



# COURSE SYLLABUS SPRING 2012

Course Information	
<i>Course Number</i>	<b>MAT 205 – 01C</b>
<i>Course Name</i>	<b>Technical Mathematics II</b>
<i>Instructor</i>	<b>Margaret Courson</b>
<i>Room</i>	<b>304 M</b>
<i>Meeting Days/Time</i>	<b>Monday &amp; Wednesday 2:15 – 4:05 PM</b>
<i>Meeting Dates</i>	<b>January 30 – May 9; NO class on March 12 &amp; March 14</b>
<i>Final Exam Review</i>	<i>Sometime during the week of May 14–18; Exact date/time TBA</i>
<i>Final Exam</i>	<i>Sometime during the week of May 14–18; Exact date/time TBA</i>
<i>Contact/Credit Hours</i>	<b>4 Contact Hours/ 4 Credit Hours</b>

Instructor Contact Information		
<i>Office</i>	<b>549 M</b>	
<i>Phone</i>	<b>562 – 4391 (Voice mail available)</b>	
<i>Email</i>	<a href="mailto:Maggie.Courson@clinton.edu"><b>Maggie.Courson@clinton.edu</b></a>	
<i>Website</i>	<b><a href="http://faculty.clintoncc.suny.edu/faculty/maggie.courson">http://faculty.clintoncc.suny.edu/faculty/maggie.courson</a></b> <i>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.</i>	
<i>Office Hours</i>	<b>Monday</b>	<b>12:00 – 2:00 PM</b>
	<b>Wednesday</b>	<b>1:00 – 2:00 PM</b>
	<b>Thursday</b>	<b>12:00 – 1:00 PM</b>
	<b>Friday</b>	<b>10:00 – 11:00 PM</b>
	<i>Other times by appointment.</i>	
<b>Office Hours held in RM 549 M</b>		

## I. COURSE DESCRIPTION

This is the second course in a two-semester sequence of intermediate algebra and trigonometry with technical applications. Course topics include operations on exponents and radicals, exponential and logarithmic functions and equations, radians, trigonometric functions of any angle, sinusoidal functions and graphing, oblique triangles, vectors, complex numbers and their applications, inequalities, ratio and proportion, variation, and (optional) an introduction to statistics. If time permits, a brief intuitive approach to calculus will be covered. The use of a graphing calculator is required for this course to further the exploration of these topics and their applications.

## II. COURSE PREREQUISITE

MAT 105 – Technical Mathematics I

### III. TEXT AND MATERIALS

- “Basic Technical Mathematics”, 9/e Allyn J. Washington ; Pearson Prentice Hall, 2009, bundled with MyMathLab Student Access Code Card. Bundle ISBN: 9780136065357

**OR**

- MyMathLab Student Access Kit (Stand-Alone) ISBN: 978-0-321-19991-1
- A graphing calculator (the TI-83 Plus and TI-84 Plus are strongly recommended)
- Pencils and eraser
- Ruler (cm)
- A 3-ring binder (recommended)
- A highlighter (recommended)

MyMathLab is an online learning system in which you will submit your homework assignments and quizzes. It also provides supplemental resources such as video lectures, practice problems, and sample tests. You need a MyMathLab Student Access Code to access these resources.

### IV. COURSE OBJECTIVES

As the result of instructional activities, students will be able to:

1. Simplify radical expressions
2. Convert back and forth between rational exponents and radical notation
3. Perform operations on radical expressions
4. Solve equations involving radical expressions
5. Solve linear inequalities
6. Solve equations and inequalities involving absolute value
7. Solve quadratic and rational inequalities
8. Solve problems involving ratio and proportion
9. Solve problems involving direct, inverse, and joint variation
10. Demonstrate the use of common logarithms and natural logarithms
11. Solve exponential and logarithmic equations
12. Graph exponential and power functions using log-log and semi-log paper
13. Convert back and forth between degrees and radians
14. Evaluate trigonometric functions and their inverses for angles measured in degrees and radians
15. Solve oblique triangles using the Law of Sines and/or Law of Cosines
16. Graphically add vectors
17. Resolve vectors into vertical and horizontal components
18. Solve vector problems using rectangular and polar forms
19. Sketch and interpret the graphs of sinusoidal, exponential, and logarithmic functions
20. Convert among rectangular, polar, exponential form of complex numbers
21. Perform the fundamental operations (addition, subtraction, multiplication, division) using the rectangular form of complex numbers
22. Perform multiplication and division of complex numbers in polar and exponential form
23. Using DeMoivre’s Theorem, find powers and roots of complex numbers
24. (Optional) Find an equation/model for data approximated by exponential, logarithmic, or trigonometric functions
25. (Optional) Summarize and interpret data using frequency distribution, measures of central tendency, and measures of dispersion
26. (Optional) Apply process control and quality assurance
27. (Optional, time permitting) Develop a brief intuitive feel for the concepts of limit, derivative (instantaneous rate of change), and integral (area under a curve)

## V. GENERAL TOPICS OUTLINE

1. Right Triangle Trigonometry Review (textbook chapter 4)  
including a review of the definitions of the trigonometric functions and applications of right triangles
2. Trigonometric Functions of Any Angle (textbook chapter 8)  
including definitions of trig functions, radian measure, applications
3. Graphs of Trigonometric Functions (textbook chapter 10)  
including graphing basic sine and cosine functions, finding amplitude, period, phase shifts and graphs of sinusoidal functions  $y = a \sin (bx + c)$  and  $y = a \cos (bx + c)$ , (optional) curve fitting with data approximated by trigonometric functions
4. Vectors and Oblique Triangles (textbook chapter 9)  
including graphical addition of vectors, resolving vectors into vertical and horizontal components, applications of vectors, oblique triangles, law of sines, law of cosines, applications
5. Exponents and Radicals (textbook chapter 11)  
including integral exponents, rational exponents, simplification of radicals, basic operations with radicals, solving equations with radicals
6. Inequalities and Absolute Value (textbook chapter 17)  
including solving linear inequalities, solving equations and inequalities involving absolute value, solving quadratic and rational inequalities
7. Ratio, Proportion and Variation (textbook chapter 18)  
including solving problems involving ratio and proportion, finding equations involving direct, inverse, and joint variation, solving applications involving variation
8. Exponential and Logarithmic Functions (textbook chapter 13)  
including exponential functions, logarithmic functions, common and natural logarithms, properties of logarithms, solving exponential and logarithmic equations, (optional) curve fitting with data approximated by exponential and logarithmic functions, graphing on log and semi-log paper
9. Complex Numbers (textbook chapter 12)  
including a review of basic definitions, operations on complex numbers in rectangular form, polar and exponential form of complex numbers, multiplication and division in polar and exponential form, powers and roots using DeMoivre's Theorem
10. Statistics (Optional) (textbook chapter 22)  
including definitions and terminology, frequency distributions, measures of central tendency, measures of dispersion, the normal distribution, standard error, fitting curves to data, Statistical Process Control
11. Intuitive Approach to Calculus (Optional) (supplemental materials provided by instructor)  
including limits, average rate of change, instantaneous rate of change, area under a curve

## 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. Guided notes for each of the sections are available under "Notes and Handouts" in MyMathLab.

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 "W".** 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 Spring 2012 semester, **the last day to withdraw without penalty from this class is April 4.**

## 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 (12%)

I will be assigning practice problems for each section that we cover in class. These problems will be presented in an online format using MyMathLab. Generally, the assignment will be made available on the day that we cover the section in class and will be due at 2:00 AM on the morning of the next class meeting (except when otherwise indicated). You will receive immediate feedback on your assignment, and you will also have access to numerous resources to assist you. You should write out your solutions to the homework problems in a notebook or binder so that you can rework any questions you answered incorrectly and get help when needed.

The purpose of the homework assignments is to give you the opportunity to practice and master the concepts; thus, you may redo and resubmit an assignment an unlimited number of times **ON OR BEFORE** the due date for **FULL CREDIT**. You may submit questions anytime **AFTER** the due date for **HALF CREDIT**.

**If you suspect that any of your answers have been misread and marked as incorrect by MyMathLab because of syntax or rounding, let me know right away by clicking on the "Ask My Instructor" button so that I may review your response and re-score the problem, if warranted.**

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%)

Quizzes will generally cover between 1 – 3 sections of a chapter. There are two types of quizzes that you will take in this class:

- **Online quizzes** will be posted and submitted using MyMathLab. The quiz problems will be very similar to the problems you have practiced in the assigned homework; however, the help resources that are available with the homework assignments will not be available when taking the online quizzes. You will have up to two opportunities to take each quiz UP TO THE DUE DATE. If you take the quiz twice, the higher of the two scores will be used as your final score for that quiz.
- **In-class quizzes** will be given so that I may see your complete, worked out solutions to particular problems. Quizzes on formulas/definitions and some class assignments will also be included in this category. **If you miss an in-class quiz, you have earned a grade of 0% for that quiz.**

**I will drop your lowest quiz score at the end of the semester. No makeup quizzes will be given.**

### **Test Review Packets**

To help you to prepare for the four tests and the final examination, I will distribute a test review packet containing questions that are similar to those that will be found on the tests. You are encouraged to complete all of the problems on the review packets and to seek extra help when needed. A copy of the solutions to the test review problems will be accessible from MyMathLab.

### **Unit Tests** (48%)

I will give four unit tests in this course. All tests will be announced at least three days in advance.

- **Test Makeup Policy**

Students are responsible for knowing when each test will be given and for being present on those days. If circumstances will prevent you from taking a test with the rest of the class, you may make arrangements with the instructor to take a test before the rest of the class takes the test. If you need to take a test before the rest of the class, you should contact the instructor at least 48 hours before the test to arrange a time that is convenient for both you and the instructor. **INDIVIDUAL MAKE-UP TESTS WILL NOT BE GIVEN AFTER THE TEST IS GIVEN TO THE CLASS.** If you do not take a test during class on the day it is given (or sometime before), your test score will be recorded as a zero.

**FOR STUDENTS WHOSE CLASS ABSENCES DO NOT EXCEED THREE (3) IN THE GIVEN SEMESTER:** After final exams are given, I will replace your lowest test score with the percentage score earned on your final exam, provided it will help your grade.

- **Test Corrections**

You can earn up to 5 additional percentage points on each of the first three 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 during the week of May 14 - 18 (exact date/time to be announced.) 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.

### **Important Information Regarding In-Class Quizzes, Tests, and the Final Exam:**

You will need a **PENCIL** and **GRAPHING CALCULATOR** for every quiz, test, and exam.

- ⇒ **There will be a 20% penalty deduction from your score if your responses are written in pen.**
- ⇒ **You may NOT share a calculator with another student in class during a quiz, test, or exam.**
- ⇒ **Cell phones may NOT be used as a calculator during an in-class quiz, test, or exam. If you are caught using a cell phone, you will have earned a grade of 0% for that assessment.**

## **VIII. METHOD OF EVALUATION**

Final grades will be based on your performance on the following:

<b>Homework Assignments</b>	<b>12%</b>
<b>Quizzes</b>	<b>25%</b>
<b>Chapter Tests (4)</b>	<b>48%</b>
<b>Final Comprehensive Exam</b>	<b>15%</b>

You will be able to view your grades online in the MyMathLab gradebook 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.

<b>A</b>	<b>93 - 100%</b>	<b>C+</b>	<b>77 - 79 %</b>	<b>W</b>	<b>Withdrawal</b>
<b>A-</b>	<b>90 - 92%</b>	<b>C</b>	<b>73 - 76%</b>		
<b>B+</b>	<b>87 - 89 %</b>	<b>C-</b>	<b>70 - 72%</b>		
<b>B</b>	<b>83 - 86 %</b>	<b>D+</b>	<b>67 - 69%</b>		
<b>B-</b>	<b>80 - 82%</b>	<b>D</b>	<b>60 - 66%</b>		
		<b>F</b>	<b>Below 60%</b>		

## **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. There are also 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 ACCOMODATIONS**

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 after 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 the lesson.

## **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.