

# STT 200 – Statistical Methods

Fall 2019

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## General Information

**Instructor:** Veronika Skorokhod

**Office Location:** C403 Wells Hall

**Office Phone:** (517)353-7815 (*email is highly recommended*)

**Email:** [skorokh2@msu.edu](mailto:skorokh2@msu.edu) (*it's mandatory to provide your section number in your email!*)

**Office Hours:** Mon, Wed 2:00 pm – 3:30 pm and by appointment

**Course website:** <https://d2l.msu.edu>

**Course Meeting Times:** Mon, Wed, Th 4:10 pm – 5:00 pm in C102 Wilson Hall.

You must also attend your scheduled recitation section on Tuesdays (see Schedule of Courses for locations and times).

## Teaching Assistants

| Name                 | Email  | Office | Office Hours           |
|----------------------|--|--------|------------------------|
| Hillenbrand, Michael | <a href="mailto:hillenb4@msu.edu">hillenb4@msu.edu</a> | C430   | Tue, 1:00 pm – 2:00 pm |
| Lee, Sang Kyu        | <a href="mailto:leesa111@msu.edu">leesa111@msu.edu</a> | C511   | Tue, 2:50 am – 3:50 pm |

## Course Description

STT 200 is a three-credit first course in statistical methods. Topics include data analysis, informal probability, randomization-based inference, estimation, tests of hypotheses, confidence intervals, and simple linear regression.

## Prerequisite

MTH 101 or MTH 102 or MTH 103 or MTH 110 or MTH 116 or MTH 124 or MTH 132 or LB 118 or designated score on Mathematics Placement test.

## Course Objectives

The purpose of this class is to give you experience with statistical procedures in personal and professional spheres, including where they are used, how they are used, the advantages they provide, and their limitations. The course requires the TI-84 (or similar calculator) for most calculations and uses real-life data and situations wherever possible. This course will also provide you with a foundation for future Statistics courses.

Along the way you will learn some basic techniques that statisticians (and many non-statisticians) use to visualize and summarize data, some methods for determining what can be due to chance and what cannot, and the limitations as well as the value of these procedures.

This course will strive to add to your progress towards meeting the MSU Undergraduate Learning Goals of

- Analytical Thinking
- Cultural Understanding
- Effective Citizenship
- Effective Communication
- Integrated Reasoning

## Required Materials

- **STT 200 Lecture Notes:** A spiral-bound printout of the lecture notes for the course is available at Collegenille Textbook Company. They are located at 321 East Grand River in downtown East Lansing. A PDF file of the lecture notes will be posted in D2L for printing/downloading if you would rather print the notes yourself.
- **Textbook:** *Introductory Statistics with Randomization and Simulation*, First Edition, by David M. Diez, Christopher D. Barr, and Mine Cetinkaya-Rundel
  - A pdf file of the textbook can be accessed for free from the [textbook website](#).
  - A printed copy can be purchased for [\\$8.49 on Amazon](#).
- **Graphing calculator capable of calculating probability distributions**
  - TI-83/84, TI-89, TI-Nspire, or similar
  - NOTE: The TI-85 and TI-86 do NOT have the functions you will need for your work in this class.
- **WeBWork**
  - We will use WeBWork for online homework. There is a \$50 fee you must pay to use WeBWork.
- **Top Hat**
  - We will use Top Hat as a classroom response system. You must register and pay a subscription fee to use Top Hat. Details at <https://tophat.com/>.

## Course Assessments

### WeBWork Homework (25% of total grade)

WeBWork Homework will be done online at <https://math.msu.edu/Student>

## **Assignments**

There will be 11 online homework assignments throughout the semester. All assignments will be due on Mondays at 11:59 pm. See each assignment on the WeBWorK website for its actual due date.

- No WeBWorK assignments will be dropped.
- It is your responsibility to complete assignments as early as possible to avoid potential incidents.
- In extreme situations such as: university sanctioned event, religious holidays, military obligation, or late add WeBWorK due dates may be extended. This is at the discretion of the instructor.

## **Practice Homework Assignments**

Associated with each homework assignment in WeBWorK is a practice assignment. These contain problems similar to those in the actual assignment. Each problem in a practice assignment is worth one point and you will have unlimited attempts for each practice problem. These practice assignments will remain open all semester and your total points from all practice assignments will be added as extra credit points. Completing all practice problems will contribute an extra 2.5% to your overall course grade. This is the only extra credit that will be offered in the course.

## **Payment Instructions**

There is a \$50 WeBWorK fee that must be paid. The payment window opens on September 18, 2019. The fee must be paid on or before September 25, 2019. Instructions for payment and payment due date are available on the WeBWorK website.

You will have three weeks of free access to WeBWorK before the fee must be paid. There is a strict no-refund policy for WeBWorK fees, so we recommend you take advantage of the three-week free period and do not pay the fee until you are certain you will continue in the course.

## **In-class Assessments (5% of total grade)**

I will be using Top Hat as a classroom response system during lectures each week. Selected Top Hat questions and/or attendance will be chosen each week to count towards a weekly participation grade. Questions that are completed during lecture time will be graded for participation and/or correct answers. In addition to lecture questions there will be a Top Hat quiz available at the end of each week that can be completed outside of class time to allow you to make-up any points you missed during lecture.

Except for Thanksgiving break and exam weeks, there will be a participation grade for each week of the semester unless otherwise indicated by the instructor. The maximum points for each of these grades will be 15. There will be more than 15 points available each week, but only the first 15 you earn will count towards that week's grade. Top Hat join code is 514838.

### **Recitation Activities (5% of total grade)**

You are expected to attend all recitation meetings throughout the semester. Most recitation meetings will include a learning activity that you must be present to complete and turn in to your instructor at the end of the class. Each recitation activity will be worth 10 points. Your lowest recitation activity score will be dropped before final grades are calculated.

DURING RECITATIONS TAs WILL NOT ANSWER QUESTIONS ABOUT HOMEWORK OR LECTURE CONTENT.

Make-up recitation activities will be allowed only in instances of university sanctioned events, religious holidays, military obligation, or late add. In these cases, the instructor and student will work together to decide between a make-up activity or to drop the activity from the student's grade calculation (whichever seems most appropriate for the situation).

### **Exams (65% of total grade)**

There will be two midterm exams and one comprehensive final exam on the following dates and times:

- **Exam 1: Wednesday, October 2, 2019 from 7:45 pm – 9:00 pm**
- **Exam 2: Wednesday, November 13, 2019 from 7:45 pm – 9:00 pm**
- **Exam 3: Thursday, December 12, 2019 from 5:45 pm – 7:45 pm**

Locations for the exam will be announced in class and posted on D2L.

All exams will be closed book. Calculator use will be allowed and encouraged on each exam. You must bring your own calculator to the exams. You may not use the calculator on your phone or any other device that connects to the internet during an exam.

Exam questions are multiple choice, true/false, and short answer problems with interpretation. Computer output may appear on exams and you will be expected to use the output to answer various questions.

No review/cheat sheets or any other outside materials are allowed on exams. A copy of the STT 200 formula sheet will be distributed with each exam and will be posted on D2L with the study materials for the exams.

You **MUST BRING** your MSU student ID, pencils (no pens please), and a graphing calculator (any type except one that can connect to the Internet) to each exam.

## **Make-up exams**

Typically, a missed exam will be counted as a 0, including the final exam.

The exam dates and times have been displayed since the beginning of the semester, therefore excuses such as: work, travel, etc. are not valid reasons for missing the exam.

In rare situations, students who have made travel plans PRIOR to the beginning of the semester for an exam night and have documentation showing this may request accommodations for missing the exam. However, students must request this from their instructor during the FIRST WEEK of the semester. After the first week no travel accommodations will be granted.

A make-up exam is available the day after the exam, at a time and place TBD. In order to be eligible for the make-up exam the student must provide documentation to the instructor no later than 1 week before the exam date. Make-up requests with less than 1 week notice may be turned down (except medical emergency with documentation).

Valid reasons to take the make-up include:

- medical reasons
- university sanctioned event (including class at that time)
- religious holidays
- military obligation

If you're late to an exam, had the wrong day on your schedule, or missed the exam for any unexcused reason, you might not be allowed to make it up and may receive a zero. In such cases, if you are allowed to take a make-up, you will receive a penalty of 25% of the total points possible on the exam. Any missed exams with no communication to the instructor within 24 hours (except for extreme emergencies) may receive a 0.

**NO EARLY FINAL EXAMS.** Plan your schedule in advance, including the purchase of plane tickets, so you leave AFTER our final is over.

## **Midterm regrade requests**

If you would like us to reconsider how we graded a problem on your exam, you may submit a regrade request within one week of when the exams were returned to students. We have a formal process that must be followed in order for us to consider a regrade request:

1. Check the solutions to the exam and compare to your exam and how it was graded. We will not regrade problems that were graded in accordance with the solutions.
2. If you still have a question, use a separate sheet of paper and write down which problem(s) you want to be regraded and why. **DO NOT WRITE ANYTHING ON YOUR EXAM.**
3. Your reason has to be very brief-no more than a few words. In fairness to all students, problems will be regraded based on what was originally written on the exam, not what is written on your regrade request. Long, drawn out arguments will NOT be considered.

4. Attach your request to your exam and turn it in to the instructor within 1 week after exams were returned to students.
5. Once the deadline passes decisions will be made all at once. Decisions are final. No requests will be considered once the deadline passes.
6. If you submit several questions for regrades, we reserve the right to regrade your entire exam. Do not request regrades for every point missed.
7. Regrade requests submitted after the deadline will not be considered. The deadline for regrades is always 1 week after the exams were returned in recitation.

## Grading

Your grade will be based on a weighted scale. Your percentage score on each component of the course will contribute to your grade according to the breakdown below:

| <b>Component</b>        | <b>Percentage</b> |
|-------------------------|-------------------|
| WeBWoRk Homework        | 25%               |
| In-class work (Top Hat) | 5%                |
| Recitation Activities   | 5%                |
| Midterm Exam 1          | 20%               |
| Midterm Exam 2          | 20%               |
| Final exam              | 25%               |
| <b>Total</b>            | <b>100%</b>       |
| Extra credit            | up to 2.5%        |

We fully expect final course grades to be assigned based on the grading scale below.

We do not curve a class unless there is a major problem (which is rare.) **DON'T EXPECT A CURVE.**

| <b>Grade</b> | <b>Range</b> |
|--------------|--------------|
| 4.0          | 100% - 90%   |
| 3.5          | 85% - 89.99% |
| 3.0          | 80% - 84.99% |
| 2.5          | 75% - 79.99% |
| 2.0          | 70% - 74.99% |
| 1.5          | 65% - 69.99% |
| 1.0          | 60% - 64.99% |
| 0            | 0% - 59.99%  |

**WE DON'T MOVE CUTOFFS.** Many people end up close to cutoffs, but moving cutoffs only creates more people being close to the new cutoffs, etc. **Email requests to round grades or change the cutoffs at the end of the semester will not receive a response.**

Any questions about the grading policy or your standing in the class can be directed to the instructor through email or during office hours.

An I-Incomplete may be given only when: the student (a) has completed at least 6/7 of the term of instruction, but is unable to complete the class work and/or take the final examination because of illness or other compelling reason; and (b) has done satisfactory work in the course; and (c) in the instructor's judgment can complete the required work without repeating the course.

## **Course Resources**

### **Desire2Learn (D2L)**

Desire2Learn or D2L is MSU's Learning Management System which we will use for our course. You can use D2L to access course content, check your grades, and communicate with the instructor and other students in the class. Make sure that all your contributions are civil, respectful of other students and the instructor, and on topic.

### **Software**

Documents in this course will be presented in .pdf format where possible. You will need [Adobe Reader](#) to view these files, which you can obtain for free online.

### **Help Room**

A statistics help room exists and is designed to supplement a student's learning and comprehension of classroom material. The statistics help room is located in A102 Wells Hall. Note that the help room is a supplement and not a substitute for attending lectures and recitation meetings. The [Help Room Schedule](#) can be accessed online.

## **Course Policies**

### **Classroom Civility**

We make every effort to start and end on time. Please respect class time; do not pack up early. If you know you have to leave early, please sit near the doors. Please do not talk to others during class. It disturbs those around you. Please silence cell phones and other electronic equipment.

### **Instructor Feedback/Communication**

I am happy to answer your questions and address your concerns and will make every effort to respond to your emails within one business day. If you email the instructor after 5 pm on a Friday, do not expect your email to be answered until Monday.

All important course announcements will be made in class and using D2L announcements AND/OR VIA EMAIL. It is your responsibility to check your email and the D2L course page regularly.

## **Commit to Integrity: Academic Honesty**

Michigan State University affirms the principle that all individuals associated with the academic community have a responsibility for establishing, maintaining, and fostering an understanding and appreciation for academic integrity. Academic integrity is the foundation for university success. Learning how to express original ideas, cite works, work independently, and report results accurately and honestly are skills that carry students beyond their academic career. In addition, the Statistics and Probability department adheres to the policies on academic honesty as specified in General Student Regulations 1.0, Protection of Scholarship and Grades; the all-University Policy on Integrity of Scholarship and Grades; and Ordinance 17.00, Examinations. (See [Spartan Life: Student Handbook and Resource Guide](#) and/or the [MSU Web site](#).)

Therefore, unless authorized by your instructor, you are expected to complete all course assignments, including homework, projects, and exams, without assistance from any source. You are expected to develop original work for this course; therefore, you may not submit course work you completed for another course to satisfy the requirements for this course. Also, you are not authorized to use the [www.allmsu.com](http://www.allmsu.com) Web site to complete any course work in this course. Students who violate MSU academic integrity rules may receive a penalty grade, including a failing grade on the assignment or in the course. Contact your instructor if you are unsure about the appropriateness of your course work. (See also the [Academic Integrity](#) webpage.)

## **Limits to Confidentiality**

All conversations and course materials submitted for this class are generally considered confidential pursuant to the University's student record policies. However, students should be aware that University employees, including instructors and TAs, may not be able to maintain confidentiality when it conflicts with their responsibility to report certain issues to protect the health and safety of MSU community members and others. As the instructor, we must report the following information to other University offices (including the Department of Police and Public Safety) if you share it with me:

- Suspected child abuse/neglect, even if this maltreatment happened when you were a child,
- Allegations of sexual assault or sexual harassment when they involve MSU students, faculty, or staff, and
- Credible threats of harm to oneself or to others.

These reports may trigger contact from a campus official who will want to talk with you about the incident that you have shared. In almost all cases, it will be your decision whether you wish to speak with that individual. If you would like to talk about these events in a more confidential setting you are encouraged to make an appointment with the MSU Counseling Center. Information on the University policy on Relationship Violence and Sexual Misconduct is available at <https://oie.msu.edu/>

## **Inform Your Instructor of Any Accommodations Needed**

From the Resource Center for Persons with Disabilities (RCPD): Michigan State University is committed to providing equal opportunity for participation in all programs, services and activities. Requests for accommodations by persons with disabilities may be made by contacting the [Resource Center for Persons with Disabilities](#) at 517-884-RCPD or online. Once your eligibility for an accommodation has been determined, you will be issued a Verified Individual Services Accommodation ("VISA") form. Please present this form to the instructor at the start of the term and/or two weeks prior to the accommodation date (test, project, etc.). Requests received after this date may not be honored.

## **Emergency action plans**

Please familiarize yourself with Emergency Classroom Guidelines posted in the Lecture Venues and Recitation Classrooms. For more information go to <http://police.msu.edu/fire-safety-training>

## **Grief Absence Policy**

The Statistics faculty and staff work hard to be sensitive and to accommodate the bereavement process of a student who has lost a family member or who is experiencing emotional distress from a similar tragedy so that the student is not academically disadvantaged in their class.

The Statistics Department relies on the University's Grief Absence Policy to alert us of when it is appropriate to grant additional accommodations. According to the University's Grief Absence Policy it is the responsibility of the student to: a) notify the Associate Dean or designee of their college of the need for a grief absence in a timely manner, but no later than one week from the student's initial knowledge of the situation, b) provide appropriate verification of the grief absence as specified by the Associate Dean, and c) complete all missed work as determined in consultation with the instructor.

It is the responsibility of the Associate Dean or designee to: a) determine with the student the expected period of absence – it is expected that some bereavement processes may be more extensive than others depending on individual circumstances, b) notify the faculty that the student will be absent, and c) receive verification of the authenticity of a grief absence request upon the student's return. More information is available at <https://reg.msu.edu/ROInfo/Notices/GriefAbsence.aspx>

## **Drops and Adds**

The last day to add this course is September 4. The last day to drop this course with a tuition refund and no grade reported is September 23. The last day to drop this course with no refund and no grade reported is October 16. You should immediately make a copy of your amended schedule to verify you have added or dropped this course.

## **Religious Observance Policy:**

Information is available at <http://www.interfaith-calendar.org/2019.htm>

## **Commercialized Lecture Notes**

Commercialization of lecture notes and university-provided course materials is not permitted in this course.

## **Disruptive Behavior**

[Article 2.III.B.4 of the Academic Freedom Report \(AFR\)](#) for students at Michigan State University states: "The student's behavior in the classroom shall be conducive to the teaching and learning process for all concerned." Article 2.III.B.10 of the AFR states that "The student has a right to scholarly relationships with faculty based on mutual trust and civility." [General Student Regulation 5.02](#) states: "No student shall . . . interfere with the functions and services of the University (for example, but not limited to, classes . . .) such that the function or service is obstructed or disrupted. Students whose conduct adversely affects the learning environment in this classroom may be subject to disciplinary action through the Student Judicial Affairs office.

## **Attendance**

Students whose names do not appear on the official class list for this course may not attend this class. Students who fail to attend the first four class sessions or class by the fifth day of the semester, whichever occurs first, may be dropped from the course.

## **Build Rapport**

If you find that you have any trouble keeping up with assignments or other aspects of the course, make sure you let your instructor know as early as possible. As you will find, building rapport and effective relationships are key to becoming an effective professional. Make sure that you are proactive in informing your instructor when difficulties arise during the semester so that we can help you find a solution.

## **CHANGES TO THE SYLLABUS.**

**The instructor reserves the right to make changes to this syllabus as the semester progresses. Substantial changes (if any and not likely) will be announced in class and posted on D2L AND/OR VIA EMAIL.**