MAT 033.71 – Algebra for Statistics
Course Syllabus, Spring 2014

Professor: Steve Tuckey

Office & Schedule: James McDivitt Hall, room 142; *See http://bit.ly/sftschedule*

Contact Info: tuckeysteven@jccmi.edu (*email is the best method*)
781.523.9805 (*Google Voice number; texts and voice, no images*)

MyMathLab: http://mymathlab.com (Course ID: **tuckey18143**)

Class Time & Location: Tuesdays & Thursdays, 11:00 AM - 1:25 PM
JC @ LISD Building, room 131

SI Leader: Carrie Timmerman (TimmermCarrieJ@jccmi.edu)

Required Materials:

TI-84 Plus calculator with updated OS (the TI-83 is *not* supported)
MAT 033 Custom Text Bundle with MML Student Access Code (ISBN: 1269541579, *only in Bookstore*)
MAT 033 Course Pack for Winter/Spring 2014 (*only in Bookstore*)

Please note:

- ✓ The ***only*** MyMathLab Student Access codes that will work are those bundled with the Custom Text Bundle in the JC Bookstore.
- ✓ Access to an Internet-connected computer and Microsoft Excel is required for Math 033. Multiple Excel-based projects will be assigned and regular class homework must be completed on a computer with Internet access—whether on campus, at home, or elsewhere.

Strongly Suggested: multi-colored highlighters, pencils, eraser, ruler, sticky notes, binder

Course Description:

As an alternative pathway to college-level mathematics, this course introduces fundamental algebraic concepts within an underlying framework of statistics and mathematical modeling based on real-world data. Major concepts and themes include: problem solving and experimental design; unit analysis and error in measurement; dimensional analysis and scientific notation; representing data and coordinate graphing; introduction to basic descriptive statistics and probability theorems; basic geometric principles (area, volume, perimeter); arithmetic operations on numbers, ratios, summations, and percents; solution and manipulation of formulas; modeling relationships (linear and exponential regression); solving equations and inequalities; and function arithmetic and graphing. Appropriate technology includes a graphing calculator.

Prerequisite:

A 2.0 in MAT 020 within 2 years or course placement by exam.

Course Objectives and Outcomes:

Math 033 Core Course Objectives: Students successfully completing Math 033 will be able to:

1. Create, interpret, and apply graphical displays of data (histograms, bar charts, circle graphs, dot plots, and stem and leaf displays).
2. Compute, interpret, and apply descriptive numerical measures (mean, mode, median, range, variance, and standard deviation).
3. Use algebraic processes to manipulate formulas, simplify basic algebraic expressions and solve linear equations and inequalities.
4. Demonstrate understanding of functions, independent and dependent variables, number theory, sets, and mathematical notation.
5. Demonstrate understanding of concepts of equations by finding and interpreting appropriate graphs, *x*- and *y*-intercepts, and specific function characteristics.
6. Generate and interpret regression models to fit data.
7. Make, interpret, and compute with measurements in scientific notation.
8. Use appropriate technology (such as a graphing calculator) to enhance the understanding of previous objectives.
9. Demonstrate knowledge and awareness of statistics in scientific argumentation and current events.

***Math 033 Associate Degree Outcomes*:** All courses at Jackson College address one or more of the institutionally defined Associate Degree Outcomes (ADOs). MAT 033 contributes to the following outcomes.

ADO 3: Demonstrate computational skills and mathematical reasoning

Demonstrates computational skills using positive and negative numbers, fractions, and decimals, ratio and percents.
Demonstrates "numerical literacy," involving:
1) an ability to use multiple representations of numbers interchangeably,
2) recognition of the relative magnitudes of numbers,
3) knowledge of the relative effect of operating on numbers in particular contexts, and
4) the development of referents for measures of common objects and situations.
Uses and understands basic mathematical and statistical terminology – e.g., term, equation, exponent, mean, median, standard deviation.
Demonstrate an understanding of statistical displays (histograms, bar charts, pie charts, boxplots, stem-and-leaf plots)
Expresses work in an organized manner in order to reach a well-supported and justified conclusion that is reasonable within the context of a situation.
Uses mathematical methods and concepts in a variety of situations to model and solve problems.
Acquires and applies a broad range of skills, concepts, and technologies to facilitate efforts to visualize, interpret, and solve statistical problems.
Uses graphic calculator and/or computer statistical systems to support mathematical reasoning and problem solving
Understands that the role of statistics and mathematical modeling in interpreting the material world – bias, misleading graphs, comparisons of statistics and parameters, and using models to interpolate/extrapolate.

ADO 7: Demonstrate Problem Solving

Distinguishes between fact, opinion, inference, and prediction
Questions the source of evidence to articulate potential sources of bias and error.
Demonstrates an understanding of the nature of bias in evidence supporting arguments.
Recognizes how context impacts conclusions.
Understands how conclusions change with changes in knowledge and contextual factors.
Incorporates new knowledge with old, to form new ideas.
Articulates conclusions about data based on statistics and representations.
Uses expanded vocabulary to articulate solutions and conclusions to new problems in new contexts.

Course Requirements:

Online Homework:

Much of the practice work in this course will be done via the MyMathLab online homework system.

- These assignments must be done outside of class time on a computer with Internet access at **MyMathLab** (connect through http://www.mymathlab.com).
- Homework due dates are listed on the MyMathLab course and announced in class.
- There are videos available on http://www.youtube.com/user/jccmat033 and elsewhere to help you navigate completing homework assignments and projects, using MML features, and more.

In-Class Work, Quizzes, etc.:

There will be in-class work submitted in class (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 MyMathLab for students to take outside of class.

Projects:

There will be three *required* projects for this course that expand on concepts covered and require students to use real-world data and tools (Microsoft Excel computer software). One will involve unit analysis and real-world applications. Another will involve analyzing a data set and producing graphical displays with Microsoft Excel. Another will involve collecting data from an online source, determining relationships, and reporting conclusions. These projects are required of all students taking the course.

Exams:

Each of the three exams may have cumulative review questions. The final exam is cumulative for the whole course. Students may create a 1-page (both sides) note sheet for use on each exam, and all previous exam note sheets may be used on the final exam. **Exams may not be made up** except under previously arranged, well-documented, unavoidable circumstances (final determination made by the instructor). Any such make-up exams must be completed before the next class period or a zero will be given for that exam. Students will sit for some exams outside of regular class times, by going to the JC @ LISD main office. Students must familiarize themselves with the hours available for testing by visiting the main office: http://www.jccmi.edu/lenawee/hours.htm.

Important Dates:

Students should visit the JC Academic Calendar to familiarize themselves with any holidays with no classes, the last day to withdraw, etc. at http://www.jccmi.edu/academics/academic_calendar.htm

Course Policies:

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, as well as handouts. If absence is unavoidable the student is responsible for obtaining the missed lecture notes and assignments from another student, or from the MML site. Please remember that office hours are not a replacement for class time. Any in-class work missed in class can be found through the MyMathLab course and can be printed from there. Students that are absent can complete these assignments and submit them *when they return to class again*; in order to receive credit they must be submitted before graded papers are returned (typically, the next class session).

Grading Policy Information:

A 2.0 or "C" is a passing grade. Only courses with passing grades count toward graduation. Many financial aid sources, including most employers, require passing grades. Additionally, earning less than a 2.0 in this class will result in you being unable to participate in the next level of courses that require this course as a prerequisite (including MAT 133). This will prevent access to any further programs of study or completion of any associates degree.

Grading Scale:

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
55 – 59%	0.5
0 – 55%	0.0

Overall Course Grade Weights:

MML Work: 15%
In-Class Work: 15%
Exam 1 (Units 1-2): 10%
Exam 2 (Units 3-5): 15%
Exam 3 (Units 6-7): 10%
All Three Projects: 15%
Cumulative Final Exam: 20%

Intermediate Grading Policy:

To comply with College policy and federal regulations you will receive three intermediate grades during the semester. The grades assigned are 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. If you receive an H grade, you will be contacted by the Center for Student Success (located in 125 Bert Walker Hall) and offered tutoring services.
- **Q:** Means that you have **Quit** participating in the course. If you receive a Q grade, you will automatically be withdrawn from the course. A Q grade is normally assigned if you have not submitted work (classwork, exams, participation, etc.) for two weeks and have not contacted your instructor regarding your absences.

Extra Credit Policy:

There will be no opportunities for any *extra* credit beyond the scope of the requirements. Some optional assignments may allow students to earn back points they might miss on exams, but these are not, in any way, "*extra*" points.

Incomplete Policy: (*Excerpt from JC Policy*)

"A student may request an incomplete from the instructor. The incomplete will 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."

Academic Honesty Policy:

You are *encouraged* to talk to each other, but all your submitted work must demonstrate your own understanding. In other words, "group-work" is a great way to learn material, but anything you submit for a grade must be done by you – reflecting your own thought processes, not those of anyone else. 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 assignment, quiz, project, report, exam, or the course itself (whichever I deem necessary). The policy can be found here: http://www.jccmi.edu/policies/Academics/

Classroom Behavior Policy:

The following are expectations that we can all share.

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.

Sources of Assistance:

Office Hours:

Office hours are there for you to come get help. Please attend if you need questions answered. Remember, though, that office hours are not a replacement for attending class.

Jackson College Tutors:

The College has tutoring available for free to students enrolled in Math 033. You can get help with take-home work, MyMathLab homework, and more. *BE AWARE that not all tutors have experience with statistics!*

Supplemental Instruction Sessions:

Some sections of the course (*like ours*) 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 033 students and are completely voluntary.

Hangouts:

Google Hangouts are a terrific way to chat online, and I encourage you to investigate this tool (**hangout.google.com**), and make use of it with me (**stevetuckey@gmail.com**).

You Tube Videos:

A number of videos (showing useful things like working with your TI-83/84 calculator) will be created and posted to YouTube throughout the semester. These will be linked to from our MML course page. For starters, head to the following URL: **http://www.youtube.com/user/jccmat033**. Of course, there are TONS of online resources out there – the trick is finding some that are helpful and high quality.

MyMathLab:

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

Each Other:

Your fellow classmates are perhaps the single best resource you have. Get to know each other, write down names and numbers for your peers, and rely on each other! **Starting a study group** is probably the single best way to maintain your studies and improve your learning in any college course. Check out this guide for setting one up: **http://bit.ly/math-study-group**.