

## Math 139 Course Syllabus – SP17

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<b>MyMathLab Website:</b>	<a href="http://www.mymathlab.com">www.mymathlab.com</a>
<b>MyMathLab Course ID:</b>	severance12503
<b>Class Time/Location:</b>	06:00PM – 08:18PM, North Campus, Room 122

**Required Materials:** Coursepack, MyMathLab Student Access, TI-84 Calculator **required** (Note: TI-83's cannot run the newest operating system, which puts students using them at a disadvantage)

**Please note: Access to a computer with Internet is required for this section of Math 131.** We will be doing homework online and potentially outside of class. School computers can be used to satisfy these requirements.

**Optional Materials:** Textbook, Elementary and Intermediate Algebra, Functions and Authentic Applications, 2<sup>nd</sup> Edition, Jay Lehmann.

**NOTE:** An electronic version of the book is accessible through MyMathLab once MyMathLab has been purchased and you have registered for the MyMathLab Course.

**Course Description:** Algebraic functions, graphs and models are addressed. Emphasis is placed on the following function types: polynomial, exponential, logarithmic, rational and radical. In all topic areas, covered content includes simplifying expressions, solving equations, graphing using transformations, mathematical modeling and problem solving.

The mathematics department recommends that the prerequisite not be more than two years old. If the prerequisite is more than two years old, then the recommendation is that the course placement exam be taken or the prerequisite be retaken to ensure the success of the student. Prerequisite: MTH 039, with 2.0 minimum or PRE EQV.

### **Math 139 Core Course Objectives:**

All objectives refer to the following function types: polynomial, particularly cubic and higher order polynomials, exponential, logarithmic, rational, radical. Students successfully completing Math 139 should be able to:

1. Functions: Identify functions, use function notation, compositions of functions, inverse functions, domain and range
2. Understand and use mathematical properties to simplify expressions
3. Use algebraic and graphical methods to solve equations
4. Graph functions using transformations of basic graphs; understand relationships between algebraic statement and graphical features of a function such as intercepts, asymptotes, and turning points
5. Use a combination of manual and technology-enabled methods to find, use, and interpret mathematical models for data

**Math 139 Associate Degree Outcomes:** All courses at Jackson Community College address one or more of the institutionally defined Associate Degree Outcomes (ADOs). Math 131 contributes to the following outcomes.

**ADO 3: - Proficient - Demonstrate computational skills and mathematical reasoning**

- Demonstrates algebraic skills using polynomial, rational, radical, exponential, logarithmic, and trigonometric expressions and equations
- Applies properties of numbers and laws of exponents
- Displays “algebra sense” , avoiding common mathematical misconceptions
- Demonstrates fluency manipulating and communicating with mathematical symbols and terminology
- Uses symbolical, visual, numerical and verbal representations to analyze information.
- Demonstrates logical reasoning
- Carefully documents process used to reach conclusion
- Estimates and checks mathematical results for reasonableness
- Acquires and applies a broad range of mathematical skills and concepts as well as technology to facilitate efforts to visualize, interpret, and solve mathematical problems
- Uses graphic calculator and/or computer algebra systems to support mathematical reasoning and problem solving

**ADO 7 –Proficient - Critical Thinking**

- Articulates and defends conclusions
- Uses expanded vocabulary
- Recognizes and explains multiple perspectives
- Demonstrates creativity
- Proposes new concepts

**Course Requirements:**

**Grading 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 pre-requisite. Registering for the next course sequence without passing the pre-requisite course may result in you being dropped from that class.

<u>Grading Scale:</u>		<u>Grading Policy:</u>
90 -100%	4.0	Online MML Homework: 15%
85 - 89%	3.5	In-Class Work: 15%
80 - 84%	3.0	Exam 1 (Reviews 1 and 2): 15%
75 - 79%	2.5	Exam 2 (Exponential and Logarithmic Functions): 15%
70 - 74%	2.0	Exam 3 (Review 3 and Rational Functions): 15%
65 - 69%	1.5	Project: 5%
60 - 64%	1.0	Cumulative Final (ch 1-9): 20%
50 - 59%	0.5	$\Sigma = 15\% + 15\% + 15\% + 15\% + 15\% + 5\% + 20\%$
0-49%	0.0	$\Sigma = 100\%$

**Online Homework:**

- These assignments must be done outside of class time on a computer with internet access at MyMathLab (reachable through <http://www.mymathlab.com>).
- You have an unlimited number of tries to do the homework before you submit it (up until the due date). Thus, all your homework could receive full credit, if you keep trying until you get a perfect score.
- Late online homework assignments are penalized 5% for each day. (10% on day 2, 15% on day 3, etc.)
- There are videos available on <http://www.youtube.com/user/tuckeyalanaj> to help you navigate completing homework assignments, using the help features, and more.

**In-Class Work:** There will be frequent in-class assignments to be turned in for credit. Students that are absent may **not** make up the missed in-class assignments. In class exercise are based on if time is permitted each class.

**Project:** There is one mandatory project in the course. Details will be given to you during the course of the semester.

**Exams:** Each exam will include a standard formula sheet given by the instructor. The final exam is cumulative for the entire course. **Exams may NOT be made up.** Exams 1, 2, 3 may be taken early at the instructor's consent, be advised adequate time must be given for the instructor to setup the exams. All exams that are to be taken early, will be taken at the Testing Lab on Central Campus in the Bert Walker. An exam that is to be taken before the actual testing date in class will only have 1 available day to be taken, if an exam is set to be taken early and the exam is not taken on that day, you will **NOT** be able to make it up on a different day. You may still take the exam at the normal class time on the actual day the exam will be given in class.

**Intermediate Grading:** 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 Potter Center, Federer C) 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.

**Important Dates:** Be sure to check out the JCC Academic Calendar for Project Success Day, Holidays with no classes, last day to withdraw, etc. at [http://www.jccmi.edu/academics/academic\\_calendar.htm](http://www.jccmi.edu/academics/academic_calendar.htm)

**Extra Credit Policy:** There will be no opportunities for extra credit. Your grade is based on your performance in class, not on extras.

**Absence Policy:** Students are expected to attend all class meetings. If absence is unavoidable the **student is responsible** for obtaining the missed lecture notes and continuing work on the homework. Furthermore, absent students are still responsible for completing and submitting the MyMathLab homework by the given due dates.

**Incompletes Policy:** (Excerpt from JCC 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 work must be your **own**. 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 that of someone 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 paper, project, report, exam, or the course itself (whichever I deem necessary). The policy can be seen here:  
<http://www.jccmi.edu/policies/Academics/Policies/1004.pdf>

**Classroom Behavior Policy:**

**1. Be Responsible:** for your work, for your learning, for your behavior in class, etc.

The online homework's in particular are going to require great levels responsibility on your part.

**2. Be Respectful:** of other students, of the instructor, of the material, of yourself.

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## Where to Get Help...

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**Center for Student Success:** The Center for Student Success has tutoring available for free to students enrolled in Math 139. You can get help with take-home work, MyMathLab homework, and more. The Center is in Bert Walker.

**Student Instructors (SI):** There may or may not be a student instructor assigned to this course. If there is it is highly recommended that you seek help from them as they most likely have taken this course before. They will have designated sessions outside of class specific to helping students in MAT 131 that you may attend. Even if there is not a student instructor assigned to this course, you may attend other SI's sessions as they will help you as well. The times of the other SI's are located on [jccmi.edu](http://jccmi.edu) website.

**Khan Academy:** This is an extremely helpful website, which is free, that has a vast amount of resources specific to helping students in the form of short 5-15 minute videos explaining how to do specific things in all sorts of subjects. [KhanAcademy.org](http://KhanAcademy.org)

**YouTube Videos:** The lead faculty, Alana Tuckey, has created a number of videos showing how to use the TI-83/84 calculator in this course. There are also some old lectures available which may be helpful for different sections of notes. Go to: <http://www.youtube.com/user/tuckeyalanaj> and check out any 131 playlists.

**MyMathLab:** There are videos, extra problems, sample exams, lecture notes, PowerPoint lectures and more available in MyMathLab. It's a great resource! In particular, the **Study Plan** in MyMathLab can help with studying for exams as it gives you unlimited extra problems to do for practice.

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

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**NOTE:** *The Syllabus & Schedule are subject to change at the Instructors Discretion.*

Day	Textbook References	Topics
1	Introduction	Introduction: Syllabus, Class Policies, etc.
2	7.1 7.2 7.3	Functions/Function Notation, Domain and Range, Symmetry, Intercepts, Max/Mins
2	8.1 8.2	Review: Graphing Linear Functions Review: Finding Equation of a Line Review: Linear Modeling
3	8.3 8.4 8.7	Review: Graphing Quadratic Functions – in standard form and using transformations of graphs Review: Quadratic Modeling – includes techniques for solving quadratic equations
4	8.3 8.4 8.5 8.6	Solving Quadratic Inequalities Review: Quadratic Modeling
5	9.1	Higher Order Polynomials – Graphical Approach <ul style="list-style-type: none"> <li>• Graphs of Power Functions - including transformations of graphs</li> <li>• General polynomials: End Behavior, Turning Points, Real Zeros</li> </ul>
5	9.2 9.3	Higher Order Polynomials – Algebraic Approach <ul style="list-style-type: none"> <li>• Solving Polynomial Equations, Complex Zeros</li> <li>• Fundamental Theorem of Algebra</li> </ul>
5	9.6 9.1	Solving Inequalities Containing Polynomials Modeling with Higher Cubic Polynomials
6	8.8	Absolute Value Functions <ul style="list-style-type: none"> <li>• Graphing - using transformations of graphs</li> <li>• Solving Equations and Inequalities; Applications</li> </ul> Review Unit One
7		Test 1
8	1.1 1.2	Simplifying Expressions with Exponents (Integer, Rational)
9	1.3 10.3 1.4	Graphing Exponential Functions – include transformations of graphs Finding Equations of Exponential Functions
10	1.5 10.3	Modeling with Exponential Functions
11	2.1 2.2	Compositions of Functions Inverse Functions
11	2.3 10.4	Introduction to Logarithms Graphing Log Functions - include transformations of graphs Applications of Logarithms (pH, decibel, Richter)

12	2.4 2.5	Power Property of Logs; Solving Basic Exponential/Log Equations Modeling with Exponential Functions
12	2.6 2.7	More Properties of Logs; Use in Solving Exponential/Log Equations Natural Exponential and Log Functions – Intro and Equation Solving
13	2.7 10.7,10.8,10.9	Applications and Modeling with Exponential and Log Functions Review Unit 2
14		Test 2
15	3.1 9.4 9.5	Rational Functions: Basic Graphs, Transformations, Domain/Range, Asymptotes, Holes Simplifying Rational Functions
16	3.2 3.3	Multiply/Divide Rational Expressions Add/Subtract Rational Expressions
17	3.4 3.5 9.6	Simplify Complex Fractions Solve Rational Equations and Inequalities
18	3.6 3.7 3.8 7.7	Modeling with Rational Functions Proportions and Similar Triangles Variation
19	4.1 4.2	Simplifying Radical Expressions Add, Subtract, Multiply Radicals (revisit complex arithmetic)
19	4.3 4.4	Quotients of Radicals; Rationalizing Denominators Graphing Radical Functions; Transformations
20	4.5 4.6 5.3	Solving Radical Equations Modeling with Square Root Functions Pythagorean Theorem, Distance Formula Review Unit 3
21		Test 3
22	5.3 5.4 11.3	Conic Sections (Circles, Ellipses) Completing the Square to Graph Using Transformations of Graphs
23	5.4 11.2 11.4	Conic Sections (Parabolas, Hyperbolas)
23	5.5 12.1	Solving Nonlinear Systems of Equations Review
24		Final Exam