CCBC   Essex   School of Mathematics and Science

MATH   135   Applied Algebra and Trigonometry   Section: WE1

CLASSROOM LOCATION: Bb   SEMESTER: Fall 2012
CLASS MEETING DAYS: Class available 7 days a week in Bb
CLASS MEETING TIMES: Class available 24 hours a day in Bb
INSTRUCTOR: DONNA TUPPER   OFFICE LOCATION: CTEMP - 113
DEPT./INSTRUCTOR PHONE: 443-840-2219   EMAIL: dtupper@ccbcmd.edu
WEBPAGE: faculty.ccbc.edu/~dtupper
OFFICE HOURS: In chat room, Wednesday: 7:30PM - 8:25PM, Thursday: 6:30PM – 7:25PM

COURSE PRE-REQUISITES: ENGL 051, RDNG 052, MATH 083

DEPARTMENT CONTACT: Students should first attempt to take concerns to the faculty member. If students are unable to resolve course-related concerns with the instructor they should contact the Essex Math Coordinator, Sylvia Sorkin, at ssorkin@ccbcmd.edu.

COURSE DESCRIPTION: This course covers a wide range of real world applications of college-level algebraic and trigonometric topics, such as linear and quadratic equations, right-triangle trigonometry and vectors, and exponents and logarithms, and students will develop problem-solving skills relevant to their disciplines. This course is primarily for students in certain technically oriented disciplines.

REQUIREMENTS
- Exam 1 100 points
- Exam 2 100 points
- Exam 3 100 points
- Exam 4 100 points
- Cumulative final 125 points
- Homework 100 points

GRADING POLICY

A  At least 563 or more total points
B  Between 500 and 562 total points
C  Between 438 and 499 total points
D  Between 375 and 437 total points
F  Less than 375 total points

ATTENDANCE POLICY FOR THIS COURSE:

You are expected to attend all scheduled classes. Should you miss a class, you are responsible for all work missed. Please be on time. Students with a legitimate problem about attendance should discuss the situation with their instructor.

MATERIALS: A CALCULATOR THAT CAN HANDLE TRIGONOMETRIC, EXPONENTIAL AND LOGARITHMIC FUNCTIONS. A TI-83 OR TI-84 IS PREFERRED, BUT NOT REQUIRED.
SPECIAL PROCEDURES (Includes policies regarding classroom behavior, style of written assignments, retention of papers, compiling of portfolios, availability of support services, etc.)

COMMENTS: All tests are taken at the testing center of your home campus. The testing centers require an appointment be made at least one week in advance. Email the testing center or call them to make an appointment. They will have a formula card for you to use. You need to bring your calculator and a pen/pencil. All tests are closed books and notes. No cell phones, PDA’s, textbooks, notes, etc. can be used on your test.

CALENDAR  http://www.ccbcmd.edu/registration/academic_calendars.html

<table>
<thead>
<tr>
<th>FALL 2011</th>
<th>FULL Term</th>
<th>1st 7-Week Session</th>
<th>2nd 7-Week Session</th>
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<tbody>
<tr>
<td>Classes BEGIN</td>
<td>August 29</td>
<td>August 29</td>
<td>October 19</td>
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<tr>
<td>LABOR DAY- College CLOSED</td>
<td>September 5</td>
<td>September 5</td>
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<td>Saturday Classes BEGIN</td>
<td>September 10</td>
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<tr>
<td>50% refund ends</td>
<td>September 16</td>
<td>September 2</td>
<td>October 25</td>
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<tr>
<td>Mid-Term grades</td>
<td>October 17</td>
<td>September 21</td>
<td>November 11</td>
</tr>
<tr>
<td>Last day to withdraw with “W” or change to audit “AU”</td>
<td>November 4</td>
<td>September 30</td>
<td>November 22</td>
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<tr>
<td>NO CREDIT CLASSES SCHEDULED</td>
<td>November 23</td>
<td>November 23</td>
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<tr>
<td>Thanksgiving Holiday - NO CLASSES</td>
<td>November 24-26</td>
<td>November 24-26</td>
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<tr>
<td>Last day of classes</td>
<td>December 10</td>
<td>October 15</td>
<td>December 10</td>
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<tr>
<td>Final Exams</td>
<td>December 11-17</td>
<td>Last day of class</td>
<td>Last day of class</td>
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<td>Final Grades entered by</td>
<td>December 19</td>
<td>October 17</td>
<td>December 19</td>
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CLASS FINAL EXAM DATE: December 17, 2011

TENTATIVE LIST OF DATED ASSIGNMENTS

Assignments should be FINISHED no later than the date posted below:

- September 1, 2012
  - Unit 1 Section 1 – Approximate and Exact Numbers and Scientific Notation
  - Begin the course by first reading my online lecture notes. Then read the corresponding sections of the text. Do the text homework and the practice homework. That will prepare you to do the graded homework.
- September 4, 2012
  - Unit 1 Section 2 – Units of Measurement – Metric System
- September 7 2012
  - Unit 1 Section 3 – Graphing Calculator (only if you own one)
- September 8, 2012
September 11, 2012
- Unit 1 Section 4 – Solving Equations, Formulas and Literal Equations

September 15, 2012
- Unit 1 Section 5 – Ratios, Proportions, Direct and Inverse Variation
  - This ends unit 1 of the course. The exam is due no later than September 22, 2012.

September 18, 2012
- Unit 2 Section 1 - Solving Systems of Equations & Applied Systems of Linear Equations
  - This begins unit 2. Make sure you take the practice test before you take the real test. The real test is due by September 25.

September 21, 2012
- Unit 2 Section 2 – GCF, Difference of Squares and General Factoring

September 24, 2012
- Unit 2 Section 3 - Solving Quadratics by Factoring

September 27, 2012
- Unit 2 Section 4 - Solving Quadratics by Quadratic Formula

September 30, 2012
- Unit 2 Section 5 - Graphs of Quadratics
  - This ends unit 2 of the course. Take test 2 by October 7. Make sure you try the practice test before taking the real test.

October 3, 2012
- Unit 3 Section 1 – Working with Exponents
  - This begins unit 3 and the material will be on your third test.

October 6, 2012
- Unit 3 Section 2 – Exponential Functions and their Graphs

October 10, 2012
- Unit 3 Section 3 – Logarithmic Functions

October 13, 2012
- Unit 3 Section 4 – Properties of Logs

October 17, 2012
- Unit 3 Section 5 – Base 10 and Natural Logs

October 21, 2012
- Unit 3 Section 6 – Exponential and Logarithmic Equations
  - This ends unit 3 of the course. Take test 3 by October 28. Make sure you try the practice test before taking the real test.

October 25, 2012
- Unit 4 Section 1 - Angles

October 28, 2012
- Unit 4 Section 2 – Defining Trigonometric Functions

October 31, 2012
- Unit 4 Section 3 – Values of Trig Functions

November 4, 2012
- Unit 4 Section 4 – Right Triangle Trig

November 7, 2012
- Unit 4 Section 5 - Applications

November 10, 2012
- Unit 4 Section 6 – Signs of Trigonometric Functions

November 14, 2012
- Unit 4 Section 7 – Trig Functions of Any Angle

November 17, 2012
COURSE OBJECTIVES

Upon successful completion of this course students will be able to:

1. define various algebraic functions;
2. express concepts of algebra and trigonometry using appropriate terminology;
3. solve linear and quadratic equations in applied settings;
4. solve problems involving trigonometry, vectors, exponents, and logarithms;
5. express mathematical information in table, graphical, formulaic, and written formats;
6. apply a working knowledge of mathematical applications relevant to such fields of study as Drafting, Allied Health and to such programs as Radiation Therapy, Ultrasound, and Med Lab Tech;
7. Analyze data and determine an appropriate mathematical function that describes the data;
8. apply appropriate mathematical theories, dependent upon the nature of the specific data, to make informed decisions;
9. apply appropriate technology to the solution of mathematical problems;
10. identify efficient and inefficient methods for problem solving;
11. utilize the Internet and other resources to research course-related topics;
12. construct a solution to real world problems using problem solving methods individually and in groups;
13. examine the mathematical contributions made by people from diverse cultures throughout history;
14. articulate a solution to mathematical problems.

MAJOR TOPICS

1. Review
   A. Arithmetic operations on algebraic expressions
   B. Scientific notation
   C. Ratio and Proportion
   D. Formula evaluation
   E. Rewriting application formulas in terms of any variable
F. Evaluating application formulas for a given variable  
G. Factoring simple trinomials  
H. Laws of Exponents  
I. Linear Equations – slope, intercept

2. Basic Algebraic Operations  
   A. Significant digits  
   B. Converting measurements from one unit to another  
   C. Solving word problems using direct and inverse variation

3. Functions and graphs  
   A. Linear functions, quadratic functions, and tables of data  
   B. Representations of a function (e.g., table, graph, formula)

4. Solve equations  
   A. 2x2 systems of linear equations and applications  
   B. Solving quadratic equations by factoring  
   C. Other methods for solving quadratic formula

5. Trigonometric functions  
   A. Six trigonometric functions of any angle given in degrees or radians  
   B. Solving right triangles and word problem applications thereof  
   C. Linear velocity, arc length, and sector area application word problems  
   D. Law of sines and cosines and solving application word problems  
   E. Vectors (algebraic and geometric) and application word problems

5. Exponential and logarithmic functions  
   A. Exponential function and exponential word problems (e.g., growth and decay)  
   B. Logarithmic (common and natural) functions  
   C. Properties of logarithms and solving word problems

RATIONALE (Instructor’s statement relating course content to student’s personal and academic growth, etc.)

This course is a required course for students in certain Certificate programs: Radiation Therapy, Radiography (X-Ray Technology), Respiratory Care Therapy, Medical Laboratory Technician, Veterinary Technology and CADD. If you are in another program for which you plan to transfer to a 4-year institution, and will need to take calculus, then you should NOT register for Math 135. Instead you should register for Math 163 – College Algebra. If you have questions about the Mathematics course required for your program, please consult your program coordinator.

FOR ALL COLLEGE WIDE SYLLABUS POLICIES GO TO MyCCBC on the CCBC web page and view the SYLLABUS TAB.