CCBC Essex **School of Mathematics and Science**

MATH 252 Calculus II **Section: WE1**

CLASSROOM LOCATION: WWW **SEMESTER**: Spring 2012
INSTRUCTOR: LISA BROWN **OFFICE LOCATION**: CTMP 113
INSTRUCTOR PHONE: 443.840.2786 **EMAIL:** LBrown@ccbcmd.edu
WEBPAGE: http://student.ccbcmd.edu/~lwalte19/lwalterhome.html
FACT-TO-FACE OFFICE HOURS: MW 2:20 – 3:35 pm, F 12:55 – 1:25 pm
ONLINE CHAT OFFICE HOURS: Thursday 9:30 – 10:30 pm

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 PRE-REQUISITES: MATH 251 or consent of instructor

COURSE DESCRIPTION

Covers anti derivatives, approximation techniques for definite integrals, integration techniques, improper integrals, applications of definite integrals, infinite series, power series, Taylor series and introduction to differential equations.

REQUIREMENTS

Wednesday, February 15	Assignment #1 50 points	Graded Assignment #1 due
Sat. 2/18, Mon. 2/20, Tue. 2/21, or Wed. 2/22	Exam 1 100 points	Covering 7.1 – 7.5
Wednesday, March 14	Assignment #2 100 points	Graded Assignment #2 due
Sat. 3/17, Mon. 3/19, Tue. 3/20, or Wed. 3/21	EXAM 2 100 points	Covering 8.1 – 8.5, 8.7, 8.8
Wednesday, April 18	Assignment #3 100 points	Graded Assignment #3 due
Sat. 4/21 Mon. 4/23, Tues. 4/24, Wed. 4/25	EXAM 3 100 points	Covering 9.1 – 9.10
Tuesday, May 8	Assignment #4 50 points	Graded Assignment #4 due
Sat. May 12, Mon, May 14, Tues. May 15, or Wed. May 16	FINAL EXAM 300 points	Cumulative

GRADING POLICY

A: 90% or above	**B**: 80% or above	**C**: 70% or above	**D**: 60% or above	**F**: below 60%

ATTENDANCE POLICY FOR THIS COURSE:

You should login to the course at least 3 times a week**.** This is mainly to check your Mail and the Discussion board for important information, hints, reminders, and answers to any questions you or your classmates may ask. I can tell if and when you have logged into the class and if you are reading your Mail and Discussion board messages.

If you are not logging in you are not "showing up for class." Your attendance will be monitored closely because I want you to do well and not get behind. However, you do not have to attend chat sessions or office hours.

You should set aside 12 – 15 hours a week to work on this course. This does not mean that you will be logged in for 12 to 15 hours. You should spend most of these 12 to 15 hours off line reading through the text and handout-notes and working on textbook exercises. The primary strategy for mastering mathematics is to work through problems.

Students with a legitimate problem about attendance should discuss the situation with their instructor.

MATERIALS

- **TEXTBOOK** (SEE INFORMATION BELOW FOR PURCHASING OPTIONS)
- **VIDEO LECTURES** (SEE INFORMATION BELOW FOR ACCESS OPTIONS)
- **WEBASSIGN ACCESS CARD** (OPTIONAL – SEE INFORMATION BELOW ABOUT PURCHASING OPTIONS)
- **GRAPHING CALCULATOR (TI 89, 83 OR 84 GRAPHING CALCULATOR)** (You can borrow one for the semester from the Essex Library.) You are welcome to use a different Graphing Calculator such as TI 95 or 96 but I will only be able to give instructions and directions for the TI 89, 83 or 84.
- **High speed internet**
- **Blackboard Support pluggins found on the following webpage** **http://www.ccbcmd.edu/onlinecoursehelp/downloads.html**
- **Technical Requirements for CCBC Online Courses** **http://www.ccbcmd.edu/distance/technical.html**

TEXT(S): *Calculus Early Transcendental Functions* by Larson Edition **5** Houghton Mifflin publisher
ISBN-10: 0-538-73550-3

For each section of the textbook, there are assigned reading and textbook exercises from the textbook; you can also watch the video lectures (supplied by the textbook's author and publisher) that are associated with the textbook. I would like you all to have access to the textbook and a set of video lectures that go with the textbook. There are various options for you to have access to these resources. I will list these options and you can decide.

There is a homework feature in WebAssign that is an optional part of your grade. If you complete the WebAssign homework, it can count for 20% of your grade on the exam. (See **Procedures** for an explanation of scoring). The points earned doing the WebAssign homework do not improve your grade significantly, but students who have done the WebAssign homework typically do better on exams. However, exams are not necessarily based on WebAssign problems or even on Graded Assignment problems; typically, exam problems are more like textbook exercises. If you want to take advantage of WebAssign homework, you must have a WebAssign Access Card.

The online eBook is printable. You can print out 10 pages at a time. You must have high speed internet to use WebAssign/eBook. The eBook is interactive and has links from its pages to the related videos. (See link below to preview the eBook)

If you plan on taking Calculus 3 online at CCBC you will want to purchase the Multi Term Access Card for WebAssign. This is more expensive than the One-Semester Access Card for WebAssign but you will not need to purchase another Access Card to take Calculus 2. There is also a One-Semester access code. This will provide you with everything you will need for the class.

All dollar figures printed here and on other pages are believed to be accurate, but should be considered as approximations; they are subject to change and are beyond the control of the Instructor.

Please let me know if you have questions about these options.

Preview eBook

Calculus: Early Transcendental Functions - 5e by Larson and Edwards

ENHANCED

To purchase your WebAssign passcode for the WebAssign homework and printable ebook and receive it instantly online, use the following link:

https://www.webassign.net/login.html

Click "I Have a Class Key"

Your Class Key for Math 252 is **ccbcmd 6555 5193**

Follow the directions and you will get to the following options:

Lifetime of Edition (LOE) *Access to eBook and Homework* You are allowed unlimited access to WebAssign courses that use this edition of the textbook at no additional cost.	$110.00
Single-term **Access to eBook and Homework**	$75.00
Lifetime of Edition (LOE) *Access to Homework only* You are allowed unlimited access to WebAssign courses that use this edition of the textbook at no additional cost.	$65.00
Single-term **Access to Homework** only	$47.00

The CCBC Bookstore will have the following:

Printed text bundled with WebAssign Access Card for online Access to eBook/WebAssign Homework and Video Lectures The Access Card can be used for **multiple semesters**	Calculus Early Transcendental Functions W/Enhanced ISBN 0-538-46304-X	**New ~ $241.65**
WebAssign Access Card for online Access to eBook/WebAssign Homework and Video Lectures The Access Card can be used for **multiple semesters**	Enhanced Webassign W/Ebook F/Multi Term Math & Sci ISBN 0-538-73807-3	**~ $107.65**

The following are available to purchase online at
http://www.cengagebrain.com/tl1/en/US/storefront/US?cmd=catProductDetail

Printed text	**Calculus: Early Transcendental Functions, 5th Edition** Larson/Edwards ISBN-10: 0-538-73550-3	**~ $167.49**
DVD of Video Lectures	**Mathematic Instructional DVD for Larson/Edwards' Calculus: Early Transcendental Functions, 5th Edition** ISBN-10: 0-538-73636-4 ISBN-13: 978-0-538-73636-7	**~ $76.49**
Printed Text bundled with DVD Video Lectures	**Bundle: Calculus: Early Transcendental Functions, 5th + DVD, 5th Edition** ISBN-10: 1-111-19452-1 ISBN-13: 978-1-111-19452-9	**~ $211.49**
WebAssign Access Card for online Access to eBook/WebAssign Homework and Video Lectures The Access Card can be used for **multiple semesters**	**Enhanced WebAssign Homework and eBook Printed Access Card for Multi Term Math and Science, 1st Edition** Brooks/Cole ISBN-10: 0-538-73807-3 ISBN-13: 978-0-538-73807-1 If you buy from here, you will be mailed your access card. It takes a few days.	**~ $95.00**
WebAssign Access Card for online Access to eBook/WebAssign Homework and Video Lectures The Access Card can be used for **ONE semester**	***Enhanced WebAssign Homework with eBook Printed Access Card for One Term Math and Science, 1st Edition*** *ISBN-10: 0-538-73810-3* *ISBN-13: 978-0-538-73810-1* If you buy from here, you will be mailed your access card. It takes a few days.	**~ $65.00**

The CCBC Libraries will have one copy of the following for you to view at the library.

Printed text	**Calculus: Early Transcendental Functions, 5th Edition** Larson/Edwards ISBN-10: 0-538-73550-3
DVDs of Video Lectures	**Mathematic Instructional DVD for Larson/Edwards' Calculus: Early Transcendental Functions, 5th Edition** ISBN-10: 0-538-73636-4 ISBN-13: 978-0-538-73636-7

SPECIAL PROCEDURES

Complete these activities for each section of the text that is covered:

1. Read the section in the text or online at WebAssign. (Link here.)
2. Watch all videos for each section on DVD or at WebAssign. (Link here.)
3. Take notes by filling in the blank handouts as you read through the completed handouts. (Link here.)
4. Work through homework problems in the text assigned for each section. (Link here.)

Complete these graded activities for each chapter:

1. **(Optional)** Complete WebAssign Homework for each section at WebAssign. (Link here.)

   If you complete the WebAssign Homework they can be counted as 20% of your Exam grade. I will calculate your Exam grade two ways (with WebAssign Homework and without WebAssign Homework) and record the better score. You must complete all sections of WebAssign Homework for a chapter by the Friday after the last day to take an exam. Here is an example of scoring for an exam with WebAssign Homework.

   Exam 1 score = 75%

   WebAssign Homework score = 100%

   Exam 1 score with WebAssign Homework = 75%*.80 + 100%*.20 = 80%

   I would record 80% for this student's Exam 1 score.

   As you can see, the WebAssign Homework score did not improve this grade significantly. But students who do WebAssign Homework will find that their Exam score will be higher because they know the material better.

2. **(Required)** Complete and turn in Graded Assignment **(On Time!)** for each Chapter posted in the Chapter folders on Blackboard
3. **(Required)** Take an exam for specified chapter or chapters at one of the CCBC testing centers on one of the days assigned for the exam. There is also a cumulative final exam. See course Calendar or Syllabus for dates. Please make your appointment 4 to 5 business days in advance if you are using Essex or Catonsville testing centers. Making appointments by emailing the testing center is preferred.

COMMENTS:

- Set aside a specific time each week to work on this course. The estimated amount of time you should spend is **12-15** hours/week. In a face to face course you would be attending this for 5 hours a week. The “rule of thumb” for time spent on homework for a college level class is two to three times the amount of class time per week.
- Keep in touch with me and your classmates by frequently checking your course Mail, Discussions, and Calendar. This will help build a sense of community among us. Using the various communications tools provided in this course effectively is the same as "raising your hand" and participating in class discussions.
- Be aware of the time lag that is inherent in most on-line courses. Although, the communications tools make it appear that the transfer of information such as assignments is "instantaneous", it does not mean that the reply will be instantaneous. One of the hardest things about an on-line course is becoming comfortable with its asynchronous nature. In general, expect assignments and exams to be returned in one week. Expect that emails and discussion postings will be answered in 24 hours except on Sundays. I will check for questions once on Saturdays and then will return to check them on Monday afternoon.
- Familiarize yourself with published deadlines.
- Ask for help when you need it.
- Remember that there are traditional ways for keeping in touch. Use the telephone, a fax, or make an appointment to meet with me on campus.
- Work off-line and save your assignments or questions on your computer before submitting them electronically. You can use the saved version of your work to copy and paste to an on-line assignment or you can attach the saved file to an Mail or Discussion board message. This will prevent a lot of frustration should your Internet connection or your system "fail".
- Please submit files to me in pdf, doc, docx, rtf, or jpg form. I prefer jpg form.
- Be sure to install anti-virus software on your local system and check all downloaded files before opening them.

Math 252 Practice Textbook Exercises

These practice textbook exercises are not to be turned in for me to grade. In order to be successful on Exams and Graded Assignments you must be able to do all of these assigned problems from the textbook. Please ask question about these problems, course Handouts, and Textbook Examples on the Blackboard Discussion board.

7.1 1 – 7, 17, 21, 25, 44, 48, 88 **7.2** 1 – 33 odd, 45, 46, 48, 49 **7.3** 1 – 4, 5 – 29 odd 32, 41 **7.4** 1, 3, 4, 5 – 19 odd, 27abd, 34, 37, 39-41 **7.5** 1 – 10, 17, 18, 21, 22, 25, 26	**8.1** 1 – 45 odd **8.2** 5 – 39 odd, 59, 61, 63, 90, 96 **8.3** 5 – 9, 11, 14, 19, 25 – 43 odd **8.4** 5 – 8, 9 – 35 odd, 67 - 69, 71 **8.5** 7 – 27 odd, 41, 43, 47, 48, 53 **8.7** 1 – 33 e.o.o, 75 (e.o.o. means 'every other odd') **8.8** 5 – 9 15 – 31 odd, 37, 39, 49, 50, 53, 54, 81, 82
9.1 1 – 5, 11, 11, 25 – 35 odd, 47 – 59 odd, 69 – 71, 73, 75 – 79 odd, 103 - 108 **9.2** 1, 3, 7 – 15 odd, 23- 27 odd, 35, 36, 39, 45, 48, 57 – 67 odd, 91, 97, 121, 117 - 120 **9.3** 1 – 19 odd, 47, 79 – 87 odd **9.4** 3 – 35 odd, 38, 45 – 48, 52, 55 – 58 **9.5** 11- 31 odd, 47 – 61 odd, 67, 68, 89 **9.6** 1, 2, 13 – 51 odd **9.7** 1 – 5, 13 – 23 odd, 25 – 30, 33, 41, 43 **9.8** 1 – 33 odd, 45abd, 47abd **9.9** 1 – 15 odd, 21, 53 – 55 **9.10** 1 – 7, 21 – 25, 35, 36	**10.2** 3 – 7 odd, 18 – 21, 23, 43 – 46 **10.3** 1 – 13 odd, 27 – 29, 37 – 39, 67 - 69 **10.4** 1 – 11 odd, 17, 27 – 31 odd, 35 – 40 **10.5** 5 – 10, 13 – 17 odd, 31 – 33, 45 - 47 **6.2** 1 – 13 odd, 23 – 27odd, 33, 35, 39, 41, 57, 59, 70, 71

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

SPRING 2012	**FULL Term**
Last day to drop classes with 100% refund*	January 27, Friday
Classes BEGIN	**January 30, Monday**
Saturday classes begin	February 4, Saturday
Last day to drop classes with 50% refund*	February 17, Friday
Mid-Terms (due by faculty)	March 19, Monday
Spring Recess (College closed) No credit or continuing education (non-credit) classes scheduled	March 31 - April 9, Saturday - Monday
College reopens, classes resume	April 10, Tuesday
Last day to withdraw with "W" or change to audit status on transcript*	April 10, Tuesday
Last day of classes for Spring semester	**May 12, Saturday**
Spring semester final examinations	May 13 - 19, Sunday - Saturday
Final grades entered in SIMON by faculty by 4:30 p.m.	May 22, Tuesday
Grades available to students in SIMON***	May 29, Tuesday
Last day to complete an "I" grade	October 5, Friday
* Submit your Drop/Add/Withdrawal form to the Records and Registration office by 7 p.m. when date is Monday through Thursday or by 4 p.m. when date is on Friday.	

COURSE OBJECTIVES

Upon successfully completing the course students will be able to:

1. Evaluate integrals using various integration techniques (III, 1 , 2)
2. Approximate a definite integral using Simpson's Rule and Trapezoid Rule (I, IV, 4, 5)
3. Evaluate an improper integral (VI, 1)
4. Calculate volumes by cross section, discs /washers and shells (III, IV, 1, 3, 7)
5. Calculate arc length and surface area of revolution (III, 1, 3, 5, 7)
6. Solve problems from physics (work, moments, pressure) (II, V, 1, 6)
7. Determine convergence/divergence of a sequence (IV, 1, 3)
8. Determine convergence/divergence of a series (IV, 1, 3)
9. Create Power Series of functions and use them for estimation (I, 1)
10. Solve first order differential equations (II, V, 1, 2, 3)
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).
14. Evaluate limits using L'Hopital's Rule (I, 1, 3)
15. Graph and analyze Polar Coordinates and Parametric Equations (III, IV, 1, 2, 4)

Major Topics

I. Techniques of integration
   A. Integration by parts
   B. Powers of sine and cosine or secant and tangent
   C. Trigonometric substitution
   D. Rational functions (by partial fractions)
   E. Miscellaneous substitution (e.g. $u = \tan(x/2)$)
   F. Using integral tables
   G. Numerical integration (Right, Left, Midpoint, Trapezoid, and Simpson's) with error bounds
   H. Improper integrals and L'Hopital's Test

II. Sequences, series, and power series
   A. Sequences
   B. Monotone sequences
   C. Infinite series
   D. Convergence tests for infinite series
   E. Taylor and Maclaurin series
   F. Tests for convergence
   G. Approximation of series
   H. Absolute convergent, Conditional convergent or Divergent series
   I. Geometric, Harmonic, Telescoping and Binomial Series
   J. Approximation and error using power series
   K. New power series from old (via substitution, integration, differentiation, etc.)
   L. Taylor series and remainder
   M. Interval and radius of convergence for power series

III. Other coordinate systems
   A. Polar coordinates (graphing, area, arc length, tangent, surface area of revolution)
   B. Parametric equations (graphing, area, arc length, tangent, surface area of revolution)

RATIONALE

Calculus II continues the exploration of differential calculus. This course will cover evaluation of more complicated integrals, infinite sequences and series, approximation of functions with infinite series, and calculus in parametric equations and polar equations. This is one of program requirement courses for associate of science degree, and transferable to four year colleges.