

# MTH 251 – DIFFERENTIAL CALCULUS – SYLLABUS

## 1. INSTRUCTOR

**Name:** Brian Sherson

**Office:** Kidder 256

**Office Hours:** MWF 1:00 – 1:50

**MSLC Hours:** **TBD**

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## 2. CLASS INFORMATION

**Term:** January 9, 2017 – March 17, 2017

**MyMathLab Course:** Access through Canvas (**First assignment due January 18, 10pm**)

**Calculator:** TI 83 or 84, HP 38/39/48/49/50 series or any calculator with graphing functionality. Instructor is more familiar with the HP 49G. If you are experienced with programming or scripting, you may sign up for a free SAGE Cloud account at <https://cloud.sagemath.com/>.

**Prerequisites:** Enforced prerequisites are MTH 112 with C– or better, ALEKS placement of 75% or higher, math placement of 33 or higher, or instructor permission. Students with grades in MTH 111 and 112 of **B-** or higher will be better prepared for MTH 251. Students are responsible for knowing the material.

**Webpage:** <http://shersonb.net/courses/W-2017/MTH-251/>

**Calendar:** <http://shersonb.net/courses/W-2017/MTH-251/calendar.psp>

This is a **4-credit class**, with three hours of lecture and one hour (or one and a half hours) of recitation each week.

## 3. COURSE CONTENT

Differential Calculus consists of the material from Chapters 2 through 4 of the text, with Chapter 1 is considered as review material. We will study the following topics in depth: Limits, Continuity, Average and Instantaneous Rate of Change, Derivatives and Differentiation. We also study applications of the derivative such as Related Rates, Optimization, Graphing, and Linear Approximation. We conclude with l'Hôpital's Rule, as an application of the derivative to the computation of limits.

## 4. PREREQUISITE SKILLS

Continued mastery of algebra, geometry, and trigonometry is **very important**. Here, *continued mastery* means that you have retained all skills and knowledge in those courses. That is, if you took the final exam for both 111 and 112 **again**, you will still earn a passing grade. Students who do not maintain mastery of these subjects, or do not regain mastery in a timely manner are less likely to succeed in Calculus.

## 5. GRADING

Letter grades will be earned as follows:

$$F < 58\% \leq D- < 60\% \leq D < 66\% \leq D+ < 68\% \leq C- < 70\% \leq C < 78\%, \\ 78\% \leq C+ < 80\% \leq B- < 82\% \leq B < 88\% \leq B+ < 90\% \leq A- < 92\% \leq A.$$

5.1. **Online Homework — 10%.** Online homework will be assigned as new material is covered in lecture and will be due one week later (at 10:00 pm), unless otherwise specified. Late work may be accepted with a penalty of 20% per day.

You will be **required** to purchase a MyMathLab code. If you purchased your textbook at the OSU Bookstore, a code should come bundled with the textbook. However, if you purchased your textbook elsewhere, you must take special care in observing whether or not a MyMathLab code is included in the package.

It is recommended you work online homework problems out **on paper** first. Should it be the case that you need assistance on an online homework problem, you will be asked to produce a printout of the problem **and** your work written down as far as you can go.

Online assignments labelled as “OPTIONAL” or “Chapter Review” are provided only for your own practice, and while highly recommended, will not be included in grading.

You can access MyMathLab through Canvas (<http://oregonstate.instructure.com/>).

5.2. **Quizzes — 10%.** Regular quizzes will be given during Thursday recitations, and will be based on both online homework, and **lab activities that are given during recitations but not collected**. The first quiz, Quiz 0, will be a take-home quiz that is collected the following week, while the remaining quizzes are in-class only. Students are permitted the use of notes during quizzes. No regular quizzes are given during the weeks of the first and second skills quizzes.

One low quiz score will be dropped; Quiz 0 is not eligible to be dropped.

5.3. **Differentiation Skills Quiz — 10%.** The Differentiation Skills Quiz will be given Thursday, October 27, at the end of recitation. Grading details are to be announced at a later date. Students who fail the skills quiz, or otherwise wish to improve their score will be permitted two additional attempts.

5.4. **Exams — 70%.**

- Midterm 1 (100 points) is scheduled for Tuesday, January 31, 2017 at 8:30 pm.
- Midterm 2 (100 points) is scheduled for Tuesday, February 21, 2017 at 8:30 pm.
- The final exam (150 points) is scheduled for Wednesday, March 22, 2017 at 4:00 pm.

The locations of these exams are to be determined at a later date.

With exception to medical crises, exam scheduling conflicts, and DAS arrangements, **no makeup exams will be permitted**.

Low midterm replacement: Students who score better on the final exam than on their lower midterm will have their low midterm score replaced. Students who miss a midterm, or receive a zero grade due to academic dishonesty will not be eligible for low midterm replacement.

## 6. EXPECTATIONS

It is the responsibility of the student, and the student alone to:

- Show up for lecture and recitation on time.
- Read their textbook, and not just the exercise sections. The textbook provides examples that may be useful. Students should read the relevant sections of the textbook **before** these sections are covered in lecture.
- Students who experience difficulty in this class should take advantage of these resources:
  - Your instructor. My office hours are for me to help you. Additionally, if I am in my office outside of my designated office hours **and if I am not busy with another task**, I will usually be open for help. **If there is a significant discrepancy between our teaching styles and your learning style**, coming to office hours for one-on-one help is a good place to start.
  - Your graduate teaching assistant also holds office and MSLC hours for you to seek help.
  - Math and Statistics Learning Center (formerly the Math Learning Center) — Free tutoring is available on a drop-in basis. Open Monday through Thursday 9:00 am to 5:00 pm, and Friday from 9:00 am to 4:00 pm, from weeks 2 through 10. For more information, visit <http://www.math.oregonstate.edu/mlc>.
  - Collaborative Learning Center — Free tutoring Sunday through Thursday from 7 PM to 10 PM in the Valley Library.
- Keep all course documents (syllabus, calendar, etc...) for reference.
- Keep cell phones on mute or turned off during class. Other electronic devices must also be shut off, with exception to those used for taking notes and other tasks relevant to the class.
- Be respectful of everyone in the classroom. Instructor reserves the right to remove disruptive students from the classroom.
- A strong work ethic is necessary to pass this class. Students who do the “bare minimum” often will not receive a grade higher than C–.

## 7. MATHEMATICS BACCALAUREATE CORE LEARNING OUTCOMES

- (1) Identify situations that can be modeled mathematically.
- (2) Calculate and/or estimate the relevant variables and relations in a mathematical setting.
- (3) Critique the applicability of a mathematical approach or the validity of a mathematical conclusion.

## 8. MTH 251 MEASURABLE STUDENT LEARNING OUTCOMES

A successful student in MTH 251 will be able to:

- (1) Calculate average and instantaneous rates of change and identify instantaneous rates of change with derivatives.
- (2) Apply ideas of differential calculus to motion problems (velocity, speed, and acceleration).
- (3) Apply the algebraic limit laws and the standard rules of differentiation including the chain rule to calculate particular limits and derivatives.
- (4) Use methods of calculus to solve maximum and minimum problems.
- (5) Use methods of calculus to determine the shapes of curves.

## 9. STATEMENT REGARDING STUDENTS WITH DISABILITIES

Accommodations for students with disabilities are determined and approved by Disability Access Services (DAS). If you, as a student, believe you are eligible for accommodations but have not obtained approval please contact DAS immediately at 541-737-4098 or at <http://ds.oregonstate.edu>. DAS notifies students and faculty members of approved academic accommodations and coordinates implementation of those accommodations. While not required, students and faculty members are encouraged to discuss details of the implementation of individual accommodations.

## 10. ACADEMIC DISHONESTY AND STUDENT CONDUCT

Students are expected to be familiar with the Homework and Exam policies stated in this syllabus, as well as Oregon State University's Student Conduct Code.

Academic dishonesty is defined as an intentional act of deception in one of the following areas:

- cheating – use or attempted use of unauthorized materials, information or study aids
- fabrication – falsification or invention of any information
- assisting – helping another commit an act of academic dishonesty
- tampering – altering or interfering with evaluation instruments and documents
- plagiarism – representing the words or ideas of another person as one's own

<http://studentlife.oregonstate.edu/studentconduct/>