

Math 133 – Introduction to Probability & Statistics Course Syllabus – Winter 2018, Section 02

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MyStatLab Website: www.mystatlab.com

MyStatLab Course ID: *See Handout*

Class Time/Location: Tues/Thur 11:00 AM - 12:50 PM (JM 241)

Office Hours: <http://bit.ly/sftschedule>

Course Description: This course is an introduction to experimental design, data representation, basic descriptive statistics, probability theorems, frequency distributions and functions, binomial and normal probability distributions and functions, probability density functions, hypothesis testing, statistical inference, chi-square analysis, linear regression, correlation and application of the above in making informed, data-driven decisions in real-world contexts. Both graphing calculators and computer-based statistical software (Microsoft® Excel) will be used. If the prerequisite is more than two years old the recommendation is the course placement assessment be taken or the prerequisite be retaken to ensure the success of the student.

Prerequisite: A 2.0 in MAT 033, 131 or higher, or course placement by exam. (Note: Math 039 is NOT an acceptable prerequisite for Math 133)

Math 133 Core Course Objectives: Students will be able to:

- Perform a hypothesis test involving means and proportions.
- Create, interpret, and apply graphical displays of data (histograms, bar charts, circle graphs, dot plots, and stem and leaf displays)
- Compute, interpret, and apply descriptive numerical measures (mean, mode, median, range, variance, and standard deviation)
- Compute and apply a linear regression line and Pearson product moment correlation coefficient.
- Compute, interpret, and apply probabilities involving discrete, binomial, normal, and t -distributions.
- Compute and apply confidence intervals for means and proportions.
- Use appropriate technology (such as a graphing calculator) to enhance the understanding of previous objectives.
- Demonstrate knowledge and awareness of statistics in scientific issues and current events

MAT 133 General Education Outcomes: GEO 3 – Demonstrate Computational Skills and Mathematical Reasoning

Course Requirements:

Required Materials: MAT 133 Course Pack (Fall 2017 - Spring 2018), MyStatLab (MSL) Student Access, LARGE 3-ring binder, LARGE eraser, pencils, highlighters, TI-84 Calculator **required** (Note: TI-83's cannot run the newest operating system, which puts students using them at a significant disadvantage). **Please note: Access to a computer with Internet is required for this section of MAT 133.** We will be doing homework, projects, and possibly some quizzes online, outside of class. Campus computers *can* be used to satisfy these requirements, but you will need to plan accordingly.

Optional Textbook: *Statistics: Informed Decisions Using Data 5th edition*, by Michael Sullivan, III (Publisher: Prentice Hall). **Please note:** This textbook is available online within MyStatLab.

Online Homework:

- There is a homework assignment for each section in the course, which must be completed outside of class time on a computer with internet access at MyStatLab.
- Regular homework deadlines will be announced in class and posted online.
- You have an unlimited number of attempts for each homework exercise until the due date. Thus, earning 100% on your homework is possible, provided you are persistent.
- There will be video lectures assigned, with notes collected in class, for some sections.
- There are videos available at <http://www.youtube.com/user/tuckeyalanaj> to help you with completing homework assignments, using the help features, and more.

In-Class Work: There will be frequent in-class assignments (turned in for credit). These may be individual or group assignments, closed or open notes at the instructor's discretion. There may also be additional quizzes posted on MyStatLab for students to take outside of class.

NOTE: Late homework will NOT be accepted, so you must make arrangements for submitting your work *by the end of class time* if absence is unavoidable. A useful tool for this is a free, "scan-to-PDF" mobile app, such as "CamScanner," for Android or iOS devices.

Projects: There are two mandatory projects in the course that are designed to improve students' statistical and technological skills and connect course concepts with applications. These are done entirely outside of class and will require the use of a computer, the internet, YouTube, and Excel. You can use school computers to complete the projects, if necessary.

NOTE: JC students have *free access to Microsoft Office* (see <http://bit.ly/freemso>).

Exams: Due to the nature of the course, every exam will have questions that relate to previous exams. The final exam is cumulative for the whole course. Exams **may not be made up** except under extreme, well-documented circumstances. Whether an exam can be made up is solely up to the professor, so contact him immediately if there is a problem. You will be allowed one page (8.5"x11", front and back) of notes of your own creation (i.e., *excluding copies of pages from the course pack*) for *each* exam. All previous note sheets, plus one additional page, may be used on the final exam. There will also be instructor-given tables and info sheets on certain exams.

NOTE: The final exam is during the *last week* of the course and CANNOT be taken early.

NOTE: Due to the large amounts of material in our course, students will need to sit for some exams at the **Walker Hall Testing Lab**, room 121, on Central Campus. Familiarize yourself with the Testing Lab's policies and procedures here: <https://www.jccmi.edu/testing-lab>.

Course Policies:**Grading Policy Information:**

A 2.0 or "C" is a passing grade. Only courses with passing grades count toward graduation. Other colleges transfer in only courses with passing grades. Many financial aid sources, including most employers, require passing grades. Additionally, earning less than a 2.0 in a class results in being unable to participate in the next level of courses in a discipline which requires this course as a prerequisite.

Grading Scale: **Weighted Grade Calculation:**

90-100%	4.0
85-89%	3.5
80-84%	3.0
75-79%	2.5
70-74%	2.0
65-69%	1.5
60-64%	1.0
50-59%	0.5
0-49%	0.0

Online MSL Homework: **10%**
 Worksheets, Quizzes, etc: **15%**
 Exam 1 (Ch 1-4): **15%**
 Exam 2 (Ch 5-7): **15%**
 Exam 3 (Ch 8-10): **15%**
 Projects: **10%** (5% each)
 Cumulative Final (Ch 1-12): **20%**

Extra Credit Policy: There will be no opportunities for *extra* credit. Your grade is based on your performances on course assignments only.

Absence Policy: Students are expected to attend all class meetings, arriving on time, and staying until the end. We do a variety of in-class activities involving other students and group participation and therefore cannot be made up outside of class for any reason. If absence is unavoidable the **student is responsible** for obtaining the missed lecture notes from another student (or by watching the online YouTube lecture videos). Please remember that office hours are not a replacement for class time. See the "**In-Class Work**" section above for dealing with missed assignments due to absences.

Important Dates: Be sure to check out the JC Academic Calendar for important dates such as holidays with no classes, graduation, etc. at <https://www.jccmi.edu/academics/academic-calendar>

Incompletes Policy: A student may request an incomplete from the instructor. The College's incomplete policy will be followed if an "I" is requested. Final determination of whether an incomplete will be given is the instructor's decision.

NOTE: Requesting an "Incomplete" grade is *not* a valid strategy for avoiding a failing one.

Intermediate Grading: To comply with college policy and federal regulations you will receive three intermediate grades during the semester, consisting of letters with the following meanings:

- **V:** Verifies that you are participating and your work so far has been acceptable
- **H:** Means that you are participating, but your work shows that you may require Help in order to complete the class successfully.
- **Q:** Means that you have quit participating (or lack the required materials to remain) in the course. If you receive a Q grade, you will automatically be withdrawn from the course.

Academic Honesty Policy: You are *encouraged* to talk to each other, but all your work must be your own. "Group-work" is a great way to learn material, but anything you submit must be yours; reflecting your own thought processes, not those of another. I will follow JC's Academic Honesty Policy and take appropriate action up to and including assigning a **failing grade** for the assignment, project, exam, or the course itself (whichever I deem necessary). The policy can be seen here:

<https://www.jccmi.edu/wp-content/uploads/1004.pdf>

Classroom Behavior Policy:

1. **Be responsible** for your work, for your learning, and for your behavior in class.
The online homework and take-home worksheets will require responsibility and organization on your part. You will need to stay on top of your schedule and your life to make sure that all coursework is done in a timely fashion. The single most common piece of advice given by successful students in this course to those about to take it is simply: ***Keep up with your homework and don't fall behind.***
2. **Be respectful** of other students, of the instructor, of the material, and of yourself.
Turn *OFF* your cell phones, no chewing tobacco, come on time, stay the full time, be prepared to answer questions and work together. These are typical "classroom rules" for a good reason -- distractions (*especially from electronic devices*) decrease your ability to focus, and that of the people around you. **Classrooms work best when everyone is focused and prepared.**

Where to Get Help...

Office Hours: Office hours are there for you to get assistance. Please come and see me if you need questions answered. Remember, though, that office hours are not a replacement for attending class.

Center for Student Success: The Center for Student Success has tutoring available for free to students enrolled in Math 133. You can get help with take-home work, MyStatLab homework, and more. The Center is located in Bert Walker Hall. Phone: 517-796-8415. Hours: <http://bit.ly/jctutoringhours>.

SI Leaders: Some sections of 133 may have Supplemental Instruction Leaders who will have sessions that are *open to all 133 students*. For more information, check out <http://bit.ly/jcsischedule>.

YouTube Videos: Lead Faculty (and all-around superstar) Alana Tuckey has created hundreds of videos showing for this course including lectures, Excel, the calculator, tricky MSL problem-walkthroughs, and more. Go to: <http://www.youtube.com/user/tuckeyalanaj> and check out the **133 playlists**.

MyStatLab: There are videos, extra problems, sample exams, lecture notes, PowerPoint lectures and more available in MyStatLab. It's a great resource!

Each Other: Get a regular study group. Write down names and numbers of your peers and call on each other when needed!

Name:	Contact Info:	Availability:

Math 133 (Winter 2018) Tentative 15-Week Schedule			
Day	Date	Material Covered	Topics
1		1.1, 3.1	Introduction to Statistics; Measures of Center
2		1.3, 1.4, 3.2	Measures of Spread
3		3.3-3.4	Weighted Mean; Measures of Position
4		3.4-3.5	Measures of Position; Boxplots
5		1.2, 4.1	Correlation
6		4.2, 4.3	Linear Regression, Residual Plots
7		Review for Exam 1	
8		5.1	Basics of Probability
9		5.2	Addition Rule
10		5.3	Multiplication Rule
11		4.4, 5.4	Contingency Tables; Conditional Probability
12		6.1-6.2	Discrete Probability Distributions; Start Binomial Distribution
13		6.2, 7.1	Binomial Distribution; Normal Distribution
14		7.2, 7.3	Normal Distributions; Normal Probability Plot
15		Review for Exam 2	
16		1.5, 8.1-8.2	Bias in Sampling; Distribution of Sample Means and Sample Proportions
17		9.1	Confidence Intervals for Proportions
18		9.2	Confidence Intervals for Means
19		9.4, 9.5	More with Confidence Intervals; Confidence Interval Review
20		10.1	Basics of Hypothesis Testing
21		10.2	Hypothesis testing with Proportions
22		10.3, 10.5	Hypothesis testing with Means, Review of Hypothesis Tests
23		Review for Exam 3	
24		11.1	Hypothesis testing for Difference of Proportions
25		11.2	Hypothesis testing for Difference of Means - Dependent Samples
26		11.3, 11.5	Hypothesis testing for Difference of Means - Independent Samples
27		12.1	Hypothesis testing for Goodness of Fit
28		12.2	Hypothesis testing for Independence
29		Review for Final Exam	
30		FINAL EXAMINATION	

NOTE!! This schedule is *tentative* and subject to change as the course progresses. To know exactly what was covered, you must attend class!
