

Instructor: Jonathan “Nate” Wells
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Course Description: This is the third course in the standard sequence of single variable calculus required for students of physical and social sciences, and mathematics, with focus on modeling using sequences and series. Emphasis will be placed on the development of mathematical reading and writing skills.

Prerequisites: MATH 252 or equivalent.

Textbook: *Calculus, Concepts and Contexts*, 4e by James Stewart. Reading assignments will be given on frequent basis, so daily access to the textbook is necessary. This textbook is also used for Math 251 and 252.

Course Website: Documents, a daily schedule, assignments, and grades will be posted on our Canvas page at <http://canvas.uoregon.edu>

Technology: Access to the Computer Algebra System *Mathematica* will be required for this course. University of Oregon students can obtain a free copy of *Mathematica* from

<https://it.uoregon.edu/software/mathematica>

Computers in the Knight library also have *Mathematica* installed. Unless otherwise specified, **no calculators or other electronic devices** may be used during exams.

Communication: If you would like to contact me, I can most easily be reached by email weekdays between 10am and 6pm. While I try to answer email as soon as possible, in some cases, I may not be able to respond until the following school day. You are also welcome to schedule an appointment outside my usual office hours.

Course Outcomes: By the end of the course, a student should be able to:

1. Demonstrate that a sequences doesn't converge using the ϵ - N definition of the limit.
2. Apply the standard series convergence tests to determine whether a sequence converges
3. Estimate sums using the integral test, the alternating series test, and the comparison test.
4. Calculate the radius of convergence of a power series
5. Find the Taylor series expansion for a given function
6. Express common transcendental functions as power series
7. Use Taylor's remainder theorem to approximate the values of transcendental functions
8. Give power series solutions to appropriate differential equations

Workload: This course will require daily reading and class attendance, as well as weekly homework assignments. A typical, well-prepared student can expect to devote about 12 hours per week to this course (including time spent in class).

Grading Criteria: $A = 90 - 100\%$; $B = 80 - 89\%$; $C = 70 - 79\%$; $D = 60 - 69\%$; $F < 60$ (with upper and lower 2% of each division corresponding to $+/-$, respectively).

Your grade in the class will be determined by assessments of your proficiency in each of the *Course Outcomes*, weighted as follows:

1	Written Assignments	20%
3	Daily Reading / Participation	10%
4	Weekly Quizzes	5%
5	Midterm Exams	30% (15% each)
6	Final Exam	35%

Written Assignments: Solving mathematical problems is important; clearly communicating these solutions is even more so. Each week, a written assignment will be posted on Canvas, to be completed and handed in at the start of class on the following Friday. These assignments will contain an assortment of computations, short answer problems, *Mathematica* exercises, and at least one longer, more abstract problem. Solutions to each problem must be written in complete sentences, and include brief explanation of the steps used. Additionally, a longer writing assignment will be due Week 10 of the term. More details about this assignment will be given at a later date.

Daily Reading / Participation: Mathematical knowledge takes time to develop, and understanding deepens upon revisiting a concept a 2nd, 3rd, or n^{th} time. Studying basic terminology and elementary examples in the textbook before class means that lectures can be spent clarifying and expanding ideas, rather than introducing them. Daily reading assignments will be posted under the “Assignments” tab of Canvas. These assignments will list the specific section(s) to read for each day, along with several basic questions to check comprehension. Answers are due by 2pm each day of class, and can be submitted by following the same link on Canvas where the assignment was found and then either a) uploading a Word / .pdf file, or b) by clicking the “Text Entry” button and typing directly into the text-box. Each assignment will be graded out of 10 points, according to the following rubric: 6 points for an earnest effort to answer all questions, and up to 4 points for correct answers. Any student who earned less than 10 points may resubmit a revised assignment within 1 week to earn up to 4 points back.

Weekly Quiz: Each week, a take-home quiz will be posted on Canvas, to be completed by the start of class on Monday the following week. Although the quizzes will not be proctored, it is expected that you will work on these quizzes on your own, without outside help from classmates, tutors, or the internet.

Midterm Exams: Two 50-minute midterm exams will be given during the term: tentatively, the first is scheduled for Friday, October 19 (Week 4), and the second for Friday, November 9 (Week 7).

Final Exam: A cumulative, final exam will be given on Thursday, December 6, from 2:45-4:45 pm. *If you foresee a conflict with the time of the exam, please contact me during the first week of class so that appropriate arrangements can be made. Barring that, the final exam cannot be taken at any other time.*

A few notes on late assignments: Up to twice throughout the term, you may request a 3-day extension on your written assignment, but requests must be made prior to an assignment’s deadline. No extensions will be given on reading assignments or quizzes, but at the end of the term, the two lowest reading assignment scores and the lowest quiz score will be dropped.

Tentative Schedule:

Week	Sections Covered	Week	Sections Covered
1	8.1, A32-33	6	8.7
2	8.2, 8.3	7	8.7, Midterm 2
3	8.3, 8.4	8	8.8
4	8.4, 8.5, Midterm 1	9	Power Series and Diff EQ
5	8.5, 8.6	10	Review

Accessibility: The University of Oregon is dedicated to creating inclusive learning environments. Please notify me as soon as possible if there are aspects of the instruction or design of this course that result in disability-related barriers to your participation. You may also wish to contact the Accessible Education Center in 164 Oregon Hall at 541-346-1155 or uoaec@uoregon.edu.

Academic Integrity: Students are allowed and encouraged to collaborate on most in-class and homework assignments. However, any work that you turn in for grading must be your own. Exams will be closed book, closed notes, and closed colleague, unless otherwise specified. All written work that references material outside of the textbook should be accompanied by an appropriate citation (APA or AMS format is preferred). The University of Oregon requires that all instances of academic dishonesty be reported, no matter the scope.

Written Homework Expectations

Your written assignments will be assessed not only on the completeness and correctness of your solution, but also on the explanation of your method, and the organized presentation of your results. Your solutions should be neatly-written, with all work and computations shown, should include figures or graphs where appropriate, and should use complete sentences. In particular, your solution **must** include an explanation of how you solved the problem. The explanation does not need to be lengthy, but should provide enough information so that another person who is familiar with the content of the course, but who has never seen this type of problem, can follow your solution without any question about why it is correct.