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This is a preliminary version of the syllabus. I don't yet know what technology I will be able to use in the classroom (it was locked over the winter break), I don't yet know enough about spreadsheet programs, I don't know how Class Encore will work (this should be sorted out by the end of the first week), and other things may be missing. I don't yet even have a suitable calculator. Some small changes are still possible if requested in class discussion.

1. BASIC INFORMATION

Course number: Stat 243Z [formerly Math 243].

Course title: Elementary Statistics.

CRN: 26904.

Time and place: MTuWF 8:00–8:50 am, 102 University Hall.

Instructor: N. Christopher Phillips, 319 University Hall.

Course home page:

https://pages.uoregon.edu/ncp/Courses/Math243_W26_Web/Math243_W26_Web.html.

(Depending on your pdf reader, this might be an active link.)

Email: See the course home page. It is not included here because spammer address harvesters read pdf files.

- Send plain text **only**; no html only messages. See the links on the course home page. (Both Canvas and WeBWorK generate email messages which contain plain text. UO email is at least able to send plain text.)
- The subject line of your message should start with “S243Z”, followed by your last name, then first initial. (Otherwise, your message might get lost.)
- No Microsoft Word or PowerPoint files.

Course description: A first course in statistics focusing on the interpretation and communication of statistical concepts. Introduces exploratory data analysis, descriptive statistics, sampling methods and distributions, point and interval estimates, hypothesis tests for means and proportions, and elements of probability and correlation. Technology will be used when appropriate. Previously MATH 243.

Students cannot receive credit for both STAT 243Z and MATH 425.

Prerequisites: MATH 101 or satisfactory placement test score; MATH 111Z recommended.

Date: 4 January 2026.

Required: a programmable calculator capable of displaying function graphs.

(This description is taken almost verbatim from the Catalog of Courses.)

Textbook: Moore, Notz, and Fligner, *The Basic Practice of Statistics*, 9th Edition.

- I am told that 7th and 8th editions of the textbook are very similar if you want to find a used copy. I encourage you to find the cheapest book you can. No problems will be assigned by number from the textbook.

Office Hours: Mondays 10:00–10:50 am, Tuesdays 9:00–9:50 am (right after class), Wednesdays 11:00–11:50 am, or by appointment in 319 University Hall. (I have another class immediately after this one Mondays, Wednesdays, and Fridays, and a regular Zoom meeting right after the office hour on Tuesdays.)

Extra credit for finding errors: Extra credit will be given for identifying errors and misprints in any course materials, with more extra credit for mathematical errors. (You must say what the correct version is supposed to be, and only the first two people to catch an error can get extra credit.)

Academic Conduct: The code of student conduct and community standards is at <https://dos.uoregon.edu/conduct>. In this course, it is appropriate to help each other on homework and worksheets, as long as the work you are submitting is your own and you understand it. It is not appropriate to help each other on exams or quizzes, to look at other students' exams or quizzes, or to bring unauthorized material to exams. It is not appropriate to use AI of any kind to produce answers or assist with any work that is turned in for credit, including WeBWorK and exams. It is also inappropriate to get tutors or other third parties to solve course problems for you and turn in their answers. It isn't prohibited, but it will destroy your exam performance, to use AI or tutors to solve practice exam problems without doing them yourself first. It is appropriate to use AI to generate practice problems that are similar to but differ from homework etc. problems, and to use it to check your solutions to such problems.

See Section 6 for further general information.

2. LEARNING OUTCOMES

The primary goal of this course is to have students be able to use and understand the basics of confidence intervals and hypothesis testing. In particular, they should be able to recognize the appropriate hypothesis test for a given situation, carry out such a test, and compute the corresponding confidence intervals. They should also be able to interpret such results for real world applications. Finally, they should learn about how samples are collected and know some basic sources of systematic error in sampling and polling.

Students are expected to be able to do the following:

- Critically read, interpret, report, and communicate the results of a statistical study along with evaluating assumptions, potential for bias, scope, and limitations of statistical inference. Classify study designs and variable types and identify methods of summary and analysis. item Produce and interpret summaries of numerical and categorical data as well as appropriate graphical and tabular representations.

- Identify patterns and striking deviations from patterns in data.
- Identify associations between variables for bivariate data.
- Apply technology to calculate statistical summaries and produce graphical representations.
- Use the distribution of sample statistics to quantify uncertainty and apply the basic concepts of probability into statistical arguments. Interpret point and interval estimates.
- Identify, conduct, and interpret appropriate parametric hypothesis tests.
 - Identify the appropriate test based on variable type.
 - Identify situations where a one or two tailed test would be appropriate.
 - Conduct tests of one mean.
 - Conduct tests of one proportion.
 - Explain the distinction between statistical and practical significance and the potential for error in hypothesis test conclusions.
 - Apply technology to perform hypothesis test calculations.
- Assess relationships in quantitative bivariate data.
 - Address questions relating correlation as a linear association between variables.
 - Distinguish between correlation and causation within data.
 - Apply technology to explore bivariate data.

3. COVERAGE AND SCHEDULE

We will be covering the following chapters from the textbook (not in this order):

- Chapter 1: Picturing Distributions with Graphs
- Chapter 2: Describing Distributions with Numbers
- Chapter 3: The Normal Distributions
- Chapter 4: Scatterplots and Correlation
- Chapter 8: Producing Data: Sampling
- Chapter 9: Producing Data: Experiments
- Chapter 12: Introducing Probability
- Chapter 13: General rules of probability [optional]
- Chapter 14: Binomial Distributions
- Chapter 15: Sampling Distributions
- Chapter 16: Confidence Intervals: The Basics
- Chapter 17: Tests of Significance: The Basics
- Chapter 18: Inference in Practice
- Chapter 20: Inference About a Population Mean
- Chapter 21: Comparing Two Means [optional]
- Chapter 22: Inference About a Population Proportion

The following schedule is *tentative*. The exam dates are fixed, but the speed at which we move through a particular chapter or portion of a chapter may vary from the schedule.

<u>Week</u>	<u>Chapters covered</u>	<u>Discussion Session on Wednesday</u>
1	1, 2	Worksheet 1
2	3	Worksheet 2
3	3, 8, 9	Worksheet 3
4	12, Review	Midterm Exam 1
5	15, 16	Worksheet 4
6	17, 18	Worksheet 5
7	20, 4	Worksheet 6
8	Review	Midterm Exam 2
9	14, 22	Worksheet 7
10	Catch-up	Review for Final Exam
11	Final Exam	Friday 20 March 2026, 10:15 am–12:15 pm

4. TECHNOLOGY

You will need a scientific calculator that can perform basic arithmetic calculations and take square roots. According to the math department, the TI-30X IIS is a good option. No specific technology will be required for in class assessments beyond a scientific calculator.

For more complex statistical calculations, many students prefer TI-83 or TI-84 calculators, which can do all necessary calculations in the course.

I expect to do most calculations during lectures using a spreadsheet program. (More details later.)

Midterms and quizzes will be closed book, except for note cards and a calculator without internet capability. No spreadsheets will be available. Exam problems will be designed to be doable without a calculator, for example by leaving explicit fractions and square roots in your answers.

You may want a spreadsheet for your own use. I know of four: Microsoft Excel, Apache OpenOffice Calc (see <https://www.openoffice.org/product/calc.html>), Numbers (comes with Apple systems and probably doesn't run anywhere else), and Google Sheets. I will not be using Google Sheets (or anything else from Google) because of Google's abuse of personal information.

It is not appropriate to use AI to assist with any work that is turned in.

5. COURSEWORK

Course grades will be based on the following items.

Class participation: Most days, except Wednesdays (worksheets and exams), and probably starting Friday of the first week, there will be a very small number of iClicker questions. These won't be graded on correctness (some may even be surveys), but responses are required. Full credit will be earned by responding to all questions on at least 80% of the days on which such questions are used. By attending regularly and participating actively, you can earn more than 100% in this category.

There are no make-ups for course engagement credit.

Worksheets: You will do a worksheet during each Wednesday except exam weeks.

Your worksheet will not be graded on the correctness of your work, but evidence of serious effort is necessary to receive credit for this portion of your grade. Each person must turn in a separate worksheet, but group work or discussions with your neighbors is allowed, in fact, encouraged. This is a good opportunity to engage with material in the course and practice problems with help from your instructor.

You cannot make up these points, but your lowest two worksheet grades will be dropped.

In class quizzes: Most Fridays, there will be a short in class quiz. Quizzes will be based on problems from lectures and from the worksheet from that week. There will be no quizzes during midterm exam weeks. Quizzes cannot be made up. Your lowest two quizzes will be dropped.

WeBWorK: Homework will be collected through WeBWorK, typically two times per week: 8:00 pm Wednesday and Friday. I intend to make arrangements for reduced credit for late WeBWorK homework assignments once I figure out how to do so. Otherwise, makeups will not be possible. We will add 15 points to everyone's webwork score at the end of the quarter to make up for the effect of having a small number of missed or late assignments. (Not all WeBWorK assignments will have the same value.)

Two midterms: Midterm exams will be cumulative, with the second midterm emphasizing material since the first. They will be on Wednesday in weeks 4 and 8.

If the class agrees, midterms can be started early, with no change in the length.

If doing so improves the course grade, we will replace the lower of the two midterm grades with the equivalent grade from the final exam.

No makeups for midterms. If one midterm is missed, the rule above will be applied. If both midterms are missed, please see me, but expect to be advised to drop the course.

Final exam: The final exam will have the same format as the midterms. It will cover the entire course, with emphasis on later material. It will be Friday 20 March 2026, 10:15 am–12:15 pm.

If you miss the final exam, you can request an incomplete. It will be granted based on the criteria on this page: <https://registrar.uoregon.edu/current-students/incomplete-policy>.

The components will be weighted as follows:

Worksheets	10%
Class participation	5%
Quizzes	5%
Webwork	10%
Midterm Exam 1	20%
Midterm Exam 2	20%
Final Exam	30%

6. FURTHER INFORMATION

This section contains further important information.

Outside help: The following sources of outside help are available. Remember that it is inappropriate to turn in homework as your own that was actually done by a tutor or other third party (or by AI).

Please let me know of anything else I should list here.

- Class Encore small study groups. They are *not* homework help sessions. They are opportunities to work with the encore leaders and other students on additional activities to better understand the material in the course. See <https://engage.uoregon.edu/class-encore/>. More details will be given later. My current understanding is that this is not normally available to small classes but that this quarter we can be an appendage to Yuan Xu's large lecture section of Stat 243Z. This will mean that coverage in its meetings will follow a slightly different schedule.
- Free tutoring in the Math Library. More details will be given later. I believe it is not available during the first week of classes.
- Free tutoring and help in the Tutoring and Academic Engagement Center. It is located on the 4th floor of the Knight Library in the Sky Studio. (This information may be out of date.) See <https://engage.uoregon.edu>.
- Online videos from Khan Academy (see <https://www.khanacademy.org/math/statistics-probability>) and similar sites. Khan Academy also has practice quizzes. I don't know how good they are. I have been told that Khan Academy, in particular, shortchanges understanding in favor of procedures.

Learning disabilities: Students with documented learning disabilities who wish to use the Accessible Education Center to take tests under specifically arranged conditions should let me know as soon as possible, certainly by Monday of the third week of classes. Such students must also be sure to meet the Accessible Education Center's separate deadlines for requests. Normally (procedures may differ now), these are likely to be a week or more in advance of the exam date (much more for final exams). I can't do anything to help a student who misses its deadlines. (I know because I have tried in the past.)

Reporting Obligations: I am a “designated reporter”. For information about my reporting obligations as an employee, please see <https://investigations.uoregon.edu/employee-responsibilities>.