

MTH 254 – VECTOR CALCULUS I – SYLLABUS

“Good mathematics is not about how many answers you know... It’s how you behave when you don’t know.” – Author unknown

1. INSTRUCTOR

Name: Brian Sherson

MSLC Hours: TBD

Office: Kidder 256

Email: shersonb@math.oregonstate.edu

Office Hours: MWF 1:00 – 1:50

2. CLASS INFORMATION

Meeting Time: MWF 3:00 – 3:50 + Thursday recitations **MyMathLab Course:** Access through Canvas. **DO NOT** use a Course ID.

Location: Kidder 364

Term: April 3, 2017 – June 9, 2017

Textbook: **Calculus: Early Transcendentals**, Second Edition, by Briggs, Cochran, and Gillett, with **MyMathLab Access Code**.

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.

Prerequisites: The enforced prerequisite is MTH 252 (or 252H) with a grade of C– or better, or placement directly into 254.

Webpage: <http://shersonb.net/courses/S-2017/MTH-254/>

Calendar: <http://shersonb.net/courses/S-2017/MTH-254/calendar.psp>

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

3. COURSE CONTENT

Vector Calculus I consists of the material from Chapters 11 through 13 of the text. Chapter 11 covers vectors, vector functions, and curves in two and three dimensions. Chapter 12 covers surfaces, partial derivatives, gradients, and directional derivatives. Chapter 13 covers multiple integrals in rectangular, polar, cylindrical, and spherical coordinates, physical and geometric applications of vector calculus.

4. PREREQUISITE SKILLS

It is **very important** that a student of Vector Calculus retains mastery of algebra, trigonometry, differentiation and integration. That is, a student must retain all skills and knowledge in those courses. Students who do not achieve mastery of these prerequisite subjects in a timely manner are not likely to succeed in Vector Calculus.

5. GRADING

Letter grades will be earned as follows:

$$F < 57\% \leq D- < 60\% \leq D < 64\% \leq D+ < 67\% \leq C- < 70\% \leq C < 77\%,$$

$$77\% \leq C+ < 80\% \leq B- < 83\% \leq B < 87\% \leq B+ < 90\% \leq A- < 93\% \leq A.$$

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.

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/>). ***DO NOT*** use a Course ID.

Students who experience technical difficulties in accessing MyMathLab are expected to report those difficulties to the instructor **as soon as possible**.

Extension Policy. Students may request extensions on **up to eight** MyMathLab assignments with no penalty. Extensions may not exceed a **cumulative total** of 120 hours, and must be requested at least 24 hours before the original deadline.

Extensions given due to technical difficulties or late enrollment into MTH 254 will not count towards the limits specified above.

Late Work Policy. Late work may be accepted with a penalty of 20% per day.

5.2. Written Homework — 10%. Written homework will be assigned on a weekly basis, and collected during recitation.

Late homework will not be accepted unless an extension has been granted. Students who need an extension must request one by e-mail and prepare a valid reason for needing an extension. The instructor will not remember verbal requests for extensions.

Difficult-to-grade homework (e.g., poor handwriting, unclear work, work crammed together in a small space, or no work shown at all) may result in no credit being given. To receive full credit, written solutions must be thorough and clear, with explanations when warranted.

5.3. Labs — 10%. Labs will be given each Thursday in recitation. Students are expected to arrive on time and remain the entire period, working on the lab activity. To receive credit, students should write up a lab problem to be turned in at the end of the hour (no sooner). It is expected that students complete labs outside of class.

5.4. Exams — 70%.

- Midterm 1 (100 points) is scheduled for Tuesday, May 2, 2017 at 7:00 pm.
- Midterm 2 (100 points) is scheduled for Tuesday, May 23, 2017 at 7:00 pm.
- The final exam (150 points) is scheduled for Tuesday, June 13, 2017 at 4:00 pm.

Students will be permitted double-sided 3" × 5" notecards. Calculators will not be permitted. The locations of these exams are to be determined at a later date.

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

There will be no low midterm replacement in this class.

6. EXPECTATIONS

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

- Show up for lecture and recitation **on time**, and stay to the end. Arriving late or leaving early are both disruptive and rude.
- Be familiar with prerequisite material. Students who do not retain prerequisite skills and knowledge are not likely to pass.
- Be prepared to solve problems in which the student must devise a solution method. Students who rely too much on being told what to do are not likely to pass.
- 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.
 - The Math Department also publishes a listing of private tutors at http://math.oregonstate.edu/private_tutors.
- 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. MTH 254 LEARNING OUTCOMES

A successful student in MTH 254 will be able to:

- (1) Represent vectors both algebraically and geometrically and be able to use vector methods effectively in problem solving.
- (2) Use the dot and cross product to solve problems in a geometrical or physical setting.
- (3) Apply partial derivatives, directional derivatives, and gradients to solve problems of multivariable differential calculus such as max-min problems and rates of change of physical processes in space.
- (4) Evaluate multiple integrals in rectangular, polar, spherical, and cylindrical coordinates.
- (5) Use vector functions to analyze particle motion (position vectors, components of acceleration) and to represent curves parametrically.
- (6) Integrate and differentiate vector functions.

8. 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.

9. 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/>