



JOHNSON COUNTY COMMUNITY COLLEGE

Math Department  
Intermediate Algebra  
MATH 116-460  
CRN: 84237

Monday/Wednesday 7:00-8:40 p.m., Gardner-Edgerton High School  
Fall 2008 Course Syllabus

INSTRUCTOR INFORMATION:

Name: Mr. Scott Keltner

Telephone: (785) 865-8550 (cell)

(785) 542-3584 (home) NO CALLS AFTER 8:00 p.m. PLEASE!

E-mail: [skeltne1@jccc.edu](mailto:skeltne1@jccc.edu) or [skeltne1@stumail.jccc.net](mailto:skeltne1@stumail.jccc.net)

Classroom: GEHS Rm. 410

COURSE INFORMATION:

Credit: 3 hours

Prerequisites: Grade of C or higher in MATH 115 (Elementary Algebra) or  
Appropriate score on the math assessment test (COMPASS test)

COURSE DESCRIPTION:

This course focuses on arithmetic and algebraic manipulation, equations and inequalities, graphs, and analysis of equations and graphs. Students will simplify arithmetic and algebraic expressions, including those containing rational expressions, rational exponents, radicals and complex numbers; solve equations and inequalities including linear, quadratic, quadratic in form, as well as those containing rational expressions, radicals or absolute value; graph linear inequalities and basic conics; and analyze functions and nonfunctions. 3 or 5 hrs.lecture/wk.

NOTE: the prerequisite of MATH 115 requires a grade of "C" or higher. This course may be offered as a Learning Communities (LCOM) section, see current credit schedule for LCOM details.

TEXTBOOK:

*Intermediate Algebra, 2<sup>nd</sup> Edition.* (2007) by Tom Carson, Ellyn Gillespie, and Bill Jordan. ISBN: 978-0-321-35835-6. Information and additional resources available at [bookstore.jccc.edu](http://bookstore.jccc.edu).

ADDITIONAL SUPPLIES AND RESOURCES:

An optional purchase for this course was the Student Solutions Manual to accompany the textbook. This resource is just that—optional. Please be aware before purchasing that the Student Solutions Manual does not provide all solutions to textbook exercises, but it may help you in seeing examples that we may not have time to cover during class time.

While one is not required for class, it is **strongly recommended** that students in this class have access to a graphing calculator. Recommended models include the Texas Instruments TI-83 or TI-84 series' of calculators, but can include others. It is also recommended that students **not** use or have access to either the TI-89 or TI-92 series' of calculators. Additional (out-of-pocket) expense considerations that students should expect in addition to course tuition, fees, and textbooks will range from \$10 to \$120.

The Math Resource Center is another resource available to students who would like either a place to study with others, by themselves, or just have questions they would like help with outside of class time. The Math Resource Center is located in room CLB 212. Any students wishing to take advantage of this resource should present their student ID before entering, which can be obtained from Billington Library if you do not already have one. One particular resource the MRC has available is access to graphing calculators. If you do not want to buy a graphing calculator, you may rent either a TI-83 or TI-84 for \$25 per semester. These calculators are also available for student use in the MRC for free but cannot be checked out unless you pay the rental fee. The

MRC tutors circulate around the room, offering assistance to students as they become available to do so. Students may use a copy of a solutions manual while in the MRC, but must submit a JCCC ID card or car keys as some form of collateral.

#### CAVEATS:

1. The majority of mathematics courses are sequential. Students must earn a grade of C or higher in a prerequisite mathematics course to progress to its subsequent mathematics course.
2. If a student is found not to have successfully fulfilled the prerequisite(s) for this course, the student will be dropped from the course. He/she will be allowed to enroll in the appropriate level math course provided space is available for them.
3. In accordance with your tuition billing statement, during the first two weeks of the semester, if a student is found not to have successfully completed the prerequisite course(s) for this course, he/she will be dropped from this course and allowed to enroll in the appropriate level math course on a space-available basis with an even exchange of tuition. After the first two weeks, if this situation arises, the student will be dropped from the course with no refund of tuition.

#### COURSE OBJECTIVES:

Upon successful completion of this course the student should be able to:

1. Factor algebraic expressions.
2. Simplify arithmetic and algebraic expressions including those containing rational expressions, rational exponents, radicals, or complex numbers.
3. Evaluate functions.
4. Solve equations in one variable including quadratic, quadratic in form, and those containing rational expressions, radicals, or absolute value.
5. Solve equations in more than one variable including systems of linear equations and literal equations.
6. Solve equations developed from applications.
7. Solve inequalities in one variable including linear, quadratic, and those containing rational expressions.
8. Graph linear inequalities and basic conics on a coordinate plane.
9. Construct equations of lines and circles.
10. Identify shapes of conics and characteristics of functions and non-functions.

#### CONTENT OUTLINE & COMPETENCIES:

##### I. Arithmetic and Algebraic Manipulation

- A. Factor quadratic in form expressions, sum of cubes expressions, difference of cubes expressions, and expressions that require alternate grouping
- B. Perform addition, subtraction, multiplication, and division on rational expressions
- C. Simplify complex fractions
- D. Apply the laws of exponents to simplify expressions containing rational exponents
- E. Apply the laws of radicals to perform addition, subtraction, and multiplication
- F. Rationalize denominators containing radicals
- G. Simplify radicals containing negative radicands
- H. Perform addition, subtraction, multiplication, and division on complex numbers
- I. Evaluate functions including combinations and composite functions

##### II. Equations and Inequalities

- A. Solve linear inequalities in one variable showing solutions on a number line and in interval notation
- B. Solve literal equations that require factoring
- C. Solve systems of linear equations in two variables
- D. Solve systems of linear equations in three variables
- E. Solve quadratic equations by completing the square
- F. Solve quadratic equations by using the quadratic formula
- G. Solve equations that are quadratic in form
- H. Solve quadratic inequalities in one variable showing solutions on a number line and in interval notation
- I. Solve equations containing rational expressions
- J. Solve inequalities containing rational expressions showing solutions on a number line and in interval notation
- K. Solve equations containing radicals

- L. Solve absolute value equations in one variable
- M. Solve equations developed from mixture, motion, work, and geometry applications

III. Graphs on a coordinate plane

- A. Graph linear inequalities
- B. Graph quadratic equations
- C. Graph circles
- D. Graph ellipses and hyperbolas centered at the origin

IV. Analysis of equations and graphs

- A. Construct an equation of a line given two points
- B. Construct an equation of a line perpendicular to a given line through a specific point
- C. Construct an equation of a line parallel to a given line through a specific point
- D. Construct an equation of a circle given its center and radius
- E. Calculate the distance between two points
- F. Determine the center and radius of a circle by completing the square
- G. Identify the shape of a basic conic given its equation
- H. Distinguish between functions and non-functions using the vertical line test
- I. Identify the domain and range of a function given its graph

COURSE REQUIREMENTS/TENTATIVE COURSE SCHEDULE:

Students will be given at least 5 unit exams, one comprehensive final exam, and daily assignments.

Below is a tentative schedule of material and assignments that will be covered during the course.

<b>Monday</b>	<b>Tuesday</b>	<b>Wednesday</b>	<b>Thursday</b>	<b>Friday</b>
Sept. 1 <sup>st</sup> Labor Day— <b>NO CLASS</b>	Sept. 2 <sup>nd</sup>	Sept. 3 <sup>rd</sup> Review Syllabus, Sections 2.1 & 2.2	Sept. 4 <sup>th</sup>	Sept. 5 <sup>th</sup>
Sept. 8 <sup>th</sup> Sections 2.3, 2.5, 3.1	Sept. 9 <sup>th</sup>	Sept. 10 <sup>th</sup> Sections 3.2, 3.3, 3.4 Review	Sept. 11 <sup>th</sup>	Sept. 12 <sup>th</sup>
Sept. 15 <sup>th</sup> Review Exam 1	Sept. 16 <sup>th</sup>	Sept. 17 <sup>th</sup> Sections 4.1 & 4.2	Sept. 18 <sup>th</sup>	Sept. 19 <sup>th</sup>
Sept. 22 <sup>nd</sup> Sections 4.3 & 5.1	Sept. 23 <sup>rd</sup>	Sept. 24 <sup>th</sup> Sections 5.2, 5.3, 5.4 Review	Sept. 25 <sup>th</sup>	Sept. 26 <sup>th</sup>
Sept. 29 <sup>th</sup> Review Exam 2	Sept. 30 <sup>th</sup>	Oct. 1 <sup>st</sup> Sections (6.2), 6.3, 6.4	Oct. 2 <sup>nd</sup>	Oct. 3 <sup>rd</sup>
Oct. 6 <sup>th</sup> Sections 7.1, 7.2, 7.3	Oct. 7 <sup>th</sup>	Oct. 8 <sup>th</sup> Sections 7.4, 7.5 Review	Oct. 9 <sup>th</sup>	Oct. 10 <sup>th</sup>
Oct. 13 <sup>th</sup> Review Exam 3	Oct. 14 <sup>th</sup>	Oct. 15 <sup>th</sup> Sections 3.5/5.2, 8.1	Oct. 16 <sup>th</sup>	Oct. 17 <sup>th</sup>
Oct. 20 <sup>th</sup> Sections 8.2 & 8.3	Oct. 21 <sup>st</sup>	Oct. 22 <sup>nd</sup> Sections 8.4 & 8.5	Oct. 23 <sup>rd</sup>	Oct. 24 <sup>th</sup>
Oct. 27 <sup>th</sup> Sections 8.6 & 8.7 Review	Oct. 28 <sup>th</sup>	Oct. 29 <sup>th</sup> Review Exam 4	Oct. 30 <sup>th</sup>	Oct. 31 <sup>st</sup>
Nov. 3 <sup>rd</sup> Sections 9.1 & 9.2	Nov. 4 <sup>th</sup>	Nov. 5 <sup>th</sup> Section 9.3	Nov. 6 <sup>th</sup>	Nov. 7 <sup>th</sup>
Nov. 10 <sup>th</sup> Sections 9.4 & 9.5	Nov. 11 <sup>th</sup>	Nov. 12 <sup>th</sup> Sections 11.1 & 11.2	Nov. 13 <sup>th</sup>	Nov. 14 <sup>th</sup>

		Review		
Nov. 17 <sup>th</sup> Review Catch-Up Day	Nov. 18 <sup>th</sup>	Nov. 19 <sup>th</sup> Review Exam 5	Nov. 20 <sup>th</sup>	Nov. 21 <sup>st</sup>
Nov. 24 <sup>th</sup> Final Review	Nov. 25 <sup>th</sup>	Nov. 26 <sup>th</sup> Thanksgiving Break <b>NO CLASS</b>	Nov. 27 <sup>th</sup>	Nov. 28 <sup>th</sup>
Dec. 1 <sup>st</sup> Final Review	Dec. 2 <sup>nd</sup>	Dec. 3 <sup>rd</sup> Final Review	Dec. 4 <sup>th</sup>	Dec. 5 <sup>th</sup>
Dec. 8 <sup>th</sup> Final Exam during normal class meeting time	Dec. 9 <sup>th</sup>	Dec. 10 <sup>th</sup>	Dec. 11 <sup>th</sup>	Dec. 12 <sup>th</sup> Final Grades posted

#### OTHER IMPORTANT DATES TO NOTE:

- Wednesday, September 3rd: Last Day to Register or Change Schedule
- Monday, September 8th: Last Day to Drop with 100% Refund
- Thursday, September 11th: Last Day to Drop with 80% Refund
- Thursday, September 18th: Last Day to Drop without a “W” on Transcript
- Wednesday, November 17th: Last Day to Drop with “W” on Transcript and Request a Pass/Fail Grade

#### EVALUATION AND GRADING SCALE:

Course Grade will be broken down into three subcategories: Exams, Daily Work, and Projects/Activities. They will be weighted as follows and use the grading scale indicated:

Exams	60%	A	90-100%
Daily Work	20%	B	80-89%
Final Exam	<u>20%</u>	C	70-79%
	100%	D	60-69%
		F	59 and below

Daily work will be scored on accuracy, not simply on completion. Typically, five exercise problems will be selected at random from the assigned problems and scored for their accuracy. This will comprise 5 points of the total score for that assignment. The other 5 points will be based on the completion of the assignment in its entirety. Scores will be recorded out of 10 points, where the student’s raw score will be rounded up to the next highest score. For instance, if a student scores the equivalent of 8.3 out of 10 on an assignment, the student’s score will be recorded as a 9.

The final exam is comprehensive and will be taken by every student in class. Students not taking the final exam will receive a grade of zero for that portion of their final grade. If a student’s score on the final exam is better than any one of their previous unit exam scores, the grade from the final exam will replace that lower exam score.

Otherwise, the final exam will only count once towards a student’s final grade.

Late work is accepted, but highly discouraged due to the pace of the coursework, especially given that this is only an eight-week course. Please feel free to contact your instructor via email or by phone if you need additional clarification on a topic. Students should not feel as if the instructor is unavailable or impossible to find. If necessary, appointments can be made to work with the student’s extra-curricular schedule. If contacting by phone, please keep in mind that 8:00 p.m. is bedtime for my two children, one year-old Hanna and three year-old Abby.

#### CLASSROOM EXPECTATIONS:

1. Attendance is the responsibility of the student. If the student is unable to attend for any reason, they are expected to make prior arrangements to obtain assignments and/or make-up work. Likewise, it is the student’s responsibility to complete any make-up work as a result of their absence.
2. Cell phones are a distraction to others, even when on a vibrate setting. During tests, cell phones will be turned off and placed on the floor by your feet to ensure this will not be a problem. If you must take a call as a result of an emergency, please be respectful of others and take the call outside of the classroom.
3. Please refrain from bringing children or other outside visitors to class. This also can be a distraction to others in the class.

4. Food and drink regulations are governed by the host school and must be followed accordingly. We are guests in their classroom and should treat the facilities with courtesy and respect.
5. Participate! Your instructor works hard to make this course as enjoyable as possible (it's just math after all), so please try to join in and offer answers or ideas whenever they are requested, correct or incorrect.

NOTES ON INCLEMENT WEATHER:

In the event of inclement weather, the decision on whether to cancel classes will reside in the Gardner-Edgerton School District, since they are the host site for this class. If evening activities or sports practices are cancelled due to impending weather conditions, class will be called off. Otherwise, assume that class will meet as scheduled. If there are questions, please feel free to contact your instructor.

INFORMATION ON STUDENT ACCESS AND ACADEMIC DISHONESTY:

No student shall engage in behavior that, in the judgment of the instructor of the class, may be construed as cheating.

This may include, but is not limited to, plagiarism or other forms of academic dishonesty such as the acquisition, without permission, of tests or other academic materials and/or distribution of these materials. This includes students who aid and abet, as well as those who attempt such behavior.

All JCCC students are expected to comply with the Student Code of Conduct as found in the on-line Course Catalog at [http://www.jccc.net/home/depts/5101/site/stu\\_conduct](http://www.jccc.net/home/depts/5101/site/stu_conduct). The Science, Health Care and Math Division Policies as well as the Math Department Policies will also be followed. It is your responsibility as a student to make sure you are familiar with the topics listed in the code. A grade penalty of zero will be assessed for incidences of academic dishonesty. Further actions may be taken based on the severity of the incident.

JCCC provides a range of services to allow persons with disabilities to participate in educational programs and activities. If you desire support services, contact the Student Access Center in GEB 138 or call (913) 469-8500 ext. 3521.