CLASSROOM LOCATION: WWW

INSTRUCTOR: Donna Tupper    SEMESTER: Summer 2007

PHONE: 410-780-6619    EMAIL: dtupper@ccbcmd.edu

WEBPAGE: http://faculty.ccbcmd.edu/~dtupper

OFFICE: In WebCT chatroom

OFFICE HOURS: Wednesday & Thursday 7:30PM – 8:30PM

COURSE PRE-REQUISITES: MATH 161 or MATH 163 or LVM 5

COURSE DESCRIPTION

Examines applications of differential and integral calculus related to business, natural science and social science situations; covers the calculus of linear, polynomial, rational, logarithmic and exponential functions.

REQUIREMENTS (papers, oral reports, projects, etc.)

There are four exams during the summer session. Each exam is worth 25% of your total grade.

Final Average = .25(exam 1 + exam 2 + exam 3 + exam 4)

GRADING POLICY

______ A 90+
______ B 80 – 89.999
______ C 70 – 79.999
______ D 60 – 69.999
______ F Any average below 60

ATTENDANCE POLICY FOR THIS COURSE:

Since my classes are asynchronous, attendance is a relative term. I expect students to email me at least once a week with some assignments and/or questions. Students are also strongly encouraged to attend at least one chat session a week. Additional times are available upon request. If you need to be out of town on business or personal matters, email me immediately so I am aware of the situation.

I would advise you to download material at least one week beyond your current assignment, just in case the server goes down. Technical difficulties will not alter due dates for assignments or exams.
MATERIALS (texts, equipment and supplies)
- Any Calculator EXCEPT any version of the TI-89 or TI-91
- My Mathlab code. This will either come with your text, or is available for purchase from the Addison Welsey website.

TEXT(S):

Calculus and Its Applications by Bittinger Edition 9 Pearson Addison Wesley Publishing

SPECIAL PROCEDURES

All students should attend chat at least once a week. You do not have to come to the same session each week, but you come at least once. You may come more often if you want to.

CCBC CALENDAR

SUMMER 2007

<table>
<thead>
<tr>
<th>Event</th>
<th>1st 5-Week</th>
<th>7-Week</th>
<th>2nd 5-Week</th>
</tr>
</thead>
<tbody>
<tr>
<td>Classes BEGIN</td>
<td>June 4</td>
<td>June 18</td>
<td>July 9</td>
</tr>
<tr>
<td>50% refund ends</td>
<td>June 8</td>
<td>June 26</td>
<td>July 13</td>
</tr>
<tr>
<td>Mid-Term grades</td>
<td>June 21</td>
<td>July 12</td>
<td>July 26</td>
</tr>
<tr>
<td>Last day to withdraw with “W” or change to audit “AU”</td>
<td>June 25</td>
<td>July 19</td>
<td>July 30</td>
</tr>
<tr>
<td>Independence Day - NO CLASSES</td>
<td>July 4</td>
<td>July 4</td>
<td></td>
</tr>
<tr>
<td>Last day of classes</td>
<td>July 7</td>
<td>August 4</td>
<td>August 11</td>
</tr>
<tr>
<td>Final Grades entered by</td>
<td>July 14</td>
<td>August 7</td>
<td>August 14</td>
</tr>
</tbody>
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FINAL EXAM:

Your fourth and final exam must be taken no later than August 4.
<table>
<thead>
<tr>
<th>June 2007</th>
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<tbody>
<tr>
<td>Monday, June 18</td>
<td>Section R.1 &amp; R.2</td>
</tr>
<tr>
<td>Tuesday, June 19</td>
<td>Section R.3 &amp; R.4</td>
</tr>
<tr>
<td>Thursday, June 21</td>
<td>Section 1.1 &amp; 1.2</td>
</tr>
<tr>
<td>Saturday, June 23</td>
<td>Section 1.3</td>
</tr>
<tr>
<td>Sunday, June 24</td>
<td>Section 1.4</td>
</tr>
<tr>
<td>Monday, June 25</td>
<td>Section 1.5</td>
</tr>
<tr>
<td>Tuesday, June 26</td>
<td>Section 1.6</td>
</tr>
<tr>
<td>Wednesday, June 27</td>
<td>Section 1.7</td>
</tr>
<tr>
<td>Thursday, June 28</td>
<td>Section 1.8</td>
</tr>
<tr>
<td>Friday, June 29</td>
<td><strong>Exam 1 is Due within a Week</strong></td>
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<table>
<thead>
<tr>
<th>July 2007</th>
<th></th>
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</thead>
<tbody>
<tr>
<td>Saturday, June 30</td>
<td>Section 2.1</td>
</tr>
<tr>
<td>Sunday, July 1</td>
<td>Section 2.2</td>
</tr>
<tr>
<td>Tuesday, July 3</td>
<td>Section 2.3</td>
</tr>
<tr>
<td>Thursday, July 5</td>
<td>Section 2.4</td>
</tr>
<tr>
<td>Friday, July 6</td>
<td>Section 2.5</td>
</tr>
<tr>
<td>Sunday, July 8</td>
<td>Section 2.6</td>
</tr>
<tr>
<td>Tuesday, July 10</td>
<td>Section 2.7</td>
</tr>
</tbody>
</table>
Wednesday, July 11

Exam 2 is due! Taken at any CCBC testing Center.

Friday, July 13

Section 3.1

Sunday, July 15

Section 3.2

Tuesday, July 17

Section 3.3

Thursday, July 19

Section 3.4

Friday, July 20

Exam 3 due! Taken at any CCBC testing Center.

Saturday, July 21

Section 4.1

Sunday, July 22

Section 4.2

Monday, July 23

Section 4.3

August 2007

Wednesday, July 25

Section 4.4

Thursday, July 26

Section 4.5

Friday, July 27

Section 4.6

Monday, July 30

Section 4.7

Wednesday, August 1

Section 5.3 & 5.4

Friday, August 4

Exam 4 due! Taken at any CCBC testing Center.
COURSE OBJECTIVES

Upon successfully completing the course, students will be able to:

1. Evaluate limits using substitution, tables, and graphs. (I, IV, VI, 1, 5)
2. Utilize function notation to define and evaluate functions. (III, 2, 4, 5)
3. Demonstrate the relationship between functions and their graphs. (IV, 2, 4, 5)
4. Apply and evaluate limits algebraically. (I, IV, V, VI, 1, 5)
5. Evaluate infinite limits and limits at infinity. (I, IV, VI, 1, 5)
6. Apply the definition of the derivative. (IV, VI, 2, 3)
7. Solve maximum and minimum problems using differential calculus. (IV, V, 4, 6, 7)
8. Solve marginal analysis problems using differential calculus. (IV, V, 4, 6, 7)
9. Solve exponential growth and decay problems using differential calculus. (II, IV, V, 3, 4, 6, 7)
10. Apply differential and integral calculus techniques and methods to solve various other business, management, natural science and social science problems. (II, V, 6)
11. Examine the mathematical contributions made by people from diverse cultures throughout history. (V, 5)
12. Articulate a solution to mathematical problems. (II, 2)
13. Apply appropriate technology to the solution of mathematical problems. (IV, 4, 5).

MAJOR TOPICS

I. Functions, Limits and the Derivative
   A. Functions and Graphs
   B. Algebra of Functions
   C. Functions and Mathematical Models
   D. Limits
   E. One-sided Limits and Continuity
   F. Derivative

II. Differentiation
   A. Basic Rules of Differentiation
   B. Product and Quotient Rules
   C. Chain Rule
   D. Marginal Functions in Economics
   E. Higher Order Derivatives
   F. Implicit Differentiation
   G. Differentials

III. Applications of the Derivative
   A. Increasing and Decreasing Functions
   B. Relative Maxima and Minima
   C. Concavity and Points of Inflection
   D. Curve Sketching
   E. Optimization Problems

IV. Exponential and Logarithmic Functions
   A. Exponential Functions
   B. Logarithmic Functions
   C. Compound Interest
   D. Differentiation of Exponential and Logarithmic Functions
   E. Exponential Functions as Mathematical Models
V. Integration
   A. Antiderivatives and Integration Rules
   B. Integration by Substitution
   C. Area and the Definite Integral
   D. Fundamental Theorem of Calculus
   E. Area Between Curves
   F. Applications of the Definite Integral in Business and Economics

VI. Additional Topics in Integration
   A. Integration by Parts
   A. Integral Tables
   B. Numerical Integration
   C. Improper Integration
   D. Applications of Probability

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

Designed for students majoring in business, management, economics, and social sciences, CALCULUS with APPLICATIONS takes a real-life, problem-solving approach. It teaches students ideas and concepts from calculus and how they relate to their future careers. Applications range from marginal functions in economics, to optimization problems and exponential growth models. Students will have an opportunity to work with technology and improve critical thinking skills.
ATTENDANCE POLICY

Attendance at each class and lab is essential. Please be on time. Students with a legitimate problem about attendance should discuss the situation with their instructor.

NOTE: The deadline for withdrawing from a course or changing to an audit for the Summer 2007 semester is June 25, July 19, or July 30, depending on session. Failure to officially withdraw from a class you have stopped attending may result in an "F" grade.

COURSE REPEAT POLICY

Policy on Repeated Courses, page 194 of the 2004-2006 CCBC catalog states, “Students may repeat a course only once without permission. When a student repeats a course, only the higher grade is computed into the Quality Point Average (QPA). All grades will remain on the student’s transcript. Before a student is permitted to register for the course for a third time, the student must have the permission of the academic dean responsible for the course. Before a student may repeat a developmental course that he or she has failed twice, the student’s record must be reviewed by a support team which will make recommendations regarding enrollment.” Please note: The instructor does not have the authority to grant permission to register for a third attempt at the course.

DISABLED STUDENTS

In accordance with the Americans with Disabilities Act, CCBC is committed to providing an environment that is conducive to learning for all students. Any student who is disabled and requires special accommodation should contact the appropriate campus as follows:

<table>
<thead>
<tr>
<th>Campus</th>
<th>Office:</th>
<th>Room:</th>
<th>Phone:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Catonsville</td>
<td>Office of Disabilities Support Services</td>
<td>K-200</td>
<td>410-455-4382</td>
</tr>
<tr>
<td>Dundalk</td>
<td>Office of Career and Life Planning</td>
<td>A-100</td>
<td>410-285-9774</td>
</tr>
<tr>
<td>Essex</td>
<td>Office of Special Services</td>
<td>A-210</td>
<td>410-780-6878</td>
</tr>
</tbody>
</table>

CODE OF ACADEMIC INTEGRITY

For the College to make its maximum contribution as an institution of high learning, the entire college community must uphold high standards of integrity, honesty, and ethical behavior. In seeking the truth, in learning to think critically, and in preparing for a life of constructive service, honesty is imperative. Each student has a responsibility to submit work that is uniquely his or her own, or to provide clear and complete acknowledgement of the use of work attributable to others. To these ends, the following actions are expected of students:

- Complete all work on exams without assistance.
- Follow the professor’s instructions when completing all class assignments.
- Ask for clarification when instructions are not clear.
- Report to the instructor any unauthorized information related to an exam.
- Provide proper credit when quoting or paraphrasing.
- Submit only one’s own work.

Students who do not accept responsibility for the integrity of their own work will experience sanctions, including a written reprimand, failure of the assignment, failure of the course, and/or dismissal from the program. For repeat and extreme offenses, the College reserves the right to suspend or expel students.

WRITING POLICY

The College recognizes that clear, correct, and concise use of language is characteristic of an educated person. Therefore, whenever possible, faculty members in all disciplines should require written assignments in their courses in order to encourage effective writing by their students. Also, instructors should consider the quality of writing in determining a grade for a written assignment. Poor writing can be a sufficient cause for a failing grade on a paper and, in extreme cases, a failing grade in a course.

INCLEMENT WEATHER/EMERGENCY CLOSING POLICY

In the event that the college (or a specific campus) opens late due to weather-related or other emergency conditions, classes will commence at the announced opening time and resume the normal schedule thereafter for the remainder of the day. Faculty, students, and classified staff should report to wherever they would normally have been at the announced opening time. **
Students and faculty engaged in field placement programs (such as internships, clinical placements, etc.) should discuss the handling of emergency situations at the beginning of the placement period. Both the requirements of the program and the safety of persons involved should be considered in planning a course of action in those cases where students are expected to report to off-campus locations.

** For example, if you had a class that began at 9:35 and the college opened at 10:00 because of snow, you would report to your 9:35 class at 10:00.

When the college closes because of severe weather or emergency conditions, announcements of class cancellations are made on local radio and television stations and the college website (www.ccbcmd.edu). Closings and delays will also be recorded on the campus weather lines:

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</thead>
<tbody>
<tr>
<td>Catonsville</td>
<td>Tutoring Services</td>
<td>F-200</td>
<td>410-455-4420</td>
</tr>
<tr>
<td>Dundalk</td>
<td>Tutoring Services</td>
<td>CAR-530</td>
<td>410-285-9877</td>
</tr>
<tr>
<td>Essex</td>
<td>Student Success Center</td>
<td>A-307</td>
<td>410-780-6820</td>
</tr>
</tbody>
</table>

**TUTORING SERVICES**

Students are encouraged to seek help from their instructors whenever they encounter academic difficulty (either during scheduled office hours or by appointment). In addition, each campus offers free academic support services. For more information, contact:

**CIVILITY AND COMMUNITY BUILDING EXPECTATIONS**

Creating a Culture of CARE© (Compassion, Appreciation, Respect, Empowerment)

As members of the CCBC community of learners, we are expected to act with respect, honesty, responsibility and accountability. Each of us is expected to be aware of the impact our behavior has on the community. CCBC wishes to each learner to commit to the following actions:

- Become an active and engaged learner
- Celebrate the richness of our diversity
- Respect the campus and its code of conduct
- Practice empathy and compassion
- Promote the empowerment of others

**MAJOR RELIGIOUS HOLIDAY POLICY**

Students not attending class because they are observing major religious holidays shall be given the opportunity, to the maximum extent possible, to make up, within a reasonable amount of time, any academic work or tests they miss. Arrangements between the student and the faculty member(s) for the student to make up missed assignments or tests must be made in advance of the religious holiday, at the initiation of the student.

**STUDENT E-MAIL ACCOUNTS**

CCBC has joined the ranks of the very few community colleges in Maryland who provide email accounts to all credit students. Each student who is registered in credit classes now has an email account and up to 5 Mb of storage in their mail box. This account will not be deleted even if the student graduates or leaves CCBC for any reason.

For information about the system and how students can determine their email address, go the CCBC Home Page and click on “Student Email”. From here students can find their email address, get to an on-line user manual and access instructions on how to forward the CCBC email to the system of choice (AOL, Comcast, Hot Mail, etc.)
TESTING CENTER

All tests for this course are taken at the testing center of your home campus. The tests are standard pencil/paper test and you are required to show all work. Regardless of which testing center you use, it is your responsibility to make an appointment at least a week before you plan on taking your test. A complete list of dates for exams is listed in the course calendar. You can either email or call the testing center of your home campus to make an appointment. Contact information is listed below and can be found at http://www.ccbcmd.edu/testing/index.html

Required Testing Material:

- Make sure you bring along a picture ID
- Pencils and rulers to take your test with.
- Your TI - 83 or TI - 84 calculator.
- Your formula card (either from your text or from the publishers website)

Prohibited Testing Material:

- any communication devices such as cell phones, PDA's, iPOD's or Blackberry's
- any hand-written notes
- any math text book
- TI, Statdisk or Minitab Tutorials

CCBC Catonsville Testing Center  CCBC Dundalk Testing Center  CCBC Essex Testing Center
Room K-205  Room L-112  Room A-214/215
410-455-6946  410-285-9572  410-780-6901
Catonsville.testingcenter@ccbcmd.edu  dtc@ccbcmd.edu  etc@ccbcmd.edu