INTEGRAL CALCULUS - MTH 252 (50318, 50322, 50716, 53193)

Spring 2018

Credits: 4

Instructor Information:

CRN 50318: Meets MWF 8-8:50 in Kidder 350 (with a recitation on Thursdays)
- Instructor: Sarah Erickson
- E-mail: ericksos@oregonstate.edu
- Office: Kidder 260
- Office hours: W 10-10:50 (Kidder 260), WF 2-2:50 (ILLC 550)

CRN 50322: Meets MWF 9-9:50 in Kidder 350 (with a recitation on Thursdays)
- Instructor: Sarah Erickson
- E-mail: ericksos@oregonstate.edu
- Office: Kidder 260
- Office hours: W 10-10:50 (Kidder 260), WF 2-2:50 (ILLC 550)

CRN 50716: Meets MWF 2-2:50 in ILLC 155 (with a recitation on Thursdays)
- Instructor: Reza Mollapourasl
- E-mail: mollapor@oregonstate.edu
- Office: Kidder 256
- Office hours: Monday 11-11:50, Wednesday and Friday 11AM-1PM or by appointment

CRN 53193: Meets MWF 4-4:50 in OWEN 102 (with a recitation on Thursdays)
- Instructor: Filip Maisch
- E-mail: maischf@math.oregonstate.edu
- Office: Kidder 348
- Office hours: Monday and Friday 2:30-3:45 or by appointment
- MSLC hours: Wed. 10-10:50 starting week 2

*** Please only go to YOUR instructor’s office hours ***
Prerequisites: MTH 251 or MTH 251H with a C- or better

Textbooks: Calculus, Early Transcendentals, Briggs, Cochran, et al. (2nd edition)

Student Conduct Code: Students are expected to be familiar with Oregon State University’s Expectations for Student Conduct. Please review these at the following web link:

http://studentlife.oregonstate.edu/sites/studentlife.oregonstate.edu/files/code_of_student_conduct.pdf

Course Description: This course covers definite and indefinite integrals, basic techniques of integration, the calculus of logarithmic and exponential functions, polar coordinates, and applications of integration to areas, volumes, force, work, and growth and decay problems.

Course Content: Antiderivatives and the indefinite integral; Riemann sums and the definite integral; the Fundamental Theorem of Calculus; U-substitution; integral applications including net change, area, volume, arc-length, surface area, mass, work, and force; the logarithm as an integral; exponential models; Integration by Parts; trigonometric substitution; partial fractions; numerical integration; improper integration; separable differential equations; calculus in polar coordinates.

Specific Learning Outcomes: A successful student in Math 252 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 to find areas and volumes of regions and calculate physical quantities such as total distance traveled, displacement, work, and fluid force.
4. Evaluate integrals using basic numerical integration rules.
5. Use first order differential equations to model and solve problems of growth and decay, cooling, and mixing.

Grading: Your grade is determined by online homework, recitation group work, two evening midterms, and a final. There will also be extra credit based on participation in lecture.

The course will be graded as follows

- Homework 17%
- Recitation Activities (best 5 of 6) and practice Skills Test: 18%
- Skills Test 10%
- Midterms 30% (each 15%)
- Final 25%

Your grade in the course will not be harder than:

A-/A 90% - 100%, B-/B/B+ 80% - 89.9%, C-/C/C+ 70% - 79.9%, D-/D/D+ 60%-69.9%, F 0%-59.9%.
**Exams:** There will be two midterms, and a cumulative final exam. Calculators are NOT allowed on exams. The final does NOT replace a midterm. You are allowed both sides of one $8.5 \times 11$ inch handwritten page on each exam. Tests are not allowed to be made-up unless the circumstances are truly exceptional and contact requesting the accommodation is made PRIOR to the test. Contact your instructor to request an accommodation.

- First Midterm: Tuesday evening, April 24th at 7-8:20 PM, LINC 210 (Dr. Maisch’s lecture only)
- Second Midterm: Tuesday evening, May 15th at 7-8:20 PM, LINC 210 (Dr. Maisch’s lecture only)
- Final Exam: Thursday morning, June 14th 7:30-9:20 AM, Location TBAD

**Recitation Group Work:** Most weeks in recitation you will be asked to start a recitation group-work activity, due at the start of the following week’s recitation (except activity 5, which is given two weeks). See the term calendar. Every group member individually is required to submit an activity. It is your responsibility to print the activities and bring them to recitation. Each activity will be graded as follows: 50% for completion and 50% for correctness on a randomly chosen subset of the problems. Your lowest activity grade is dropped. Late activities accepted up to one day late (by 5PM) for half-credit.

**Skills Test:** A 10-question basic integration Skills Test (some straightforward ones, basic U-substitution, one-step integration by parts) is given in week 8’s recitation and you just get whatever proportion of the credit that corresponds to your score (no partial credit given). **You will not be given an opportunity to take it again.** A practice Skills Test will be in week 7’s recitation (you get credit just for completion).

**Homework:** Homework is online (www.mymathlab.com) and can be accessed through Canvas.

**Extra Credit – Lecture Participation:** There will be up to 5% of extra credit available in lecture. Depending on your instructor, this will either take the form of clicker-style questions (through Learning Catalytics), or will consist of 5 pop-discussion quizzes (where you can discuss the problems with your fellow students) given during some of the lectures.

**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.