



## Introduction to Probability and Statistics

MAT 133.PWI1

Semester: Spring 2020

Number of Credits: 4

Days Class Meets:

Meeting Times: Videos will be watched at times designated by your location

Location: Women's Huron Valley Facility

Instructor: Sweeney

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### Course Descriptions

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, linear regression, correlation and application of the above in making informed, data-driven decisions in real-world contexts. Graphing calculators 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(s)

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)

### 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 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.
- Knowledge and awareness of statistics in scientific issues and current events

**Math 133 General Education Outcomes:** The course goals and objectives incorporate specific General Education Outcomes (GEOs) established by the JC Board of Trustees, administration, and faculty. These goals are in concert with four-year colleges and universities and reflect input from the professional communities we serve. GEOs guarantee students achieve goals necessary for graduation credit, transferability, and professional skills needed in many certification programs. The GEOs and course objective addressed in this class is **GEO 3** – Demonstrate Computational Skills and Mathematical Reasoning.

## Required Materials

- **MAT 133 Course Pack Fall 2019 - Spring 2020**
- **TI-84 Calculator** (Note: TI-83s cannot run the newest operating system, which puts students using them at a *significant* disadvantage.)

## Extras

- Folder, Pencils, Erasers, Ruler/Straight Edge
- **Optional Textbook:** *Statistics: Informed Decisions Using Data 5th edition*, Author: Michael Sullivan, III, Publisher: Prentice Hall

## Grading Procedure

### Category #1: Chapter Homework

- **Homework:** There will be chapter review assignments to be completed outside of class and turned in for grading.

### Category #2: Project

- There is one mandatory project in the course that is designed to improve students' statistical skills and connect course concepts with applications.

### Category #3: Chapter Exams

- Due to the nature of the course, every exam will have questions that relate to previous exams. You will be allowed the use of one page (8.5" x 11", front and back) of notes of your own creation (*excluding copies of pages from the course notes*) for each exam.
- Exams that are submitted without the honesty statement signed will NOT be graded.

### Category #4: Final Exam

- 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. For the final exam, students will be allowed four pages of notes of their own creation.

## Grading Scale

GPA	GRADE RANGE	GRADE CALCULATION
4.0	90-100%	
3.5	85-89%	Chapter Homework – 10%
3.0	80-84%	Project – 10%
2.5	75-79%	Exam Ch. 3-6 – 15%
2.0	70-74%	Exam Ch. 7-10 – 15%
1.5	65-69%	Final Exam – 50%
1.0	60-64%	
0.5	55-59%	
0.0	0-54%	

### Incomplete Policy

A student may request an incomplete from the instructor, who will follow the JC Incomplete Policy. An incomplete may be granted only if the student can provide documentation that his or her work up to that point is sufficient in quality, but lacking in quantity, due to circumstances beyond the student's control. Furthermore, a written plan for making up the missing work within one semester must be completed by the student. Final determination of whether an incomplete will be given is the instructor's decision. Note: An "Incomplete" grade is not a way to avoid a failing one.

### Absence Policy

Students are expected to submit all work to be picked up at times decided by Jackson College and your location. If you are unable to return the required assignments it is your responsibility to email your instructor through the Jpay system.

### Extra Credit Policy

There will be no opportunities for extra credit. Your grade calculation is based solely on your performance on course assignments listed above.

### Classroom Behavior Policy

***We know what a person thinks not when he tells us what he thinks, but by his actions.*** - Issac B. Singer

**We are each responsible for our work, our learning, and the consistency of our performances.**

The regular in-class collaborations, homework, and examinations will require consistent effort on your part. Generally speaking, mathematics is much like a foreign language – it requires regular effort and consistent practice to understand and master.

**We are each respectful of everyone in the class (including ourselves).**

Come prepared to work together and ask/answer questions.

**We will communicate with each other promptly regarding problems or concerns.**

Regular, direct communication solves many more problems than it causes.

## Academic Honesty Policy

Academic Honesty is defined as ethical behavior that includes student production of their own work and not representing others' work as their own, by cheating or by helping others to do so.

**Plagiarism is defined as the failure to give credit for the use of material from outside sources.**

**Plagiarism includes but is not limited to:**

- Submitting other's work as your own
- Using data, illustrations, pictures, quotations, or paraphrases from other sources without adequate documentation
- Reusing significant, identical or nearly identical portions of one's own prior work without acknowledging that one is doing so or without citing this original work (self-plagiarism)

**Cheating is defined as obtaining answers/material from an outside source without authorization.**

**Cheating includes, but is not limited to:**

- Plagiarizing in any form
- Using notes/books/electronic material without authorization
- Copying
- Submitting others' work as your own or submitting your work for others
- Altering graded work
- Falsifying data
- Exhibiting other behaviors generally considered unethical
- Allowing your work to be submitted by others

If I suspect you of academic dishonesty, I will follow JC's Academic Honesty Policy and take appropriate action up to and including assigning a **failing grade** for the paper, report, exam, or the course itself (whichever I deem necessary).

## Where to Get Help

Your fellow students and I are your best, most immediate, resources for learning. Even so, there are many other sources to consider and investigate. Be creative, be resourceful, and share what you find -- we're all in this together!

## Important Dates:

DATE	EVENT
JULY 6	CLASSES BEGIN
JULY 15	1 <sup>ST</sup> JC PICKUP - NO ASSIGNMENTS DUE FOR MAT 133
JULY 29	2 <sup>ND</sup> JC PICKUP – EXAM 1, HW CH 3-6
AUGUST 10	3 <sup>RD</sup> JC PICKUP – EXAM 2, HW CH 7-10
AUGUST 21	LAST JC PICKUP – FINAL EXAM & PROJECT (NO CH HOMEWORK)

		<b>Math 133 - Spring 2020 Schedule</b>			
Day	Date	Date	Sections Covered in Videos	Independent Study	Topics
W1D1	July 6		3.1-3.3	3.4-3.5	Measures of Central Tendency & Dispersion
W1D2	July 8		4.1-4.3		Linear Regression & Correlation
W2D3	July 13		5.1-5.2		Probability Rules
W2D4	July 15		5.3-6.1		Probability Rules & Binomial Probability
W3D5	July 20		6.2		Binomial Probability
	<b>JULY 29</b>				<b>PACKET PICK UP - Submit Exam 1 &amp; Chapter Homework for Chapters 3-6</b>
W3D6	July 22		7.1-7.3		Normal Probability Distributions
W4D7	July 27		8.1-8.2		Central Limit Theorem
W4D8	July 29		9.1	9.2-9.4	Confidence Intervals
W5D9	Aug 3		10.1	9.5	Basics of Hypothesis Testing
W5D10	Aug 5		10.2-10.3	10.5	Hypothesis testing with Proportions & with Means
	<b>AUG 10</b>				<b>PACKET PICK UP - Submit Exam 2 &amp; Chapter Homework for Chapters 7-10</b>
W6D11	Aug 10		11.1		Hypothesis testing for Difference of Proportions
W6D12	Aug 12		11.2		Hypothesis testing for Difference of Means - Dep. Samples
W7D13	Aug 17		11.3	11.5	Hypothesis testing for Difference of Means - Ind. Samples
W7D14	Aug 19	None	None	Final Exam	<b>Final Exam; Calculators and Hard Cover Textbooks Returned to School Personnel</b>
	<b>AUG 21</b>				<b>FINAL PACKET PICK UP - Submit Final Exam &amp; Project</b>