Math 251 /Calculus 1 /CRN 40259- MWF 8:00-10:00, MOD 105/CRN 43524 - MWF 1:00pm-3:00, GRV 110 / F'17

Instructor: Liz Coleman **Office hours**: Mon: 11:00 - 12:30 in GRV 234;
Office: GRV 214 TuTh: 12:15 - 1:00 pm in HCC 190; Wed: 10:30 - 11:30 in GRV 214
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Textbook: Calculus Early Transcendentals by James Stewart 8th ed., published by Cengage Learning
You have 2 choices through our COCC bookstore:

1) A "custom" textbook with no HW problems that comes bundled with access to WebAssign (WA) homework and eBook, ISBN: 9781305616691 @ $172.50, for the lifetime of the edition. If you want to save $48, you can purchase just the web access to WA:

2) Lifetime of edition access to eBook and homework for $124.50 – the eBook is the FULL text in electronic form.

Note: it is possible to buy access directly from WA after you signed up for the class using the class key.

We have some copies of the 6th & 7th eds. of the full text on reserve in the library and a couple are available in the tutor center. There are very few differences between the 6th, 7th & 8th eds.

Calculators: A graphing calculator is required, the TI83, 84 or higher is recommended.

Attendance: Attendance is mandatory the first week and necessary thereafter if you plan to succeed in this course. ***You will be dropped if you miss a class the first week***

WebAssign (WA) (I will not be using Black Board this term):

You must have a WA account linked to this class to continue to be enrolled in this class. If you already have a Web Assign account, please check "I already have a Web Assign account". If you've never signed up for Web Assign for any class then check "I need to create a Web Assign account". You will need to purchase access to the new e-textbook from one of the two methods listed in the Textbook section. You get a two-week grace period at the beginning of the term before you have to pay for access to WA so there is no excuse not to sign up for access to WA the first day of class. **You have 2 review assignments due the first week of class in WA.**

To sign up for WebAssign access for this class go to http://www.webassign.net/ and click on I Have a Class Key (far right side under LOG IN). The institution is: cocc.

The class key is:

For section 40259 (8:00 a.m.) the class key is: **cocc 5243 6453**

For section 43524 (1:00 p.m.) the class key is: **cocc 3103 3043**

Make sure to verify you're in the correct class with the correct crn section!

Check out the WA Quick Start guide: http://www.webassign.net/manual/WA_Student_Quick_Start.pdf

Be sure to use a username (COCC preferred) and password that you can remember!

Please *do not* use your cell phone or lap top during class presentations. Have the ringer turned off, and do not use it for text messaging -- it's too distracting for me and other students.

Important dates:

Oct 6, 5pm	Tuition due and last day for full refund
Nov 10 (Fri)	Veteran's Day, College is closed no classes
Nov 9, 5pm	Last day to drop class with no grade on transcript
Nov 23&24	Thanksgiving Holiday, College is closed
Dec 6, 6pm	Last day to withdraw, receive a "W" grade (need instructor's signature)
Dec 11-15	Finals Week – ours are on Wednesday Dec. 9th

Disclaimer: *The contents of this syllabus are subject to revision at the discretion of the instructor.*

Math 251 is a 4-credit course in what is often called Differential Calculus. This is essentially a course that is concerned with rates of change. To study these rates of change effectively, we must have our algebra skills finely tuned. *Therefore, I am assuming that you completed math 111 and math 112 (or their equivalent) with a B- or better.* These rates of change are often called derivatives. To find these derivatives, we will first study limits and the idea of continuity. We will work with all concepts algebraically, graphically, numerically and verbally. We will cover most of the material in the first 4 chapters of the text.

To succeed in this course it is imperative that you are in class every day.

Specifically, students who complete Math 251: Calculus 1 will be able to:

- understand and apply limits.
- apply the basic techniques of differentiation on polynomial, rational, trigonometric, exponential, and logarithmic functions to investigate the behavior of mathematical models.
- understand, apply, and interpret the relationships between applied or theoretical models and their derivatives or antiderivatives. Emphasis will given to applications of rates of change.
- determine and analyze the rate of change of functions given function data from a graph, table of values, or formula.
- use the topics from calculus in conjunction with the graphing calculator to obtain precise graphs of models, including a graphical analysis of rates of change, concavity, and extrema for the model.
- write significant mathematics in at least one of the following formats:
  - Determine the solution or lack of solution to a multiple-step problem and develop the solution in a formal laboratory report.
  - Analyze, discuss in a team, and develop the solution to an open-ended problem and present that solution in the form of a formal technical report.

Performance Based Outcomes in Mathematics:

Students who successfully complete any mathematics course at Central Oregon Community College will be able to:

1. *Work independently to explore mathematical applications and models, and to develop algebraic/symbolic, graphical, numerical, and narrative skills in solving mathematics problems.*
2. *Work as a member of a group/team on projects or activities that are designed to explore mathematical applications and models.*
3. *Use both written and oral skills to communicate about mathematical concepts, processes, complete mathematical solutions and their implications.*
4. *Use a variety of problem solving tools including symbolic/algebraic notation, graphs, tables, and narratives to identify, analyze, and solve mathematical problems.*
5. *Develop mathematical conjectures and use examples and counterexamples to examine the validity and reasonableness of those conjectures.*
6. *Create and analyze mathematical models of real world and theoretical situations, including the implications and limitations of those models.*
7. *Use appropriate technologies to analyze and solve mathematics problems, and verify the appropriateness and reasonableness of the solution(s).*

Grading: Your grade will be determined on your scores from homework, labs, problems of the day (PODs), two tests, a project, and the final exam using the following percentage weights:

Homework (WA)	10%
Labs	10%
PODs	10%
Project	10%
Test 1	20%
Test 2	20%
Final	20%
TOTAL	100%

Approximate grading scale:

A^-- A	90%-100%
B^--B^+	80%-89.9%
C-C^+	70%-79.9%
D	60%-69.9%
F	<59.9%

On "FAILURE": **F**irst **A**ttempt **I**n **L**earning; learning happens when you understand why you failed! Try again!

WEEK:	***Tentative* weekly schedule and *due dates* for Math 251 Fall 2017**	
First: Sept 25	**Hand out Labs #1a,b & Labs #2a,b (1a due Fri wk 1; 1b due Mon wk 2; 2a due Wed wk 2; 2b due Fri wk 2) Labs 1a-2b are some review of functions, algebra, exponential, logarithmic and trig functions. Review chapter 1 from textbook as needed. WAHW's 1-4 are more review and come from chapter 1.** This week we'll have an introduction to calculus and limits – in class worksheets; start reading sections 2.2&2.3. The WebAssign homework (WAHW) for 1-10 will be available starting this week and their absolute deadline is Thurs Oct 27 at midnight. See each HW for their individual bonus due dates – at midnight – here and on WA: *WAHW1 due Wed; WAHW2 due Fri*	
Second: Oct 5	**Hand out Lab #3 –** This week: **Limits –** Sections to read: 2.2, 2.3, 2.5&2.6 *WAHW3 due Wed; WAHW4 due Fri*	
Third: Oct 9	**Hand out Lab #4 – Rates of Change and the Derivative –** Sections to read 2.1, 2.7 2.8 *WAHW5 due Wed; WAHW6 due Fri; Lab #3 due Wed*	
Fourth: Oct 16	**Hand out Lab#5 - Ch. 3: Introduction to Differentiation Rules for Polynomials & Exponential Functions; Product & Quotient Rules;** Read sections 3.1-3.2; *WAHW7 due Mon; WAHW8 due Wed; WAHW9 due Fri; Lab #4 due Fri*	Hand out and discuss "The Roller Coaster Project"
Fifth: Oct 23	**Hand out Lab#6 (Roller Coaster Prep) –** This week: **Derivatives of Trig Functions; The Chain Rule –** Sections to read: 3.3&3.4 *WAHW10 due Mon; Lab #5 due Wed*	First Test week 5 (covers material from Review, Ch.2 and 3.1-3.2)
Sixth: Oct 30	**Hand out Lab#7, each student gets their own lab checked off as it's finished –** This week: **Implicit Differentiation, Derivatives of Logarithmic Functions, and Rates of Change –** Sections to read 3.5-3.7 *WAHW11 due Wed; WAHW12 due Fri; Lab #6 due Fri*	
Seventh: Nov 6	This week: **Related Rates**, section 3.9. Read 4.1-4.3 for next week. *WAHW13 due Mon; WAHW14 due Wed; WAHW15 due Fri;* Continue to work on Lab 7 and get the problems checked off as you finish them.	11-10 is Veteran's Day No class – college closed **A reminder: don't forget to work on "The Project"**
Eighth: Nov 13	Chapter 4: Applications of Differentiation**–** This week: **Maximum and Minimum Values & The Mean Value Theorem (in class worksheet)** Read 4.1-4.2 *WAHW16 due Mon*; **DEADLINE FOR WAHW'S 11-16 IS THURS, NOV 16 AT MIDNIGHT.**	Second Test week 8 (covers material from Review, Ch.2 and 3.1-3.9)
Ninth: Nov 20	This week: **How Derivatives Affect the Shape of a Graph & Optimization Problems;** Read 4.3&4.7 *WAHW17 due Wed*	Thurs & Fri, Nov 23&24 Thanksgiving College is closed
Tenth: Nov 27	In class time for the project and more on optimization *WAHW18 due Mon; WAHW19 due Fri;*	
Eleventh: Dec 4	**LAST WEEK!** Wrap up Ch. 4; REVIEW for the final! Material covered from chapters 2, 3, & 4. **4.9 - Antiderivatives - is an in-class activity. Friday is the absolute deadline to get Lab #7 checked off and to turn in your Roller Coaster Project. No work will be accepted during finals week.**	
Twelfth Dec 11-15	**FINAL**: 8:00am class in MOD 105: **Fri, December 15th from 8:00 – 10:00am** 1:00pm class in GRV 110: **Wed, December 13th from 1:00 – 3:00pm** **Final Exam Policy**: (https://www.cocc.edu/degrees-classes/calendar/)	

Any work handed in for grading MUST be presented:

- neat and in PENCIL ONLY (points will be deducted for pen).
- the **Project** must be type written, 1 ½ to double space with a minimum of 11 point font.
- your name -first and last, and class meeting time in the *upper-most right-hand corner of the page.*
- **no frilly edges.**
- Points will be deducted for incorrect notation, wrong answers, and infractions to presentation.
- **Always show any and all necessary work for full credit.** Leave at least 2 spaces empty between each problem
- **Staple more than one paper together**; please do not fold the corners together or paper-clip papers together.

HOMEWORK (HW) (10%): HW will be submitted electronically through the WebAssign web page. You will have 5 chances to improve your HW score as long as you complete the HW before the deadline date. "Bonus due" dates are prior to the deadline and will add 10% to your score for whatever HW problems you have completed correctly by those "bonus due dates". See WA for the due dates.

LABS (10%): We will have about 7 labs this quarter. You need to plan on working in groups of 2-4 and then hand-in one lab "write-up" per group for each of the first 6 labs. Group labs receive a 10% bonus and solo labs receive no bonus. The labs will be graded on neatness, completeness – necessary work must be shown, as well as accuracy, and *must be done in pencil*. Late labs receive a 50% penalty *and are only accepted up to one week late.*

PODs (10%): Every class day, except test days, will have "Problems of the Day" (POD) at 10 points each – some may have bonus points available. They will be distributed and collected during class. I will base your total POD points earned on 90% of the total points possible throughout the term, so no late POD's are accepted. This policy allows for two missed POD's with no penalty. The problems will be from previous material or checks for understanding of key concepts.

PROJECT (10%) There will be one project assigned this quarter. Once again, you need to plan on working in groups of 2-4 and hand-in one group report. It is helpful to break up the various tasks among the group to take advantage of your various strengths. Details on the project will be handed out in early October, with more information on my website. You will be asked to assess the members of your group so there will be a 5% penalty for solo projects.

TESTS (40%): We will have two tests this quarter and they are tentatively scheduled as follows:

Test 1 – Week 5, covers review, 2.2, 2.3, 2.5-2.8, 3.1-3.2 (20%)

Test 2 – Week 8, covers previous material and 3.3-3.7 & 3.9 (20%) *There are no make-up tests.*

Let me know *ahead* of the scheduled test if you have a conflict and we can work something out then.

FINAL EXAM (20%): The final is comprehensive and includes material from Ch 4. See page 3 for time and location.

Instructional Methods: Some lecture, small group work, and discussion. *It is highly recommended that you read the assigned section(s) before class.* There is also a WebAssign (on-line computer) component for working on, and turning in, your homework.

Dropping a Class/Audits: The end of the 7th week of the term is the last day to change from a grade to an audit, or vice versa. This date is also the last day to drop a course without receiving a W on your transcript. After the 7th week and by the end of the Wednesday prior to finals week, you may drop a course and receive a W on your transcript only with permission from your instructor

ADA statement: "Students with documented disabilities who may need accommodations, who have any emergency medical information the instructor should know of, or who need special arrangements in the event of evacuation, should make an appointment with the instructor as soon as possible, no later than the first week of the term. Students may also wish to contact the COCC Disability Office in BEC, (541) 383-7583."

Student Insurance: Students are not covered by medical insurance while on campus or involved in college classes and activities. Students are responsible for their own medical and dental insurance coverage.

COCC Non-Discrimination Policy: Central Oregon Community College is an affirmative action, equal opportunity institution. It is the policy of the Central Oregon Community College Board of Directors that there will be no discrimination or harassment on the basis of age, disability, gender, marital status, national origin, race, religion, sexual orientation, or veteran status in any educational programs, activities or employment. Persons having questions about equal opportunity and non-discrimination, please contact Human Resources for referral to the appropriate personnel, 383-7236.

- **Remember that mathematics is much more than knowing any particular theorem or formula, or being able to solve any one kind of problem.**
  - Mathematics is about the process of problem solving -- of being able and willing to think about how to solve a problem when it's not clear where you should start.
  - Mathematics is about extending the understanding you have in order to propose and solve different, more interesting, or more difficult problems.
  - Mathematics is also about being able to explain what you've done so that someone else can follow and understand your work.

Becky Plassmann