MTH 251

Differential Calculus (CRN 31056)

Winter 2019

INSTRUCTOR:	Michael Renne	EMAIL:	rennem@linnbenton.edu
OFFICE:	BC-101	OFFICE HOURS:	TR 8:25 – 8:55 pm
CLASSROOM:	BC-234	TIME:	TR 6:00 – 8:20 pm

REQUIRED TEXT: *Contemporary Calculus*, by Dale Hoffman, 11th printing
You can find a free electronic copy at
http://scidiv.bellevuecollege.edu/dh/Calculus_all/Calculus_all.html
Or
http://www.contemporarycalculus.com/

MATERIALS: A ruler, a graphing calculator is **required**, and the TI 83/84 family is recommended, and an internet connected device (if you don't have one, see me immediately).

Description: The first course in the calculus sequence for students majoring in mathematics, science and engineering. Limits and derivatives are approached using graphical, numeric, and symbolic methods. Linear approximations, related rates, curve sketching and optimization are among the applications of differentiation covered in this course.

Prerequisites: MTH 112 Trigonometry or equivalent with a grade of "C" or better.

Student Learning Outcomes: Upon completion of the course, the student will be able to:

1. Calculate, interpret and communicate the concepts of limits and derivatives.
2. Recognize when and how to apply calculus tools to solve problems in business, the sciences, and engineering.
3. Connect the graphical behavior, numerical patterns and symbolic representation of functions and their derivatives.

HOW TO GET POINTS:		**GRADING**:	
Course Participation	5 %	A	90 – 100 %
Project	15 %	B	80 – 89.9 %
Quizzes (8, drop 2, @ 10% each)	60 %	C	70 – 79.9 %
Comprehensive Final Exam	20 %	D	60 – 69.9 %
Total	**100 %**	F	0 – 59.9 %

FINAL EXAM: The comprehensive final exam is worth 20% of your course grade and it will be administered in class on Tuesday, March 19th, from 6:30 pm to 8:20 pm. **Missed exams cannot be made up unless arranged in advance.**

COURSE PARTICIPATION: There are multiple ways that course participation is graded. They are described below. **Missed participation points cannot be made up.**

1. **Attendance**
   Showing up on time and avoiding distractions during scheduled class periods earns 1 point for each day. Points may be deducted for tardiness, leaving early, or egregious inattention.
2. **In-Class Activities**
   Each day that you are expected to work on an activity in class, you will earn 1 point for working diligently on the activity for the duration of the activity. Most class days will have an activity.

QUIZZES:
There will be a quiz each Thursday in the last 30 minutes of the class period. There will be 8 quizzes, and your two lowest quiz scores will be dropped, so that your 6 highest quiz scores will be counted. Each of those 6 quizzes is worth 10% of your course grade. **Missed quizzes cannot be made up.**

MyOpenMath:
This course has no graded homework in the traditional sense. However, there is a free online system that will allow you to work many examples and gives you immediate correct/incorrect feedback. It is called MyOpenMath and is at www.myopenmath.com. To use this system, you will need the Course ID and Enrollment Key that are on my instructor website.

PROJECT:
There is a project that is worth 15% of your course grade. Unless I give written permission otherwise, each project will be worked by a team of two people. If you team member is not helping you do the necessary work, or they dropped the course, see me immediately. The last week of class is dedicated to 10-minute presentations by each team. Attendance during project presentations will count as both attendance and activity participation, so it is worth 2 points each day. Some project details are below, and others will be made available as the term progresses. *You are responsible for coming to me to clear up any confusion about project expectations BEFORE DEADLINES.* **Points from missed project deadlines will be lost and cannot be made up.**

1. Select a project from the project sign-up form by 1/22. (5% of project grade)
   a. Each project will have a limited number of teams who can do them.
   b. When you select your project, you will need to put the names of both team members in a row associated with that project. If all rows for that project are filled in, then select another one.
2. Submit a type-written project plan by 2/5. (15% of project grade)
   Turn in rough drafts before the due date for feedback. Inadequate plans that are turned in on the due date will be handed back with a score of ZERO and you will be expected to resubmit with a penalty (the best you can earn in this case will be 10% of the project grade instead of 15%).
   a. Project plans are limited to a single page (not counting figures), font size 11 or 12 throughout.
   b. Project plans need to clearly state the steps you will take to complete the project. What will you do from start to finish, step-by-step, logistically, etc.? You do NOT need to talk about the mathematics in detail, because you will not yet know all of what you need.
3. Project Reports will be type-written and submitted by 2/21. (40% of project grade)
   a. Project reports must have font size 11 or 12 throughout.
   b. Project reports must cover all the details listed on the Project Choices handout.
   c. Project reports need to be unique to each team. Your examples, explanations, etc. need to be your work, original to you. If you're explaining a well-known example or mathematical object, you need to explain it in your own way.

Details regarding the presentation will be handed out in class as the term progresses.

4. Project Presentation Outline will be type-written and submitted by 2/28. (5% of project grade)
5. Project Presentation in-class for 10 minutes, either 3/12 or 3/14. (35% of project grade)

HELP: If you have any questions, please ask. I will help you whenever I can. You will find me in my office during my office hours or any other time you can catch me. There are free tutors that can help you when you are having difficulties. Don't hesitate to take advantage of these or any other resources offered by the college in support of your learning.

Academic Dishonesty & Student Conduct: If there are any incidents of cheating, an incident report will be sent to the Director of Admissions, and it will have severe consequences for the student. Furthermore, students are expected to abide by all LBCC policies regarding student conduct.

Special Circumstances: Students who may need accommodations due to documented disabilities, who have medical information which the instructor should know, or who need special arrangements in an emergency should speak with their instructor during the first week of class. If you believe you may need accommodations but are not yet registered with the Center for Accessibility Resources (CFAR), please visit the CFAR Website for steps on how to apply for services or call 541-917-4789.

Request for Special Needs or Accommodations: Direct questions about or requests for special needs or accommodations to the LBCC Disability Coordinator, RCH-105, 6500 Pacific Blvd. SW, Albany, Oregon 97321, Phone 541-917-4789 or via Oregon Telecommunications Relay TTD at 1-800-735-2900 or 1-800-735-1232. Make sign language interpreting or real-time transcribing requests 2-4 weeks in advance. Make all other requests at least 72 hours prior to the event. LBCC will make every effort to honor requests. LBCC is an equal opportunity educator and employer.

LBCC Comprehensive Statement of Nondiscrimination: LBCC prohibits unlawful discrimination based on race, color, religion, ethnicity, use of native language, national origin, sex, sexual orientation, gender, gender identity, marital status, disability, veteran status, age, or any other status protected under applicable federal, state, or local laws. For further information see Board Policy P1015 in our Board Policies and Administrative Rules. Title II, IX, & Section 504: Scott Rolen, CC-108, 541-917-4425; Lynne Cox, T-107B, 541-917-4806, LBCC, Albany, Oregon. To report: linnbenton-advocate.symplicity.com/public_report

Statement of Inclusion: To promote academic excellence and learning environments that encourage multiple perspectives and the free exchange of ideas, all courses at LBCC will provide students the opportunity to interact with values, opinions, and/or beliefs different than their own in safe, positive and nurturing learning environments. LBCC is committed to producing culturally literate individuals capable of interacting, collaborating and problem-solving in an ever-changing community and diverse workforce.

Basic Needs: If you have difficulty affording groceries or accessing enough food to eat every day, or if you lack a safe and stable place to live, and you believe that this may affect your performance in this course, then you are urged to contact the Single Stop Office for support. The Single Stop Office can help students get connected to resources for help.
Email: SinglestopatLBCC@linnbenton.edu Phone: (541) 917- 4877
Web: https://www.linnbenton.edu/current-students/student-support/

LBCC Email and Course Communications: You are responsible for all communications given in class or sent via Moodle and/or to your LBCC email account. You are required to use your LBCC provided email account for all email communications at the College. You may access your LBCC student email account through Student Email and your Moodle account through Moodle.

Changes to the Syllabus: I reserve the right to change the contents of this syllabus due to unforeseen circumstances. You will be given notice of relevant changes in class, through a Moodle Announcement, or through LBCC e-mail.

MTH 251 – Differential Calculus

Winter 2019
(Tentative schedule)

		M	T	W	R	F
WEEK 1	1/7		Course Syllabus & Intro Review & Terminology (R & T)		Models & Rates of Change (DH 1.0)	
WEEK 2	1/14		Limits (DH 1.1, 1.2) & Continuity (DH 1.3)		Derivatives Intro (DH 2.0, 2.1) ***Quiz 1 [R & T]***	
WEEK 3	1/21	**No School**	Intro to Differentiation Rules (DH 2.2, 2.3) *		Chain Rule (DH 2.4, 2.5) ***Quiz 2 [Outcome 1]***	
WEEK 4	1/28		Related Rates (DH 2.6) & Implicit Diff. (DH 2.9)		Practice the Deriv. Rules ***Quiz 3 [Outcome 1]***	
WEEK 5	2/4		Newton's Method (DH 2.7) & Linear Approx. (DH 2.8) *		Practice Rel. Rates & Implicit ***Quiz 4 [Outcome 2]***	
WEEK 6	2/11		Extreme Values (DH 3.1) & MVT (DH 3.2)		Practice Approximations ***Quiz 5 [Outcome 2]***	
WEEK 7	2/18	**No School**	Using Calculus to Graph f (DH 3.3, 3.4)		Practice Extrema & MVT ***Quiz 6 [Outcome 3]*** *	
WEEK 8	2/25		Optimization (DH 3.5) & More Optimization…		More curves ***Quiz 7 [Outcome 3]*** *	
WEEK 9	3/4		Asymptotic Behavior (DH 3.6) & L'Hôpital's Rule (DH 3.7)		Practice Optimization ***Quiz 8 [Outcome 2]***	
WEEK 10	3/11		*Project Presentations*		*Project Presentations*	
FINALS		*3/19* →	***Comprehensive Exam*** ***6:30 – 8:20pm***			

Important Dates:

1/14:	The last day to drop.
2/22:	The last day to withdraw.
1/21, 2/18:	Holiday, no school.

Project Due Dates: **Points from missed project deadlines will be lost and cannot be made up.**

1/22:	Project sign-up (5% of project grade)
2/5:	Project plan, final draft (15% of project grade)
2/21:	Project report (40% of project grade)
2/28:	Project presentation outline (5% of project grade)
3/12, 3/14:	Project presentations begin (35% of project grade)