### Course Information

<table>
<thead>
<tr>
<th>Course Number</th>
<th>MAT 105-01C</th>
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<tbody>
<tr>
<td>Course Name</td>
<td>Technical Mathematics I</td>
</tr>
<tr>
<td>Instructor</td>
<td>Maggie Courson</td>
</tr>
<tr>
<td>Room</td>
<td>304 M</td>
</tr>
<tr>
<td>Meeting Days/Time</td>
<td>Tuesday &amp; Thursday 10:00 – 11:50 AM</td>
</tr>
<tr>
<td>Meeting Dates</td>
<td>September 1 – December 10; NO class on October 13 &amp; November 26</td>
</tr>
<tr>
<td>Final Exam Review</td>
<td>Monday, December 14; 12:40 – 3:10 PM</td>
</tr>
<tr>
<td>Final Exam</td>
<td>Tuesday, December 15; 10:00 – 12:30 PM</td>
</tr>
<tr>
<td>Contact/Credit Hours</td>
<td>4 Contact Hours/ 4 Credit Hours</td>
</tr>
</tbody>
</table>

### Instructor Contact Information

<table>
<thead>
<tr>
<th>Office</th>
<th>549 M</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phone</td>
<td>562 – 4271 (Voice mail available)</td>
</tr>
<tr>
<td>Email</td>
<td><a href="mailto:Maggie.Courson@clinton.edu">Maggie.Courson@clinton.edu</a></td>
</tr>
<tr>
<td>Website</td>
<td><a href="http://faculty.clintoncc.suny.edu/faculty/maggie.courson">http://faculty.clintoncc.suny.edu/faculty/maggie.courson</a></td>
</tr>
<tr>
<td></td>
<td>Or you can access at <a href="http://www.clinton.edu">www.clinton.edu</a> Under Fast Links, click on Faculty Websites and then click on Maggie Courson website.</td>
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</table>

<table>
<thead>
<tr>
<th>Office Hours</th>
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<tbody>
<tr>
<td>Monday</td>
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<tr>
<td>Tuesday</td>
</tr>
<tr>
<td>Thursday</td>
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<tr>
<td>Friday</td>
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</tbody>
</table>

Office Hours held in RM 549 M

Other times by appointment.

### I. COURSE DESCRIPTION:

This is the first course in a two-semester sequence of intermediate algebra and trigonometry with technical applications. Course topics include operations in the real number system, units of measurement and approximate numbers, functions and graphs, first-degree equations, lines and linear functions, systems of linear equations, right triangle trigonometry, geometry (perimeters, areas, volumes of common figures), rules of exponents, polynomial operations, factoring, operations on rational expressions, quadratic equations, and binary and hexadecimal notation. The use of graphing calculator is required for this course to further the exploration of these topics and their applications.

This course meets the SUNY General Education course requirements for mathematics.

### II. COURSE PREREQUISITE:

MAT 100—Introductory Algebra or equivalent
III. TEXT AND MATERIALS:
  ISBN-10: 0138142254
• A graphing calculator (the TI-83 Plus and TI-84 Plus are strongly recommended)
• Pencils
• A 3-ring binder (recommended)
• A highlighter (recommended)

Supplemental Resources (not required):
CourseCompass with MyMathLab is an online course that can be used to access online activities and resources, such as video lectures, practice problems, and sample tests. You need a MyMathLab Student Access Code to access the course.

IV. COURSE OBJECTIVES AND SUNY GENERAL EDUCATION LEARNING OUTCOMES

Course Objectives
As the result of instructional activities, students will be able to:
1. Demonstrate understanding of real, rational, and irrational numbers
2. Perform operations on signed numbers
3. Use of the laws of exponents
4. Solve problems involving the Order of Operations
5. Demonstrate the use of basic metric units and dimensional analysis
6. Correctly use the terminology of algebraic expressions
7. Evaluate literal expressions
8. Solve first-degree equations in one variable
9. Analyze and solve word problems involving the use of linear and quadratic equations and functions
10. Graph and interpret functions
11. Graph scatter plots of data given in a tables
12. Find linear equation models for data approximated by first degree equations
13. Add and subtract polynomials
14. Multiply polynomials using special products, long multiplication, and the FOIL method
15. Divide polynomials
16. Use various methods to factor polynomials
17. Add, subtract, multiply, and divide rational expressions
18. Simplify complex fractions
19. Solve equations involving rational expressions
20. Convert back and forth among standard notation, scientific notation, and engineering notation
21. Solve quadratic equations by factoring and by the quadratic formula
22. Solve incomplete quadratic equations
23. Find quadratic equation models for data approximated by second degree equations
24. Use the Cartesian coordinate system to graph and interpret equations in two variables
25. Demonstrate knowledge of the slope-intercept form
26. Demonstrate knowledge of the point-slope form
27. Solve systems of linear equations by graphing, addition method, substitution method, and (optional) by determinants
28. Identify basic geometric shapes
29. Use formulas to find perimeter and area of basic two-dimensional geometric shapes
30. Use formulas to find surface area and volume of basic three-dimensional geometric shapes
31. Define and evaluate trigonometric functions from 0° to 90° and their inverses
32. Analyze and solve right triangles
SUNY General Education Learning Outcomes
Students will demonstrate the ability to:
1. interpret and draw inferences from mathematical models such as formulas, graphs, tables and schematics;
2. represent mathematical information symbolically, visually, numerically and verbally;
3. use arithmetical, algebraic, geometric and statistical methods to solve problems;
4. estimate and check mathematical results for reasonableness; and
5. recognize the limits of mathematical and statistical methods.

V. GENERAL TOPICS OUTLINE:
1. Fundamental Concepts and Operations of Algebra (textbook chapter 1)
   including arithmetic and real number system, order of operations, rules of exponents, scientific notation, significant digits, accuracy, precision, metric system, dimensional analysis, roots and radicals, operations with algebraic expressions, linear equations and formula manipulation, applications of linear equations

2. Functions and Graphs (textbook chapters 3 and 5)
   including functions, rectangular coordinate system, graphs of functions, slope, distance formula, slope-intercept form, graphing scatter plots from data, curve-fitting with data approximated by linear functions, parallel and perpendicular lines

3. Geometry (textbook chapter 2)
   including angles and lines, triangles, quadrilaterals, circles, surface area and volume of geometric solids

4. Trigonometric Functions (textbook chapter 4)
   including trigonometric ratios (sine, cosine, tangent), values of trig functions, inverse trig functions, solving right triangles, applications of right triangles

5. Factoring and Algebraic Fractions (textbook chapter 6)
   including special products, factoring algebraic functions, other forms of factoring, equivalent fractions, addition, subtraction, multiplication and division of algebraic fractions, complex fractions, equations with fractions

6. Systems of Linear Equations (textbook chapter 5)
   including solving systems of linear equations in two variables graphically, algebraically, and by using determinants(optional), solving systems of linear equations in three variables (optional)

7. Quadratic Equations (textbook chapter 7)
   including solving quadratic equations by factoring, solving quadratic equations by graphing, solving quadratic equations by completing the square (optional), solving quadratic equations by the quadratic formula, curve-fitting with data approximated by quadratic functions, applications

8. Binary and Hexadecimal Notation (supplemental materials)
   including using binary notation, using hexadecimal notation, converting between decimal, binary, and hexadecimal notation
VI. ATTENDANCE POLICY

In order to successfully learn and master the mathematical concepts presented in this course, it is extremely important that you attend all classes. When an absence is entirely unavoidable, you are responsible for contacting me prior to the class. Please understand that you are accountable for all material presented during the class session and all work assigned.

If you arrive to class after I have taken attendance, you must inform me after class so that I can adjust the entry in my attendance book. Please note that three occurrences of arriving late to class will count as one absence. Also, if you leave class early, it will count as half an absence.

As per college policy, any student who misses more than 15% of the class sessions may be involuntarily withdrawn from class. For this class, it means that any student who misses 5 or more classes may be issued a non-completion grade of "WY". It is your responsibility to keep track of the number of absences you have.

As per College policy, the last day to withdraw from the class with a grade of “W” is the end of the tenth week of the semester. Please note that for the Fall 2009 semester, the last day to withdraw without penalty from this class is November 6.

VII. COURSE LEARNING AND ASSESSMENT ACTIVITIES

Class Lessons
I will present the material in this course as a series of PowerPoint lectures, supplemented by numerous examples and applications. You will receive handouts of the guided notes at the start of the chapter. I will be integrating the use of the TI-83/84 graphing calculator throughout the lessons, using the TI emulator and TI Interactive software to demonstrate specific skills. I will provide opportunities for you to practice the mathematical skills and calculator activities in class, as well as to ask and answer questions on the material.

Homework
At the start of each chapter, I will distribute a Chapter Homework assignment sheet, which contains a list of homework problems corresponding to each of the sections in the textbook that are covered in the chapter. It is very important that you complete all assigned readings and practice problems BEFORE the following class meets. Answers to all odd-numbered questions can be found in the back of the text; please check your answers and rework, as necessary. Whenever possible, I will allow some time at the start of the class to address concerns you may have pertaining to the assigned homework; however, you are expected to seek help outside of class on these problems. I recommend that you build time into your schedule to meet with me during office hours, to see a tutor in the CCC Tutoring Center, or to work with a classmate or another individual to go over the homework problems.

Quizzes (25%)
Most quizzes will be Homework Quizzes; these will generally cover a few sections of a chapter and are announced in advance. Homework quiz problems will be taken directly from the list of assigned homework problems. Occasionally, I will give a quiz on formulas or definitions. These, too, will be announced in advance. Quizzes will typically be given once a week at the end of class. If you miss a quiz, you have earned a grade of 0% for that quiz. I will drop your TWO lowest quiz scores at the end of the semester. No makeup quizzes will be given.
Chapter Review Packets
To help you to prepare for the four chapter tests and the final examination, I will distribute a chapter review packet containing questions that are similar to those that will be found on the exams. You are encouraged to complete all of the problems on the review packets and to seek extra help when needed. Solutions to the chapter review packets will be accessible from my website.

Unit Tests (60%)
I will give four unit tests in this course. All tests will be announced at least three days in advance. If you miss a test without valid documentation, you have earned a grade of 0% for that test.

You will need a PENCIL and GRAPHING CALCULATOR for every test.
⇒ There will be a 20% penalty deduction from your test score if it is written in pen.
⇒ You may NOT share a calculator with another student in class during a test.
⇒ Cell phones may NOT be used as a calculator during a test. If you are caught using a cell phone during a test, you will have earned a grade of 0% for that test.

• Test Makeup Policy
  It is your responsibility to be aware of scheduled test dates. If circumstances beyond your control prevent you from coming to class on the day of a test, you must make every effort to notify me BEFORE the time of the test. Makeup tests will be given only for documented emergencies. A note from a doctor or health care facility indicating the dates you were sick/injured and the date you are able return to class will be considered valid documentation.

• Test Corrections
  You can earn an additional 5 percentage points on each of the four tests (not to exceed a score of 100% on any given test) by submitting a complete set of test corrections. You have one week from the day I return the tests to the class to complete and submit your test corrections.

Final Comprehensive Exam (15%)
I will give a final comprehensive examination on December 15 from 10:00 – 12:30. Note that the finals week schedule is different than the regular semester schedule; you will need to plan accordingly. I will be giving you more information about the final exam structure and content towards the end of the semester.

VIII. METHOD OF EVALUATION:
Final grades will be based on your performance on the following:

<table>
<thead>
<tr>
<th>Component</th>
<th>Percentage</th>
</tr>
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<tbody>
<tr>
<td>Quizzes</td>
<td>25%</td>
</tr>
<tr>
<td>Chapter Tests (4)</td>
<td>60%</td>
</tr>
<tr>
<td>Final Comprehensive Exam</td>
<td>15%</td>
</tr>
</tbody>
</table>

I will post your scores online using WebGrade. Using a student ID and password that I will give to you, you will be able to access your grade report at any time during the semester.
IX. GRADING SCALE
Your midterm and final semester grades will be assigned a letter grade according to the following scale.

<table>
<thead>
<tr>
<th>Grade</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>A</td>
<td>93 - 100%</td>
</tr>
<tr>
<td>A-</td>
<td>90 - 92%</td>
</tr>
<tr>
<td>B+</td>
<td>87 - 89%</td>
</tr>
<tr>
<td>B</td>
<td>83 - 86%</td>
</tr>
<tr>
<td>B-</td>
<td>80 - 82%</td>
</tr>
<tr>
<td>C</td>
<td>73 - 76%</td>
</tr>
<tr>
<td>C+</td>
<td>77 - 79%</td>
</tr>
<tr>
<td>C-</td>
<td>70 - 72%</td>
</tr>
<tr>
<td>D+</td>
<td>67 - 69%</td>
</tr>
<tr>
<td>D</td>
<td>60 - 66%</td>
</tr>
<tr>
<td>F</td>
<td>Below 60%</td>
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</tbody>
</table>

W Withdrawal
WY Involuntary Withdrawal

X. EXTRA HELP
I encourage you to see me for help during office hours or to set up an appointment to meet with me at another time. You may also ask questions via e-mail, if it is more convenient. There are qualified and very supportive math tutors available to help you, free of charge, five days a week, in the Tutoring Center located on the 4th floor of the main building, room 412. No appointment is necessary, but for more information, you may phone (518) 562-4343 or 562-4251. You can find the tutor schedule on the College website and also outside the Center’s main door on campus. In addition, I strongly encourage you to form your own study groups. Working with a motivated group of your peers can prove to be an invaluable learning experience.

XI. ASSISTANCE AND ACCOMMODATIONS
If you have, or suspect you may have, any type of learning disability that may require extra assistance or special accommodations, please speak to me privately after class or during office hours as soon as possible so I can help you obtain any assistance you may need to successfully complete this course. You should also contact Laurie Bethka in room 420M (phone 562-4252) for further assistance.

XII. ACADEMIC HONESTY POLICY
All students are expected to behave with academic honesty. It is not academically honest, for example, to misrepresent another person's work as one's own, to take credit for someone else's words or ideas, to accept help on a test or to obtain advance information on confidential test materials, or to act in a way that might harm another student's chance for academic success. When an instructor believes that a student has failed to maintain academic honesty, he or she may give the student an F, either for the assignment or for the course, depending on the severity of the offense. In the case of such an offense, the instructor will notify, in writing, the student and the Academic Dean. A student may appeal a decision on the charge of failing to maintain academic honesty according to the procedure prescribed by the Student Code of Conduct in the College catalog.
XIII. CLASSROOM ETIQUETTE

Common courtesy is expected of all college students and employees. In our classroom, I ask you to be respectful of your classmates and their right to study in an environment conducive to learning. Some specific issues related to the classroom are addressed below.

• Cell phones must be **TURNED OFF** and put away during class. A cell phone may NOT be used as a calculator for in-class purposes.

• You are expected to arrive to class on time and to remain in class for the entire class meeting. Take care of using the restroom and purchasing snacks/drinks prior to the start of class, during the break, or wait until class is over. Except in the case of emergencies, leaving the room during class is not acceptable behavior, as it is distracting to the instructor and other members of the class.

• Do not carry on side conversations during class, as they may make it difficult for others to hear.

XIV. COURSE CONTINUITY PLAN:

In the case that the college officially closes because of an emergency which causes a short term disruption of this course, we will utilize e-mail to continue this course in the short term (1-3 weeks). All students need to utilize their campus email to receive course related information.