

MATH 132: ELEMENTARY STATISTICS

Section 2: MW 2:50 PM - 4:10 PM, Exley 141

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Office hours: Monday and Tuesday 1:00 PM - 2:00 PM,
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TA Sessions: Sundays 8:00 PM - 9:00 PM in Exley 618
Tuesdays 8:00 PM - 9:00 PM in Exley 618

Required text. *Mind on Statistics*, Utts and Heckard, 4th or 5th edition.

Prerequisites. There are no Wesleyan course prerequisites. Only basic high-school algebra is necessary; no knowledge of calculus will be needed. Note that Economics majors are required to take Econ 300 which has a substantial overlap in course content. Students may not receive credit for Math 132 after taking Econ 300.

Syllabus. Math 132 is an introduction to several topics in statistics, covering four major components:

- Descriptive Statistics: Graphical and numerical summaries of data, regression and correlation
- Sampling plans and experimental design: collecting data, asking the right questions, bias
- Probability: Counting, conditional probability, random variables, expectation, and probability distributions, with emphasis on normal distributions
- Inferential Statistics: Estimation, sampling distributions, confidence intervals, hypothesis testing

We will cover the first 13 chapters of the textbook. This course will be fast paced, so it is extremely important to stay on top of the material. I expect you to read **ahead of class time** the sections of the textbook to be covered, so that you are familiar with the material presented during lecture. It is not unreasonable for you to go back to these sections after class and reread some of the concepts for clarification.

Course Materials and Moodle. Copies of the textbook are available on reserve at the Science Library in Exley. Other course materials for Math 132 will be available online on Moodle, including course announcements, reference materials, homework assignments, labs, and midterm exam solutions. It is your responsibility to check Moodle regularly for updates.

You will also need a graphing calculator such as a TI-83 or 84. I will be using a TI-83+ in class, so that is what I recommend if you do not already have one. If you have a different brand, just check with me to make sure it's acceptable. You should also have access to a data organizational program such as Microsoft Excel.

Classroom expectations. In order to ensure that we cover all planned material and our course runs smoothly, please abide by these expectations:

- Attend every class. If you will be absent due to illness or scheduled conflict, please notify me in advance.
- Take notes during lecture. If you miss class, it is your responsibility to obtain lecture notes from a classmate. I will not be posting my notes to Moodle. (Note: I will regularly use colored chalk. You might find it helpful to have a few colors in addition to your regular writing utensil.)
- Arrive for class a few minutes early so that we may all start on time.
- Participate in group work, when applicable. If I give you class time to work on examples, do so. If you need help getting started, simply ask!
- Read the posted material ahead of class time. Come to class with questions prepared, and ask them!
- Please keep your cell phones on silent and put away (unless I tell you otherwise).
- Laptops are not necessary and should not be brought to class unless I give you permission otherwise.
- Food is permitted as long as it will not disrupt others.

Disability Resources. Wesleyan University is committed to providing reasonable accommodations to students with documented disabilities. Students, however, are responsible for registering with Disabilities Services, in addition to making requests known to me in a timely manner. Note that accommodations are not provided retroactively.

If you believe that you need accommodations for a disability, please contact Dean Patey in Disability Resources, located in North College, Room 021, or call (860) 685-5581 for an appointment. See <http://www.wesleyan.edu/studentaffairs/disabilities/Student/index.html> for more information.

If you require accommodations in this class, please **make an appointment** to see me as soon as possible, so that appropriate arrangements can be made.

Office hours. You are encouraged to use my office hours whenever you have questions about the course material. Sometimes one-on-one conversations with me can save you hours of study time on your own! If you can't attend office hours due to a class or athletic conflict, please email me at ahildum@wesleyan.edu to make an appointment with me for another time.

TA Help Sessions. There will be optional help sessions held weekly by our TA(s), time and location TBA.

Math Workshop. The Math Workshop is located in the basement of the Science Library in Room 88. It is (tentatively) open Sundays-Thursdays, 7:00 PM – 10:00 PM and Mondays-Fridays, 11:45 AM – 1:15 PM. It is staffed by experienced undergraduates or math graduate students. This is a drop-in tutoring service, **FREE**LY available to all members of the Wesleyan community. Staff members provide a friendly, relaxed atmosphere while answering questions about mathematics. The workshop is a good place to go when you get stuck on your math homework. More information can be found here:

http://www.wesleyan.edu/mathcs/math/math_workshop.html

Assignments. We will have two types of assignments in this course.

- **Problem sets.** I will assign a problem set almost every class, due by 5 pm on the following class day. You may either submit your homework during class or alternatively you may place it in the drop box outside of my office door (603 Exley). These assignments will consist of a short list of textbook problems, designed to help you review the day's material. Assigned problems will be posted to Moodle.

Late assignments will be accepted **only** under extenuating circumstances, and must have my permission *prior to* the due date.

- **Labs.** Lab assignments will be assigned every few weeks, and you will have one week to complete them (due by 5 pm on the date due). They will consist of longer, case study type problems and are designed to better represent some of the questions you might receive on a midterm exam. Some problems will also require the use of Microsoft Excel (see below).

All assignments must be legible, clear, and stapled. It is your responsibility to print any charts or graphs obtained through Excel and attach them to your assignment, clearly labeled. If I or the TA cannot read your writing, you will not get credit. Please treat your assignments in this class the same as you would in any other. That is, do not turn in an assignment that is clearly a first draft, with scribbles and crossings-out, etc. **Disclaimer:** Answers to all questions should almost always be accompanied by a justification or explanation. That is, numerical answers will rarely earn full credit for a problem. We will be very detailed in class about what type of conclusions to draw in different situations, and you will be expected to state these conclusions even if you are not prompted for them.

I encourage you to discuss homework problems with your classmates, but **you must write up your own solutions.** If you do choose to work together, write your collaborators' names at the top of your paper. **You may not use any solution manuals or look up answers to assignments online.**

Microsoft Excel. Occasionally I will make use of Excel during class. You will have lab questions that require the use of Excel. No prerequisite knowledge of Excel is needed. Video tutorials are posted to the course Moodle.

In some cases, google sheets may not be sufficient, but free student licenses of Excel are available to students. Go to <https://www.wesleyan.edu/its/office365/index.html> and follow the directions to log into Office 365. Then on the following page, there is a drop down option to install Office. This version will have the most capabilities and is the one I use in the tutorials.

Observational Study. At the end of the semester, each of you will complete your own research study. This will consist of coming up with a question of interest, a sampling plan, data collection, and statistical inference on the sample data, to be summarized in a report due the last week of classes. A more detailed expectation of this research project will be handed out later in the semester. Before the end of Spring Break, you should have my approval of a sampling plan in place before moving forward with your research project. You may work by yourself, or in teams of 2 or 3.

Exams. There will be three midterm exams and a final exam. The midterm exams will be held in the evening, the time and locations will be determined as we near each particular test. Tentative dates and times are as follows, and will be confirmed at least two weeks in advance:

- Midterm 1: Wednesday, February 20, 7–9 PM
- Midterm 2: Wednesday, March 27, 7–9 PM
- Midterm 3: Monday, April 29, 7–9 PM

The final exam time is scheduled by the registrar and will be finalized after Spring Break.

If you have an academic or athletic conflict with a midterm exam (such as a class, lab, another exam, or a Wesleyan athletic competition), inform me **at least one week before the exam**.

Grades. Your grade in the course will be based on the following:

(1) Problem sets (15% of your grade).

All homework assignments will be graded on correctness, and will be weighted equally and averaged, after dropping the lowest two scores.

(2) Labs (15% of your grade).

All labs will be graded partially on completeness and partially on correctness, and will be weighted equally and averaged.

(3) Observational Study (5% of your grade).

(4) Participation (5% of your grade).

(5) Three midterms and a final exam (each 20% of your grade with the lowest score dropped).

Academic Integrity.

You are expected to follow the University's policy on academic integrity. Any violation of the Student Honor Code will be referred to the Honor Board, without exception. The Honor Code can be found in the Student Handbook. Before you hand in an assignment or a test, pledge the following:

In accordance with the Honor Code, I affirm that this work has been completed without improper assistance. All content taken from other sources has been properly acknowledged.