# Introduction to Probability and Statistics

MAT 133.I60

Semester: SP22

**Number of Credits:** 4

**Meeting Days/Times:** Mon/Wed 9am – 11am

**Class Dates:** 3/14/2022 – 4/30/2022

**Location/Venue**: Zoom link in JetNet

**Instructor:** Dr. Matthew Barco

**Contact Email:** BarcoMatthewL@jccmi.edu

**Office Hours:** T/Th 1:00pm – 3:00pm (JM 250)
M/W 1:00pm – 3:00pm Zoom

**MyStatLab Code:** barco55027

## 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, 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(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 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.
- 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 **Coursepack** *Fa21 – Sp22 - Note this is covered by a fee for the course!*
  - Store Pick-up: Course packs are available in the [Jets Store](#) for pickup, they are open Monday-Friday 9am-5pm
  - **Delivery:** For students who are out of county the Jets Store can ship their course materials. Students need to send an email to JetsStore@jccmi.edu requesting shipment with the following information:
    - **Student's Full Name:**
    - **Course Name and number:** MAT 133
    - **Coursepack Needed:** MAT 133 Coursepack (FA21-SP22)
    - **Student's Full Address:**
- **MyStatLab** ("MSL") – If you are participating in the [JC Textbook Program](#), look for an email from BibliU about this in your JC email. If you are not participating in the textbook program, you will need to purchase access separately. To register for MAT.133.I60.SP22.BARCO:
    - Go to [https://mlm.pearson.com/enrollment/barco55027](https://mlm.pearson.com/enrollment/barco55027).
    - Sign in with your Pearson student account or create your account. Instructors, use or create a Pearson student account to register as a student. Don't use your instructor account.
    - Select any available access option, if asked.
        - Enter a prepaid access code that came with your textbook or from the bookstore.
        - Buy instant access using a credit card or PayPal.
        - Select Get temporary access without payment for 14 days.
    - Select Go to my course.
    - Select MAT.133.I60.SP22.BARCO from My Courses.
- *Optional* **Textbook:** Statistics: Informed Decisions Using Data 6th edition, Author: Michael Sullivan III, Publisher: Pearson, ISBN 13: 978-0-123-578018-3 **Textbook Zero:** This textbook is available digitally within MyStatLab and does not need to be purchased separately.
- **Scan-to-PDF Technology:** Free mobile app or stand-alone scanner for submitting PDF files. Some potential apps: [Adobe Scan](#), [CamScanner](#), [Genius Scan](#), [Office Lens](#), etc.
- **Other Stuff**: Computer, **webcam**, **microphone**, and consistent **internet access** (webcam used for proctoring may be on phone or tablet) **For Projects**: Tape Measure, M&Ms and Skittles

## Grading Scale

| GPA | GRADE RANGE | GRADE CALCULATION |
|:---:|:---:|:---:|
| 4.0 | 90-100% | |
| 3.5 | 85-89% | MyStatLab Homework = 15% |
| 3.0 | 80-84% | MyStatLab Quizzes = 15% |
| 2.5 | 75-79% | Projects = 20% |
| 2.0 | 70-74% | Midterm Exam = 25% |
| 1.5 | 65-69% | Final Exam = 25% |
| 1.0 | 60-64% | |
| 0.5 | 50-59% | |
| 0.0 | 0-49% | |

## Grading Procedure

**Category #1: MyStatLab (MSL) Assignments** These assignments (quizzes, homework, etc.) must be done on a computer with internet access at MyStatLab (reachable through http://www.mystatlab.com). Check MyStatLab and with your instructor for particular due dates.

**Category #2: Projects** These activities and worksheets will use StatCrunch. They may also involve groupwork, active participation, and working with applets. They will be discussed in Live Class Sessions

**Categories #3 & #4: Midterm & Final Exams** The Midterm Exam (Ch 1-6) and Final Exam (Ch 1-11) are **proctored**, closed-book tests that must be taken while being monitored via a web camera. In addition, you may be required to screen-share and/or scan your environment during the exam.

- **Note Sheets:** You will be able to use the "Exam Notes Packet" from the coursepack during both Exams. You may also make pages of notes on 8.5 by 11 paper to use on the exams (2 sheets of paper for the midterm, 4 sheets for the final exam – front and back of sheets is fine)
- **Timing:**
  - These exams are proctored, using Zoom so you must have an external device which can show both you and your computer as well as your work environment (usually a phone works well for this, but you should have a stand to place it on).
  - You will have the opportunity to take each of these exams during a normal class session, or you can make other arrangements directly with your instructor.
  - The Final Exam is during the last week of the course and cannot be taken early so do NOT schedule travel plans during that week or you will receive a ZERO on the final.
  - Exams not taken by the due date will receive a grade of zero except under extreme, well-documented circumstances arranged *in advance* of the due date with the instructor.

## 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.

## Attendance Policy

Just as in a traditional classroom course, regular participation and keeping up with assignments is required. It is my experience that students that regularly attend and participate in the Live Class Sessions are significantly more successful in the course. Therefore, students are encouraged to attend and participate fully in all Live Class Sessions whenever possible.

Participation in the live class sessions may require:

1. Regularly showing your face via webcam

2. Talking and working with others (including your instructor) through Zoom in both whole class sessions and "breakout" rooms.

3. Contributing to class and group discussions

4. Sharing your screen and/or work with your groupmates and/or the class.

In compliance with Federal Title IV funding requirements, as well as college initiatives, I will be monitoring student participation on a regular basis and officially reporting student activity throughout the term to assure compliance with college policy and federal regulations. It is imperative that you log in to the course and actively participate within the first couple of days of the term to validate your enrollment in the course. After that, not actively participating in class (i.e. not completing assignments) may result in you being withdrawn from the course. Being withdrawn from a course can have an impact on financial aid, billing, athletic eligibility, and housing status. As a college student you are responsible for how your participation impacts your academic progress; the accountability lies with you.

## Absence Policy

If absence us unavoidable the student is responsible for doing the following:

1. Contact the instructor or your peers about any questions you have.
2. Watch the recording of class – if available.
3. Turn in all assignments on time.

Please remember that office hours are not a replacement for class time.

**Student absence:** Students are responsible for submitting work by the due date, except in well-documented, emergency situations, which require notification of the instructor as soon as possible. Please note that travel, vacations (including breaks observed by other schools that are not JC breaks) and work schedules are not considered emergencies. You may work ahead in this class and submit items in advance, but late work will not be accepted in these situations.

**JC scheduled breaks:** No 'extra' work will be assigned over any JC break, and no due dates will coincide with a day on which the college is scheduled to be closed/on break. Typically, one standard length assignment will be given just prior to any break, just as it is on any class day, and that assignment will be due when classes resume.

## 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

**Please note:** Students that do the following are considered to be in violation of JC's Academic Honesty Policy and consequences will follow.

- Posting course materials to sites such as Chegg or CourseHero is considered academically dishonest. If the MAT 133 materials are posted there, I will ask the Dean's office to request the student's personal information from the site.
- MAT 133 answers or solutions that are found from computer programs or software, unless specifically allowed.

## 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, online 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).**

Please silence mobile phones and other electronic devices, refrain from using any tobacco products, and come prepared (and on time) 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.  Please do not hesitate to contact me for any reason, and I will do the same with you.

## Caveat

Students are advised that some revisions to this syllabus may be necessary during the course due to school closing policies, instructor illness and other procedural improbabilities.

## Accessibility

Jackson College understands that cultivating a broadly diverse community is crucial to our educational mission and to our foundational commitment to leadership and service. Jackson College is fully committed to ensuring our courses are accessible to everyone including those with disabilities. We are currently working to increase accessibility and usability of our course materials in order to meet or exceed the requirements of Section 508 of the Rehabilitation Act of 1973, the Americans with Disabilities Act of 1991 and Web Content Accessibility Guidelines (WCAG) 2.0. For more information about Jackson College's efforts to ensure accessibility please visit the Jackson College accessibility web page.

If you have an accessibility need in any of our classes please e-mail the Center for Student Success at JCCSS@jccmi.edu or visit the Center for Student Success web page.

At the Center for Student Success (CSS), we are committed to providing all students the opportunity to achieve academic success by providing a variety of support services free of charge to Jackson College students. This includes, but is not limited to, peer and faculty tutoring, mental health referral, temporary assistance with transportation, various workshops/seminars, and the TRIO program.

In addition, the CSS staff is committed to adapting the College's general services to meet the individual needs of otherwise qualified students with disabilities, for the purpose of providing equal access to all programs and facilities.

## Oasis Center

During a student's college experience, one might encounter situations that impact their learning environment. When these situations occur, support from the Oasis Center is available to provide short-term assistance. If the situation requires ongoing support, the Oasis Center staff can provide that level of support or will assist the individual in securing an outside agency to provide it. For more information visit the Jackson College Oasis Center webpage https://www.jccmi.edu/the-oasis-center/

## Academic Advising

Student success navigators serve not only as academic advisors but as a student's academic, financial and total resource advocate or coach. Students will have an assigned navigator to meet with for advising and any questions they may have. Navigators will serve as the "go-to" person to help students throughout the college experience. It is important to know your Student Success Navigator. You may find your Navigator by visiting this website https://www.jccmi.edu/academics/academic-advising/ and click on your pathway. You should also receive an email from your Navigator at the beginning of the semester.

## 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! I strongly suggest you start up a regular study group as soon as you are able with some of your classmates. For more information on starting and maintaining a study group, check out the following link: http://bit.ly/math-study-group. Other sources of help:

- **Office Hours:** Meet with me during office hours.
- **Jackson College's Center for Student Success (CSS):** Free online tutoring in is available at http://www.jccmi.edu/Success/Tutor/.
- **Supplemental Instruction:** Some sections of the course have Supplemental Instruction (SI) Leaders assigned to them. These students will serve as peer "math coaches" for the students in that section, and will facilitate weekly study sessions. These study sessions are open to *all* MAT 133 students and are completely voluntary, but highly recommended. **In a recent semester, students that utilized SI study sessions experienced an increase of over 17% in their pass rates, compared to those who did not.** Even if your section does not have an SI Leader, you are encouraged to attend SI Sessions for your course. For times and locations of SI sessions, go to https://www.jccmi.edu/supplemental-instruction/
- **YouTube Videos:** Lead Faculty Alana Tuckey has created hundreds of videos showing for this course including lectures, calculator tutorials, and more. Go to: http://www.youtube.com/user/tuckeyalanaj and check out any 133 playlists.
- **MyStatLab:** There are videos, extra problems, sample exams, lecture notes, PowerPoint lectures and more available in MyStatLab. It's a great resource! In particular, the **Study Plan** in MyStatLab can help with studying for exams as it gives you unlimited extra problems to do for practice.

## Calendar

* Note: Calendar timelines and assignments are an approximation and could be changed.

| DATE | TOPIC |
| --- | --- |
| Monday, March 14, 2022 | 3.1, 3.2 |
| Wednesday, March 16, 2022 | 3.3, 3.4/3.5 |
| Monday, March 21, 2022 | 4.1, 4.2 |
| Wednesday, March 13, 2022 | 4.3, 5.1 |
| Monday, March 28, 2022 | 5.2, 5.3 |
| Wednesday, March 30, 2022 | 6.1, 6.2 |
| Monday, April 4, 2022 | Proctored Midterm Exam |
| Wednesday, April 6, 2022 | 7.1, 7.2, 7.3 |
| Monday, April 11, 2022 | 8.1, 8.2 |
| Wednesday, April 13, 2022 | 9.1, 9.2, 9.4 |
| Monday, April 18, 2022 | 10.1, 10.2 |
| Wednesday, April 20, 2022 | 10.3, 11.1 |
| Monday, April 25, 2022 | 11.2, 11.3 |
| Wednesday, April 27, 2022 | Proctored Final Exam |