



MATH 254 Introduction to Statistics

SYLLABUS Section 05 Kathrine Johnson, Ph.D.

Class time zoom link Tuesdays & Thursdays 10:30 - 11:45pm.

Optional workbook and homework session zoom link Mondays 3-4pm.

To enter class automatically, make sure you are signed in to [Zoom](#) using your BSU credentials.

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.

Course Description: MATH 254: Pre-calculus treatment of descriptive statistics, confidence intervals, hypothesis testing, simple linear regression, correlation, introduction to probability. Emphasis on reasoning, problem solving, and applications to a wide variety of disciplines. Use of computer statistics software for computations.

CONTACT INFORMATION AND INSTRUCTIONS:

- **For WebAssign homework questions**, use WebAssign “ask your teacher” or ask other students in padlet. Give specific information about what you tried and where you are stuck.
- **For any other questions**
 - email [name@school](#) or
 - Sign in to [Zoom](#) using your BSU credentials Mondays 3-4pm for [zoom WB & HW session](#) or
 - Sign in to [Zoom](#) using your BSU credentials times TBD for [zoom OFFICE HOURS, NO APPT NEEDED](#)
 - If you need to see me another time, email to make arrangements.
- **All class information** is provided in the **Road Maps** and calendar below, during class, and via email.

[Calendar with Road Maps](#)

[Required materials](#)

[Orientation](#)

[If you added class late](#)

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Dynamic Course Calendar. WB = Workbook, WA = WebAssign, Bb = Blackboard, HW = Homework

Click on each link in the first column for a “road map”; a detailed list of tasks and additional resources.

Week & WB sections	On Monday	Due before class Tuesday	Due Thursday after class
WEEK 1 Jan. 11 - 17 Road Map 1-1 Statistical Reasoning 1-2 Measures of center & quantitative graphs	No zoom session	Orientation tasks (in road map) WB Pre-activity 1-2 WA Pre-homework 1-2	WB HW due to gradescope
WEEK 2 Jan. 18 - 24 Road Map 1-3 Measures of spread, Boxplots 2-2 Normal Distribution	No zoom session (MLK jr holiday)	WA HW 1-1 & 1-2 <i>Tip: Click submit to check the answer to part of a question with no penalty for unanswered parts</i> WB Pre-activity 1-3 & 2-2 WA Pre-HW 1-3 & 2-2	WB HW due to gradescope <i>Tip: Do as much of the workbook as you can.</i>
WEEK 3 Jan. 25 - 31 Road Map Mini project 1A 3-1 Types of Studies 3-2 Experimental vs. Sampling designs	Optional zoom session	WA HW 1-3 & 2-2 <i>Tip: Click submit to check the answer to part of a question with no penalty for unanswered parts</i> WB Pre-activity 3-1 & 3-2 WA Pre-HW 3-1 & 3-2	WB HW due to gradescope <i>Tip: Do as much of the workbook as you can.</i>
WEEK 4 Feb. 1 - 7 Road Map 4-1 Sampling distributions & hypothesis testing 4-2 Central Limit Theorem & hypothesis testing	Optional zoom session	WA HW 3-1 & 3-2 WB Pre-activity 4-1 & 4-2 WA Pre-HW 4-1 & 4-2	WB HW due to gradescope
WEEK 5 Feb. 8 - 14 Road Map 4-3 The 1-sample t-test 4-4 P-values and type I and II errors	Optional zoom session	WA HW 4-1 & 4-2 WB Pre-activity 4-3 & 4-4 WA Pre-HW 4-3 & 4-4	WB HW due to gradescope
WEEK 6 Feb. 15 - 21 Road Map Exam 1 ; covers 1-1 through 1-3, 2-2, 3-1 through 4-4.	No zoom session (Presidents Day holiday)	WA HW 4-3 & 4-4 WA E1 practice (Optional) WB modules 1, 2, 3 & 4 practice	EXAM 1
WEEK 7 Feb. 22 - 28 Road Map 4-5 Intro to confidence intervals 4-6 Choosing the correct procedure 1.0	Optional zoom session	WB Pre-activity 4-5 & 4-6 WA Pre-HW 4-5 & 4-6	WB HW due to gradescope
WEEK 8 Mar. 1 - 7 Road Map 5-1 Binomial settings; 1-sample z for a single proportion 5-2 Inference for p using bootstrapping 5-3 Choosing the correct procedure 2.0	Optional zoom session	WA HW 4-5, 4-6 WB Pre-activities 5-1 & 5-3 WA Pre-HW 5-1 & 5-3	WB HW due to gradescope

Week & WB sections	On Monday	Due before class Tuesday	Due Thursday in class
WEEK 9 Mar. 8 - 14 Road Map 6-1 Paired and 2-sample t-tests 6-2 Choosing the correct procedure 3.0 MP 2	Optional zoom session	WA HW 5-1 & 5-3 WB Pre-activity 6-1 & 6-2 WA Pre-HW 6-1 & 6-2	WB HW due to gradescope
WEEK 10 Mar. 15 - 21 Road Map 6-3 1-way ANOVA 6-5 Choosing the correct procedure 4.0	Optional zoom session	WA HW 6-1, 6-2 WB Pre-activity 6-3 & 6-5 WA Pre-HW 6-3 & 6-5	WB HW due to gradescope
WEEK 11 Mar. 22 - 28 Road Map Exam 2; covers sections 4-5 through 5-3, 6-1 through 6-3, 6-5	Optional zoom session	WA E2 practice (Optional) WB Modules 5 & 6 practice	EXAM 2
WEEK 12 Mar. 29 - Apr. 4 Road Map 7-1 Introduction to linear regression 7-2 Inference for slope in regression	Optional zoom session	WB Pre-activity 7-1 & 7-2 WA Pre-HW 7-1 & 7-2	WB HW due to gradescope
WEEK 13 Apr. 5 - Apr. 11 Road Map 7-3 Cautions in regression 7-4 Multivariate regression MP 3	Optional zoom session	WA HW 7-1 & 7-2 WB Pre-activity 7-3 & 7-4 WA Pre-HW 7-3 & 7-4	WB HW due to gradescope
SPRING BREAK APRIL 12 - 18			
WEEK 14 Apr. 5 - Apr. 11 Road Map 8-1 Two-way tables, Chi-square test for independence 8-2 The chi-square tests and cautions	Optional zoom session	WA HW 7-3 & 7-4 WB Pre-activity 8-1 & 8-2 WA Pre-HW 8-1 & 8-2	WB HW due to gradescope
WEEK 15 Apr. 5 - Apr. 11 Road Map 8-3 Odds ratios and simpson's paradox	Optional zoom session	WA HW 8-1, 8-2 (Optional) Finish workbook	Team review
Final Exam Week			

Get started and required materials

1. **Workbook.** *Learning through practice: Doing statistics. 2nd edition.* Available at the [BSU bookstore](#).
2. You've already paid for **WebAssign** with registration in broncweb. Bb has a link that will take you to WebAssign; this link will be live starting Sunday morning before classes start.
3. Any scientific calculator; you may want a graphing calculator.
4. The **Blackboard** course site will be open and available Friday before classes start.

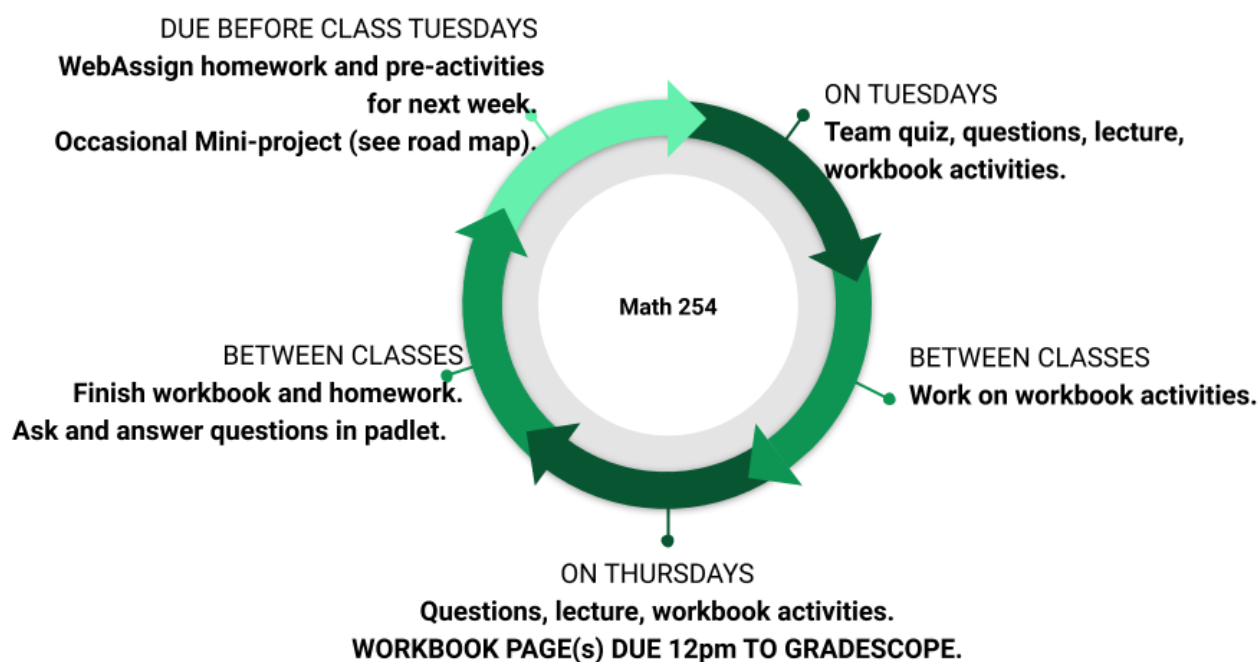


Team-based learning

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

- Teams collaborate on weekly quizzes reviews and exams.
- Teams are encouraged to collaborate on the workbook.
- There are **no** team projects.
- In this class, ***we can all learn from one another.***

Homework cycle



Homework tips and information

1. Workbook:

- **Do the workbook questions before** the WebAssign pre-homework to get all of the necessary information. The effort you expend is critical to learning.
- Set aside time to work through the workbook. When the page(s) to submit are posted, you may already have completed it, and if not, you will be prepared to complete that page.
- When you get stuck, post questions to padlet, attend the optional session or watch the video (posted shortly after each session) or view the partial key to check your answers.

2. **Free tutoring.** There is [Free tutoring online](#)! And free tutoring in person in MB 136: schedule.
3. **WebAssign (WA) homework:**
 - a. For pre-activity homework and team quizzes, **each incorrect answer is slightly penalized**, but you should try again until obtaining the correct answer. Read *Getting Started* and answer the pre-activity questions in the workbook first, and note questions to ask in class.
 - b. For numeric questions in the homework, **you have 100 tries without penalty!** For multiple choice, **the number of tries is 1 less than the number of options.** (4 options = 3 tries).
 - c. For help with WA homework, click “Ask your teacher” in the WA question and give me information about what you did. Be specific.
 - d. There are **automatic homework extensions!!** If you don’t complete an online homework set, you may request an extension in WA **only after the deadline has passed.** You have up to 14 days to request the extension, and then you have up to 14 days to complete the homework. Any work done after the deadline is penalized 50%. Go to *past assignments*, find the one you didn’t finish and click “**extension request**”. If the time period for an automatic extension has passed, you can request a manual extension.
 - e. Homework due dates may occasionally be extended without warning.
 - f. **If you have technical difficulties** in WebAssign, go to Webassign.net and click on *contact us*.
4. Two online homework assignments and one team quiz grade will be dropped. No workbook pages or Mini projects will be dropped.

Exams and Grading GRADES ARE IN WEBASSIGN, NOT Bb.

Exam dates are set; exceptions will be made only under extraordinary circumstances.

Exam 1

Exam 2

Final Exam

WebAssign homework	15%	99–100% = A+	90–98.9% = A
Workbook homework and Mini projects	15%	89–89.9% = B+	80–88.9% = B
Team quizzes and reviews	10%	79–79.9% = C+	70–78.9% = C
3 exams (2 exams + final exam)	60%	69–69.9% = D+	60–68.9% = D
		0–59.9% = F	

Do not fall behind. It is difficult to catch up if you fall behind. If you have an emergency, contact me asap.

Course expectations and 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. Possible consequences include 0 or F on an assignment or exam, F in course or 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, hypothesis 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 in the news and research papers.

What to do if you get sick

1. Take care of yourself and your health first, and self-quarantine according to BSU policy. [COVID Isolations and Quarantine Resources](#).
2. **Each weeks' road map is your guide.** Read the workbook and watch the suggested videos listed in the road map. Work through the workbook activities, and when you get stuck, post to padlet, check the partial key, email me, or attend zoom office hours or the optional session to ask questions.
3. To make up any quiz points, attend any zoom office hours or email to schedule a time. If you miss more than one, no worries, we'll take care of all of them once you feel better.

Student Well-Being

If you are struggling for any reason (COVID, relationship, family, or life's stresses) and believe these may impact your performance in the course, I encourage you to contact the Dean of Students at (208) 426-1527 or email deanofstudents@boisestate.edu for support. Additionally, if you are comfortable doing so, please reach out to me and I will provide any resources or accommodations that I can. If you notice a significant change in your

mood, sleep, feelings of hopelessness or a lack of self worth, consider connecting immediately with Counseling Services (1529 Belmont Street, Norco Building) at (208) 426-1459 or email healthservices@boisestate.edu.

Educational access

The instructor will work with the Disabilities Resource Center to provide reasonable accommodations to students upon request. Students making such requests are required to provide documentation from the Disability Resource Center. For more information, go to <https://eac.boisestate.edu/>

Important dates

Friday, September 4	Last day to add/drop without a W
Friday, October 30	Last day to withdraw with a W

We all have different starting points.

We can all make progress.

We will value our mistakes because we can learn from them.

We will choose tasks that challenge us because this is how we develop our skills and understanding.

We will keep trying even when we are finding a task difficult because this is how we make progress.

