

# MTH 251 - DIFFERENTIAL CALCULUS

## WINTER 2020

INSTRUCTOR: Roger Maurer

TIME: MTWRF 9:00 - 9:50 AM

CRN: 30153

CLASSROOM: WOH 120

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INSTRUCTOR WEBSITE: <http://cf.linnbenton.edu/mathsci/math/maurerr/web.cfm?pgID=124>

OFFICE HOURS: T,F 10 – 10:50 AM, M,F 11 – 11:50 AM, R 1 – 1:50 PM

TEXT: Calculus: Early Transcendentals, 3<sup>rd</sup> edition by Briggs, Cochran, Gillett and Schulz

This course is the first course in the calculus sequence for students majoring in the fields of mathematics, computer science, science or engineering. Topics we will cover will include functions and their characteristics; limits; continuity; tangent lines; rates of change; differentiation of polynomial, exponential, logarithmic and trigonometric functions; related rates; optimization; curve sketching; and anti-differentiation.

Prerequisites: MTH 111 – College Algebra and MTH 112 – Trigonometry

## ASSIGNMENTS

| <u>Section</u> | <u>Assignment</u>  | <u>Section</u> | <u>Assignment</u>                         |
|----------------|--|----------------|---|
| 1.1            | 10, 15f, 16h, 26, 37, 38, 46, 67, 73                                 | 3.5            | 1 – 76 by 5's, not 56                     |
| 1.2            | 1, 9, 12, 13, 41, 81   | 3.6            | 1, 6, 12, 17, 20, 28, 37, 41, 42, 58      |
| 1.3            | 8, 12, 29, 32, 48, 52, 54, 57  | 3.7            | 1 – 76 by 5's, (not 61), 86               |
| 1.4            | 1, 6, 7, 19-24, 33, 35, 37, 42, 52, 53, 61, 75, 77, 94, 98, 106, 108 | 3.8            | 1 – 56 by 5's, not 41                     |
| 2.1            | 1 – 28 by 3's  | 3.9            | 1 – 46 by 5's, 63 – 83 by 5's             |
| 2.2            | 1 – 46 by 5's  | 3.10           | 1, 4, 13 – 34 by 3's, 41                  |
| 2.3            | 1 – 61 by 5's, 82, 83  | 3.11           | 11 – 46 by 5's                            |
| 2.4            | 1 – 46 by 5's, 54, 61  | 4.1            | 1 – 76 by 5's                             |
| 2.5            | 1 – 56 by 5's  | 4.2            | 1 – 31 by 3's, not 19                     |
| 2.6            | 1 – 71 by 5's  | 4.3            | 1 – 86 by 5's, 99                         |
| 2.7            | 1 – 22 by 3's  | 4.4            | 6 – 30 by 3's, 36, 37, 46                 |
| 3.1            | 1 – 51 by 5's, 60  | 4.5            | 1 – 21 by 5's, 39, 57                     |
| 3.2            | 1 – 36 by 5's, 46, 47, 49, 54, 63                                    | 4.6            | 1, 8, 10, 19, 28 a-c, 37, 47a, 58, 61, 64 |
| 3.3            | 1 – 37 by 3's, 46 – 66 by 5's, 69, 76, 82, 84, 88                    | 4.7            | 6, 15, 17 - 32 by 5's, 40 – 55 by 5's     |
| 3.4            | 1 – 61 by 5's, 71, 76  |                |   |

## **HANDING IN ASSIGNMENTS:**

Each assignment will be handed in (by the end of class) two class days after it is covered in class, to have a chance of receiving full credit (5 points). If an assignment is handed in one day late you can receive at most 4 points for the assignment. If an assignment is handed in more than one day late you will receive no points. The assignments that are handed in on time will be graded in the following way: I will check some of the questions in each section (assignment). If they are all correct, you will receive 5 points; not surprisingly, the more you get wrong, the fewer points you will earn, but you will receive 1 point for just handing it in on time.

**EXAMS:** Exams will be taken in class on the following days:

Exam I: (Sections 1.1 – 3.2) Wednesday, January 29  
Exam II: (Sections 3.3 – 3.10) Wednesday, February 19  
Final Exam: (“Comprehensive”) Wednesday, March 18 (10:00 – 11:50 AM)  
All exams are closed book. On some exams, a formula sheet may be used.

**HELP:** If you have any questions, please ask. I will help you whenever I can. You will find me in my office (WOH 102) during my office hours, but do not hesitate to come at other times as well. There are instructional assistants in the Learning Resource Center (above the library) that can help you when you are having difficulties. When you use the Learning Resource Center, be sure to sign in and out on the computer.

## **HOW TO GET POINTS:**

|                       |                   |
|-----------------------|-------------------|
| Assignments (best 20) | 100 points        |
| Exam I                | 100 points        |
| Exam II               | 100 points        |
| Final Exam            | <u>150 points</u> |
| TOTAL                 | 450 points        |

## **GRADING:**

|   |                  |   |                  |
|---|------------------|---|------------------|
| A | 405 – 450 points | D   | 270 – 314 points |
| B | 360 – 404 points | F   | 0 – 269 points   |
| C | 315 – 359 points | <b>NO “Y” Grades will be assigned in this course.</b> |                  |

An incomplete grade (IN) may be assigned to a student who misses exactly one of the exams, but a contract for completion of the course needs to be signed by the student before the incomplete grade will be assigned.

**Cultural Richness:** 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 nurturing the development of culturally literate individuals capable of interacting, collaborating and problem-solving in an ever-changing community and diverse workforce.

**Academic Dishonesty:** 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.

**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](tel:5419174789).

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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.symplcity.com/public\\_report](http://linnbenton-advocate.symplcity.com/public_report)

### **Basic Needs Statement:**

Any student who has difficulty affording groceries or accessing sufficient food to eat every day, or who lacks a safe and stable place to live, and believes this may affect their performance in the course, is urged to contact the Roadrunner Resource Center for support ([resources@linnbenton.edu](mailto:resources@linnbenton.edu)), or visit us on the web [www.linnbenton.edu/RRC](http://www.linnbenton.edu/RRC) under Student Support for Current Students). Our office can help students get connected to resources to help. Furthermore, please notify the professor if you are comfortable in doing so. This will enable them to provide any resources that they may possess.

### **Outcomes: Upon completion of this 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.