Math 253 - 33082, Calculus III - Syllabus

Time and Place: MW, 4:00 PM -- 5:50 PM, FEN 105.

Instructor: Yan Ge **Email:** yge7@uoregon.edu **Office:** 220 UO Annex

Tentative Office Hour: Friday: 1:00 PM - 2:15 PM (Starting from week 2), or by appointment.
Location: Fenton Hall 213

Prerequisite: Math 252 or the instructor's permission.

Textbook: OpenSTAX Calculus Volume II. Available for free at

https://openstax.org/details/books/calculus-volume-2

Content: We will cover roughly Chapter 5 and 6.

Topics we will cover: sequences, series, various convergence and divergence tests, power series and Taylor series, Taylor's remainder theorem, power series solutions to differential equations (not in our textbook, but supplementary materials will be available in our lecture notes.)

Tentative Weekly Schedule: Adjustments may be made as we go through the quarter.

✧	Week 1	5.1	Sequences; Graph of a sequence; Limit of a sequence; Convergent/Divergent;
✧	Week 2	5.2, 5.3	Series, Divergence test; Geometric series; Harmonic series; Telescoping series;
✧	Week 3	5.3, 5.4	Integral tests(p-series); Comparision Test;
✧	Week 4	5.5, 5.6	Alternating series, Ratio and Root tests; Strategy for testing series;
✧	Week 5	6.1, 6.2	Power series;
✧	Week 6	6.3	Taylor and Maclaurin series;
✧	Week 7	6.3	More on Taylor series and representing functions;
✧	Week 8	6.4	Application of Taylor series;
✧	Week 9	Lecture notes	Application of Taylor series;
✧	Week 10		Review, catch-up.

Homework Practices: Homework Practices will be assigned every week on the WeBWorK and due on each Saturday at 23:59. For logging into the WeBWorK and getting more information, please read the last page of this syllabus: "More information on using the WebWork".

Quizzes: In-class quizzes on some Mondays. These will be timed, pencil & paper quizzes given at the last 20-mins of the class. Quizzes will generally cover material on lecture notes, important concepts, and formulas learned in the previous week.

Exams: Two midterms and one final. The midterms will be held in **4th and 8th week,** respectively. For each exam, lecture notes, calculators, and cellphones are **NOT** allowed. **Only one 3x5 inches note card(Front and back) is permitted**. UO ID is needed for each exam. Final exam is fixed. If

you have to miss one of the midterms due to extraordinary circumstances, you must ask for my permission and schedule a make-up exam **in advance**.

Grades: Grades will be weighted as follows:

15%	9 Homeworks
10%	5 Quizzes
18%	Midterm 1
22%	Midterm 2
35%	Final

The grading scale generally is: 95-100% A+; 90-94.99% A ; 85-89.99% A-; 80-84.99% B+; 75-79.99% B; 70-74.99% B-; 67-69.99% C+; 62-66.99% C; 60-61.99% C-; 50-59.00% D and below F.

Calculator and Electronic devise policy:

Calculators are not allowed on quzzies & exams, but you can use for homework assignments.

Learning Objectives: The eventual goal of this course is to understand and use power series approximations of functions. Specific goals:

1. Show sequences do or don't converge using the definition of a limit.
2. Use standard series convergence tests. Find error bounds for partial sums.
3. Estimate sums using the integral test, the alternating test, or the comparison test, depending on circumstances.
4. Calculate radius of convergence and interval of convergence for power series.
5. Calculate Taylor series. Represent common transcendental functions as power series.
6. Use Taylor's remainder theorem to approximate values of transcendental functions to given levels of accuracy.
7. Give power series solutions to appropriate differential equations. Recognize solutions when common transcendental functions.

Need Math Helps:

1. **Scheduled office hours:** Any questions in class and homeworks will be welcome. If you can't make my office hours, email me to set up an appointment.
2. **Knight Library:** Tutoring and Academic Engagement Center (TAEC) provides drop-in math and writing tutoring on the 4th floor of Knight library. See https://library.uoregon.edu/tutoring.

Learn Environment and AEC Accommodations: The University of Oregon strives for inclusive learning environments. Please notify me if the instruction or design of this course results in disability-related barriers to your participation. You are also encouraged to contact the Accessible Education Center at **uoaec@uoregon.edu**. You should also contact me(yge7@uoregon.edu) as soon as possible if there are any specific accommodations I should know about. For something standard

like an accommodation for extra time on exams, you just need to e-mail me your documentation from AEC---and remember to book your spot in the Testing Center for the written midterm/final exam well in advance. For other accommodations, I will do everything I can to facilitate, please do not hesitate to contact me if you need extra help.

Academic Conduct: The code of student conduct and community standards is at https://dos.uoregon.edu/conduct. In this course, it is not appropriate to help each other on exams, to look at other students exams, or to bring unauthorized material to exams. Any type of academic dishonesty will not be tolerated!

More information on using the WebWork

Showing work:
When working on your assignment you should have scratch paper available and neatly write out your thought process in solving the problem. While WebWork does not grade you on this process, writing it out carefully will train you in the skills you need. It will help you track down mistakes, and it will help us track down mistakes when you ask for our help. If you ask us a question about a homework problem in office hours, the first thing we will probably do is ask you to show us your work. Also, remember that on quizzes and exams showing your work will sometimes be required. It is important to practice this each week while doing your homework assignments.

Logging in to Webwork: First go to the main login page at

https://uowebwork.uoregon.edu/webwork2.

Select the "**Math 253-your section**". Your username is your DuckID: for instance, if your uoregon email address is johndoe@uoregon.edu, your DuckID is "johndoe" (without the quotation marks). Your password is the same as your UO email password.

Getting help:
If you have a question about a homework problem, one excellent resource is the "Email instructor" button at the bottom of the WebWork screen. Clicking on that and typing a short message about what you've tried on the problem will help me diagnose the issue you're having.
What you should NOT do: Do not send an email simply saying "What am I doing wrong on this problem" or "I can't seem to get the right answer on this one." On most homework problems it is impossible to figure out what you are doing wrong if I only see your answer (which is all WebWork shows me).
What you SHOULD do: If WebWork tells you your answer is wrong, first go back over your work and see if you can find the mistakes yourself. If you can't, feel free to email me, and include a description of how you solved the problem as well as any work you did for intermediate steps. The more information you give, the more likely it is you will get a prompt and helpful reply.

Tips for using WebWork: http://math.uoregon.edu/undergraduate/webwork.

Format of Inputting your Answers: Get information on the format of how to enter things from below page listing the functions WeBWorK understands:

https://webwork.maa.org/wiki/Available_Functions.