

# Math 252H: Integral Calculus

Winter 2019

(Section 1, CRN 32366)

**Course Credits:** 4

**Lectures:** 10:00 - 11:20 AM on Monday, Wednesday, Friday at Bexell Hall 321.

**Instructor:** Tuan Pham, [phamt3@oregonstate.edu]

**Couse website:**

<http://people.oregonstate.edu/~phamt3/Courses/W19-Math-252H/W19-Math-252H.html>

Most materials will also be posted on Canvas.

**Office:** Kidder 268, **phone:** 541-713-6196

**Office Hours:** MWF 1:00- 3:30 PM, Kidder 268.

**Textbook:** “*Calculus*, Early Transcendentals”, 2<sup>th</sup> Edition, by Briggs, Cochran and Gillett. We will follow a slightly different order compare to the textbook (see the class schedule).

**Course Description:** The course mainly introduces the concept of integral of single-variable functions and its applications, for example in evaluating area, force, and work. Other included topics are calculus of logarithmic and exponential functions, polar coordinates, applications of integrals to elementary mathematical models such as growth, decay, logistic problems.

**Learning Outcomes:** A successful student in MTH 252H will be able to:

1. Describe the definite integral as a limit of Riemann sums and illustrate and interpret definite integrals as areas and signed areas.
2. Apply the Fundamental Theorem of Calculus to evaluate integrals and to differentiate integrals with respect to a limit of integration.
3. Use integration in applications, such as to find areas and volumes of regions and to calculate physical quantities such as total distance traveled, displacement, work, and center of mass.
4. Evaluate integrals using basic numerical integration rules.
5. Use first order differential equations to model and solve problems of growth, decay, cooling, and mixing.

**Grading weights:**

Group-work reports: 25%

Group project: 15% (another 3% can be earned as bonus)

Midterm: 30%

Final Exam: 30%

**Suggested Homework:** There will be 8 suggested homework sets. These are not for submission. They, together with the group work activities, are the ground your midterm and final exams are based upon.

Purpose: Attempting to solve these problems is an important part of understanding what you are learning.

Policy: No submission, but you are strongly recommended to work through.

**Group work:** There will be 6 group-work activities in class on most Fridays. You will be given some worksheets to work with a partner.

Purpose: Help you understand better the concepts recently taught by working on problems with your partner with the help of your instructor.

Policy: Each person writes their own report. Each report of the first 5 group work activities is worth 30 points, and is due on the following Friday, at the beginning of the class. You can submit early, even on the same day the group work is given. The 6th report is not for credit nor submission.

**Group project:** On the Friday before the midterm exam, you will be given a few group projects. Each group work together on one project of your choice. Each person writes their own report.

Purpose: This is an opportunity for you to apply what you have learned in the course to solve a practical problem. Collaborating with your partner(s) is also an important skill.

Policy: The project is worth 50 points plus 10 extra points, which add up to the maximum of 60. Each group should have 2-3 members. Each group have 3 weeks to work on their project. Project reports are due at the beginning of the class on March 1.

**Exams:** There will be one midterm and a comprehensive final exam. The midterm exam will be held on Monday Feb 11, 10:00–11:20 AM in class. The final exam will be on Thursday Mar 21, 12:00–1:50 PM, location to be announced.

Policy: Note cards and calculators are not allowed in neither exams. The formula you may need will be provided as a tear-out page of the exam. Any regrading requests for the midterm exam must be made within 15 days after the work being returned to you. Exams cannot be rescheduled or taken early unless in truly exceptional circumstances. Requests for such accommodations must be made prior to the exam. If you have time conflicts, please contact your instructor as soon as possible.

**Mathematical software:** Although this course does not have a lab component, you will be introduced to a mathematical software called Mathematica. You can download Mathematica with OSU's license to your personal computer from here: <https://is.oregonstate.edu/service/software/mathematica>. If you are unable to install it on your computer, you can use computers at the lab room Kidder Hall 108J almost anytime from 9 AM to 4 PM, Monday through Friday.

Purpose: Acquaint you with mathematical software to do large amount of computation such as Riemann sums. A little background on programming would be helpful, but not required.

**Grade lines:** the course grades will not be harder than: A, A- 100-90%, B+, B, B- 89-80%, C+, C, C- 79-70%, D+, D, D- 69-60%, and F 59% or under. You can view your scores on Canvas. The running total that Canvas provides does not take into account the weights mentioned above. Your final course score will be computed by the instructor at the end of the term.

**Other Learning Resources:** The Math Learning Center MLC in Kidder 108 is a great place to drop in for help. It is open from 9 AM to 4 PM Monday through Friday from the second week of classes through the end of dead week.

**Academic Honesty:** OSU's Statement of Expectations for Student Conduct:

[http://studentlife.oregonstate.edu/sites/studentlife.oregonstate.edu/files/code\\_of\\_student\\_conduct.pdf](http://studentlife.oregonstate.edu/sites/studentlife.oregonstate.edu/files/code_of_student_conduct.pdf)

**Statement Regarding Students with Disabilities:** Accommodations for students with disabilities are determined and approved by Disability Access Services (DAS). If you 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.