replacement you may purchase it [here](#).
3. Graphing calculator. We will be using Texas Instruments 83/84. I have calculators you can check out for the school year if needed. Other graphing calculators may be used provided they do not have internet or device to device capability. It will be your responsibility to learn the functions of your calculator if you opt to use something other than TI 83/84. Keep the protective cover on your graphing calculator when not in use and do not store it in your car. Finger/pen pokes and heat damage will result in fines for MMACHS issued calculators. Calculators will be issued with batteries, but students are responsible for replacing them as needed throughout the year.
4. Personal laptops can be used for most in class work, however internet capability is not allowed for daily quizzes or assessments taken during class, so notes taken on a personal laptop may not be utilized during these times.
5. Notebook for notes taken over reading or independent learning.
6. A **clean** copy of your formulas and tables. This should not have any writing on it except your name and class period. It may be used on quizzes and tests, including the final exam.

Team-based learning

You will be working in teams nearly every class day. It is to your benefit to work collaboratively!

- *There is **no** required team work outside of class*
- *There are **no** team projects*
- *Teams will be created by the instructor*
- *Teams will change after each unit exam*

Homework

1. Engaging in work outside of class is essential for you to be able to learn and practice your skills in Statistics. This includes reading and individual learning time as well as written assignments. You are encouraged to start on your homework the day it is assigned so you have time to come ask questions before it is due.
2. **Pre-class readings/videos daily before class.** Most homework assignments will contain instructions to watch a video and/or read then answer questions on a worksheet. This is **required** preparation for the daily in class quizzes. If you don't complete this, you will often feel lost and like you've missed something (and you have).
3. **Written homework assignments** from your workbook will be assigned almost every day. An emphasis will be placed on clear communication. This means **complete sentences** with proper grammar, spelling and punctuation. It is due before class begins on the due date and if not completed in class, will need to be done at home. Check your due dates and times in Schoology. You will be required to upload a single pdf with multiple pages of your work. Photos of pages do not upload to Schoology in order and are **not** an acceptable submission format. I will provide training of how to use Microsoft OneDrive and Microsoft Len.
4. Only **some** written homework assignments will be graded, others will be discussed and corrected in class.
5. **Project Based Learning** will be utilized to give you practice in the scientific method, research, and statistical analysis that will help you gain experience for your senior project.

Quizzes

These are to check your understanding of the skills presented on the homework. They will be done in your collaborative groups of 3-4 students. You are allowed to use any handwritten notes. Your group should reach a consensus on each answer and resolve any discrepancies before submitting. If you are not doing the pre-activity exercises and watching the videos, you may be asked to take the quizzes individually. It is not fair to your team to not contribute.

Assessments

There will be 3-4 Module assessments during each semester and a final exam. They may be written test or project based assessments where you design a study, collect data, and analyze it.

If you are absent on the day of a written exam, please email me and be prepared to take the make-up exam the day you return to school. If you are absent on the day due date of a project based assessment, you should still submit it online by the due date/time. No retakes will be allowed on exams, per Boise State University guidelines.

Final Exam: Dates and times are set by MMACHS and will be posted in class and on Schoology; the final exam will NOT be given at alternate times. All final exams are individual work. They may have a larger proportion of multiple choice questions than unit exams. The spring final exam may have content from the entire year.

Grading

Your MMACHS transcript will have grades posted for fall and spring semesters according to the college based grading scale. 90-100%-A, 80-89%-B, 70-79%-C, below 70-WIP. Your grade will be the weighted average of:

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|------------------|-----|
| Homework | 15% |
| In-class quizzes | 10% |
| Assessments | 55% |
| Final exam | 20% |

Rounding will follow traditional rounding rules that are utilized in Powerschool. For example, an 89.5 will automatically be rounded up to 90 in Powerschool, where 89.49 will be rounded down to 89.

The grade posted to your Boise State University transcript will be the average of your fall and spring semester MMACHS grades. Letter grades will be assigned as follows. At my discretion, I will issue a + grade if you are in the top 2 percent of a letter grade. No - grades will be given.

| | | | | |
|--------------|-------------|-------------|-------------|-----------|
| 98-100% = A+ | 88-89% = B+ | 78-79% = C+ | 68-69% = D+ | 0-59% = F |
| 90-97% = A | 80-87% = B | 70-77% = C | 60-67% = D | |

All students will receive a grade on their MMACHS transcript as well. This grading scale applies regardless of whether the student is enrolled in the BSU concurrent credit. The high school grade will be based on the grading scale:

| | | | |
|-----------|----------|----------|-----------|
| 90-100%=A | 80-89%=B | 70-79%=C | 0-69%=WIP |
|-----------|----------|----------|-----------|

Late work: You can submit 2 late homework assignments each semester, which must be turned in before the unit exam for that work to be accepted. There will be no penalty for this late assignment. Any subsequent late work will not be accepted for a grade. Projects and Assessments will **not** be accepted late.

Communication will be primarily in class and via Schoology. Please be prepared for course information to be announced in class, read the instructions for each homework assignment and monitor Schoology for important announcements or changes to the schedule. If I need to email you I will use your West Ada email account only, so please be checking it regularly.

Academic honesty

Boise State University expects all of us to uphold the Boise State University [Statement of Shared Values](#), which includes the following:

Academic Excellence ▪ Caring ▪ Citizenship ▪ Fairness ▪ Respect ▪ Responsibility ▪ Trustworthiness

Cheating of any kind is unacceptable. During quizzes and assessments, you must silence your cell phone and put away all electronic devices except your calculator. Any calculator **without** internet capability is permitted. Caps/hats are not permitted, and the instructor reserves the right to check any materials other than your exam for cheating, including food containers and water bottles. Students may not leave the classroom during exams. Possible consequences of cheating include:

1. 0 on assignment or exam
2. F in course
3. Academic Dishonesty Report Form filed with Student Conduct Officer.

Refer to <https://www.boisestate.edu/policy/student-affairs/code-of-conduct/>

University Learning Outcomes

Boise State's University Foundations Program provides undergraduates with a broad-based education that spans the entire university experience. *MATH254: Introduction to Statistics* satisfies three credits of the Foundations of Mathematics (FM) requirements. It supports the following University Learning outcome (ULO) along with a variety of other course specific goals.

ULO 7: *Apply knowledge and methods of reasoning characteristic of mathematics, statistics, and other formal systems to solve complex problems.*

MATH254: Introduction to Statistics is designed to engage students in the ways in which information (data) are collected, analyzed and interpreted assisted by statistical software. This course helps to achieve the goals of the University Foundations Program by focusing on the following course learning outcomes. After successful completion of this course, **you will be able to:**

1. Identify appropriate descriptive and inferential techniques to be used in given situations including identifying fundamental assumptions necessary for use of specific statistical techniques.
2. Apply statistical techniques to real data and interpret the results of estimation, hypotheses testing and regression including using a conventional computer statistics package to perform the more common calculations of statistics.
3. Explain the role of probability in inferential statistics.
4. Report results of statistical analysis in a clear written form.
5. Use sampling techniques to plan, execute, and evaluate data collection.
6. Understand the role of statistics in the modern world and critically evaluate statistical information presented.

Important dates

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|----------------------------------|--|
| Friday, February 17, 2023 | Last day to register for BSU concurrent credit and allocate Advanced Opportunity funds |
| Friday, March 17, 2023 | Last day to withdraw from the BSU course with no impact on BSU transcript or Advanced Opportunity Funds |
| Friday, March 17, 2023 | Last day to pay fees, if not using Fast Forward funds |
| May 1- May 15, 2023 | Teacher evaluations open |
| May 12, 2023 | Last day to withdraw from BSU course. A grade of W will show on the students transcript. Advanced Opportunity funds will need to be repaid before you can access funding for additional courses. |
| May 15-19 , 2023 | Tentative dates for finals week, schedule to be posted |
| May 22, 2023 | Tentative Last Day for Seniors, final grades posted to BSU transcript |
| May 26 , 2023 | Tentative date of Graduation |
| June 9, 2023 | Submitted teacher evaluations are available to instructor |