



Introduction to Probability and Statistics

MAT 133

Semester: Spring 2021

Number of Credits: 4

Days Class Meets:

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

Location: Correctional Facility

Instructor: Fellows

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 Notes & Practice Sheets WN21 & SP21**
- **MAT 133 Information, Homework, & Assessment Packet SP 21**
- **TI-84 Calculator** (Note: TI-83s cannot run the newest operating system, which puts students using them at a *significant* disadvantage.)

Extras (Optional Items)

- Folder, Pencils, Pens, 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: There will be frequent assignments to be completed outside of class, including worksheets, watching videos to fill out notes, etc.

Category #2: Weekly Questions: Each week I will send you a JPay with a couple of questions pertaining to the topics being covered. You must respond for attendance and grading purposes. Answers will be counted correct if a logical, on topic reply is received, even if the final conclusion is incorrect.

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 and in your own handwriting (*excluding copies of pages from the course notes*) for each exam.

Category #4: Final Exam: The final exam is cumulative for the whole course. You will be allowed the use of four pages (8.5" x 11", front and back) of notes of your own creation and in your own handwriting (*excluding copies of pages from the course notes*) for the final exam. The notes sheets **MUST** be submitted with the final exam.

Grading Scale

GPA	GRADE RANGE	GRADE CALCULATION
4.0	90-100%	
3.5	85-89%	Chapter Homework – 10%
3.0	80-84%	Weekly Questions – 10%
2.5	75-79%	Project – 5%
2.0	70-74%	Exam Ch. 3-6 – 11%
1.5	65-69%	Exam Ch. 7-10 – 11%
1.0	60-64%	Exam Ch. 7-10 – 11%
0.5	55-59%	Final Exam – 42%
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 required to reply to an instructor initiated JPAY every week by Thursday of that week in order to be counted as present in the class. 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 the instructor suspects a student of academic dishonesty, they 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 the instructor deems 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!

Notice about Dates:

Due to circumstances beyond anyone's control, due dates are subject to change. If a video for a topic is unavailable for viewing before the assignment for that topic is due, you do not have to submit that

assignment. Send a JPay letting me know about the issue and submit the assignment at the next work pick up. I will communicate with you about any date changes.

Important Dates: Subject to Change at Instructor’s Discretion

DATE	EVENT
June 1	CLASSES BEGIN
June 11	1 ST JC PICKUP – CHAPTER 3 HW
June 25	2 ND JC PICKUP – CHAPTER 4, 5 HW
July 9	3 RD JC PICKUP – CHAPTER 6, & 7 HW, EXAM I
July 23	4 TH JC PICKUP – CHAPTER 8, 9 & 10 HW, EXAM II
Aug 6	5 TH JC PICKUP – PROJECT & EXAM III
Aug 20	LAST JC PICKUP – FINAL EXAM

Grade Calculation:

Table A
HW
#1
#2
#3
#4
#5
#6
#7
#8
#9
#10

You are able to calculate your grade by using a weighted mean as discussed in 3.3 of this class. Below are two tables to help you with that. Record all HW in Table A. You will need to find the mean of your HW in order to calculate your grade. In Table B record your project and exam scores as you receive them. I will send you your scores via JPAY.

Table B	% of Grade (Enter into L2)	Your Grade (Enter into L1)
Mean of HW	10	
Mean of JPay Questions	10	
Exam 1	11	
Exam 2	11	
Exam 3	11	
Project	5	
Final Exam	42	
Total Grade		

Note: Only enter into L1 %'s for which you have a grade otherwise you will get an error!

Math 133 – Spring 2021 Schedule

Unit	Day	Date	Sections Covered in Videos	Independent Study	Topics
Unit 1	1		3.1-3.2		Measures of Central Tendency
Unit 1	2		3.3	3.4-3.5	Measures of Central Tendency & Dispersion
Unit 2	3		4.1		Linear Regression & Correlation
Unit 2	4		4.2-4.3		Linear Regression & Correlation
Unit 3	5		5.1-5.2		Probability Rules
Unit 3	6		5.3		Probability Rules
Unit 4	7		6.1		Binomial Probability
Unit 4	8		6.2		Binomial Probability
Unit 5	9		7.1		Normal Probability Distributions
Unit 5	10		7.2-7.3		Normal Probability Distributions
Unit 6	11		8.1		Central Limit Theorem
Unit 6	12		8.2		Central Limit Theorem
Unit 7	13		9.1	9.2, 9.4	Confidence Intervals
Unit 7	14		10.1	9.5	Basics of Hypothesis Testing
Unit 8	15		10.2		Hypothesis testing with Proportions
Unit 8	16		10.3	10.5	Hypothesis testing with Means
Unit 9	17		11.1		Hypothesis testing for Difference of Proportions
Unit 9	18		11.2		Hypothesis testing for Difference of Means - Dep. Samples
Unit 10	19		11.3	11.5	Hypothesis testing for Difference of Means - Ind. Samples
Unit 10	20		None	Final Exam	Final Exam; Calculators and Hard Cover Textbooks Returned to School Personnel