

# CALCULUS II

## MATH 1220, CRN 23322, Fall 2024

[http://faculty.weber.edu/aghoreishi/Math1220\\_F24/Math1220\\_F24.asp](http://faculty.weber.edu/aghoreishi/Math1220_F24/Math1220_F24.asp)

**Prerequisite:** Math 1210, with a grade of C or better, or placement test.

**Corequisite:** The ability to use a computer algebra system.

**Text: Required:** Calculus by James Stewart, 8th Edition, Loose-Leaf Binding + Enhanced WebAssign Access Card, ISBN 978-1-30-561668-4, Brooks/Cole. This package is available from the bookstore for about \$135 and will be good for the entire Calculus I-III sequence. You will use the access code in Canvas to access the publisher's online material. You will have two weeks of free access before you need the access code. **However, just the paper copy of the book is sufficient.**

**Optional:** Study Guide by Richard St. Andre, ISBN 978-1-305-27913-1.  
Student Solutions Manual by Daniel Anderson, Jeffrey A. Cole, Daniel Drucker, ISBN 978-1-30-527181-4.  
A copy of the above two books and a pre-calculus book are available in the Mathematics Students' Room: TY 231. (The access code is 654321.)  
The Cartoon Guide to Calculus, Larry Gonick, ISBN 978-0-06-168909-3.

**Class Meetings:** This class is online. This is not a virtual class. There will not be any regular Zoom classes.

**Instructor Information:** Dr. Afshin Ghoreishi, <http://faculty.weber.edu/aghoreishi/>. Office: TY 450M. Office Hours: M 10:30-11:20, T 9:30-10:20 and 10:30-11:20, W 10:30-11:20 and 12:30-1:20, and F 10:30-11:20. At other times, you can see me whenever I am in my office and not busy. You can also see me by making an appointment.

### General Instructions

**Learning Mathematics:** One learns mathematics by doing it. Struggling is a part of learning. There is no substitute for working on and solving problems on your own.

**Reading a Mathematics Book:** Read mathematics books with a scratch paper and a pencil close by. Use them to work through the parts left for the reader to figure out and/or redoing the parts that are not clear. Do not expect to fully master every topic in the first reading.

**Writing Mathematics:** Mathematics, like English, requires proper use of grammar. The process of learning a topic and accurately communicating that knowledge are intimately related. The objective is not just to find the answer to problems but also to communicate the work involved through writing.

**Getting Ready for a Test:** In addition to studying homework problems, class notes, and sample tests, you should develop a set of short notes and sample problems on each topic. Develop these notes after learning each topic. Use your notes as a reference and review them before a test. This technique will solve the problem of forgetting or confusing things on the tests and will enable you to attain that higher grade which you deserve.

### Specific Instructions

**Procedures: Follow the weekly schedule in Canvas Modules.** All course lectures are already available. Course notes, pre-lecture and post-lecture, in the pdf format, are also available in Canvas Modules. You can print out pre-lecture notes and fill them in as you listen to the lecture. (You may also write on the pdf format pre-lecture notes using a stylus pen.) This is perhaps the best way to learn the material since you will be actively involved. We will have weekly assignments, four exams, and a comprehensive final exam. All will be done through Canvas. Utilize all sources of tutoring.

**Homework and Homework Quiz:** A problem list consisting of two parts is attached. Start with the problems in “Minimal List of problems”. If you can solve them, then move to harder problems in “All Problems”. If you have difficulty with a problem in “Minimal List of problems”, see a similar problem in the lectures and/or in the Students Solutions Manual and also try similar problems in “All Problems”. To be successful in this class you should be able to solve all of them. Homework I, Homework Quizzes, and the Mathematica Lab are available in Canvas Assignments and Modules. You will also upload them to Canvas.

Your first homework covers pre-requisite material. This homework is due Friday, August 30. You can find a review handout in the course website.

After the first week, we will have weekly Homework Quizzes. Homework Quizzes will be on Fridays. But in the weeks that Friday is a holiday, it will be conducted on Wednesday. Homework Quizzes will be available at 12:00 am and must be submitted before midnight, 11:59 pm, of the same day. **Homework Quizzes will consist of about 4 to 5 problems chosen almost entirely from the “Minimal List of Problems” and examples in lectures.**

The corequisite of this course is the ability to use a computer algebra system and some of the homework problems require use of a computer algebra system, CAS. Our CAS is Mathematica. As a WSU student, you have the benefit of getting your own free copy of this valuable and useful software at [https://www.weber.edu/software/mathematica\\_request.html](https://www.weber.edu/software/mathematica_request.html).

A Mathematica lab titled “Mathematica Commands: From Basics to Calculus II” is an additional homework and is due on Sunday, December 8. However, you will find it useful to work through it sooner so you can solve homework problems which require a CAS. You may also wish to take the 1-credit hour course Math 1200, Mathematics Computer Laboratory.

**Fun Problems:** Fun Problems is a collection of interesting problems available on my website: <http://faculty.weber.edu/aghoreishi>. These go beyond the standard homework problems and are intended to be an introduction to independent mathematics learning. Work on them for fun and developing your mathematical skills.

**Exams:** Exams will also be conducted through Canvas. Review problems and sample exams will be available both in Canvas and in my website: <http://faculty.weber.edu/aghoreishi>.

Exam I: Sec 6.1, 6.2*-6.4*, 6.6, 6.8, 7.1, 7.2	Tue, Sept 24. It opens at 12:00 am and closes at 11:59 pm.
Exam II: Sec 7.3-7.5, 7.7, 7.8, 8.1-8.3	Tue, Oct 22. It opens at 12:00 am and closes at 11:59 pm.
Exam III: Sec 11.1-11.7	Tue, Nov 12. It opens at 12:00 am and closes at 11:59 pm.
Exam IV: Sec 11.8-11.11, 10.1-10.3	Tue, Dec 3. It opens at 12:00 am and closes at 11:59 pm.
Final Exam: Comprehensive	Tue, Dec 10. It opens at 12:00 am and closes at 11:59 pm.

**Your exam preparations must include review of lecture notes, homework, and review problems.** After review, use the sample exam as a test of readiness. If you can not confidently, independently and quickly solve sample exam problems correctly, you will not do well on the exam.

**Ethical Conduct:** The Weber State University policy regarding all forms of academic dishonesty, including cheating, fabrication, facilitating academic dishonesty, and plagiarism will be strictly enforced. Penalties for academic dishonesty may include failure from the course. The policy can be found online at <http://documents.weber.edu/ppm/6-22.htm>.

**Grading:** The course scale is as follows: [0, 60%) E, [60%, 63%) D-, [63%, 67%) D, [67%, 70%) D+, [70%, 73%) C-, [73%, 77%) C, [77%, 80%) C+, [80%, 83%) B-, [83%, 87%) B, [87%, 90%) B+, [90%, 94%) A-, [94%, 100%) A. The scale may be adjusted, as needed. There are 16 homework (HW 1, Homework Quizzes, Mathematica Lab) of which the lowest score will be dropped.

Exams I-IV (65 points each)	260 points	(52 percent)
Homework	150 points	(30 percent)
Final Exam	90 points	(18 percent)
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Total	500 points	

**Miscellaneous Information**

**Other Important Dates:**

Labor Day Holiday	Sep 2
Last day to cancel a class	Sep 16
Fall Break	Oct 18
Last day to drop with a grade of W	Nov 5
Thanksgiving Holiday	Nov 28-29

If you decide to drop this class, please inform me of your decision.

**Extra Help:**

**SI:** The supplemental instructor for Math 1220 is Iã Jensen. He will announce the SI sessions later. Take advantage of them if you can.

**Tutoring:** Both online tutoring and in-person tutoring (Solution Space, TY 233) are available. All tutoring information can be found at <http://weber.edu/Tutoring>.

**Mathematics Students' Room:** The code to TY 231, Mathematics Students's Room, is 654321. You will find the manuals mentioned above in that room.

<b>Course Coverage and Problem List for Calculus II</b>		
Textbook: Stewart, 8 <sup>th</sup> Edition		
For problems with superscript <sup>M</sup> , use Mathematica or a computer algebra system. Homework Quiz problems will be chosen mostly from "Minimal List of Problems" and lecture examples.		
Section	Minimal List of Problems	All Problems
6.1	16, 19, 26, 36, 39, 40, 43, 50	1-11(odd), 17-21(odd), 16, 23-28, 31-41(odd), 36, 38, 50
6.2 <sup>*</sup> (Blue Pages)	25, 37, 40, 61, 65, 69, 72	1-7, 15-35 (odd), 37-41, 47-50, 55-58, 61-74, 77, 78
6.3 <sup>*</sup> (Blue Pages)	27, 40, 50, 53, 67, 73, 87, 98	1-4, 5-19(odd), 25-52, 53-55, 59, 67, 68, 69-72, 83-94, 97, 98
6.4 <sup>*</sup> (Blue Pages)	10, 17, 24, 25, 27, 37, 47, 50	1-10, 13, 17-19, 23-43, 45-50, 54-56, 70
6.6	9, 12, 27, 32, 47, 61, 64, 66, 68	1-9 (odd),11-14, 17, 18, 20, 22-40,43-48, 51-54, 57, 59-70, 71, 73
6.8	15, 32, 47, 54, 55, 63, 68, 75, 77	1-7, 9-66 (multiples of 3), 32, 47, 55, 59, 68, 73-76
7.1	9, 17, 24, 32, 39, 47, 61, 66	1, 2, 3-42 (multiples of 3), 17, 32, 47-52, 55-58, 61, 64, 66, 69, (not 14 or 25)
7.2	2, 9, 14, 27, 29, 30, 34, 41, 48, 55, 67	2, 3-48 (multiples of 3), 19, 25, 29, 44, 47, 55-58, 61, 62, 67-69
7.3	5, 6, 12, 16, 21, 22, 23, 30, 33, 44	1-3, 5, 6-33 (multiples of 3), 16, 22, 23, 42-44

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For problems with superscript <sup>M</sup> , use Mathematica or a computer algebra system. Homework Quiz problems will be chosen mostly from “Minimal List of Problems” and lecture examples.		
Section	Minimal List of Problems	All Problems
7.4	15, 24, 26, 28, 32, 39, 47, 60	1-6, 9-51 (multiples of 3), 26, 28, 32, 47, 57-61, 63, 64
7.5	12, 14, 21, 33, 36, 44, 49, 70, 71, 76	1-82 (except 53)
7.6	6 <sup>M</sup> , 11 <sup>M</sup> , 13 <sup>M</sup> , 19 <sup>M</sup> , 20 <sup>M</sup> , 26 <sup>M</sup>	Use Mathematica (not tables) for all problems. 5 <sup>M</sup> -33 <sup>M</sup> (except 15)
7.7	8(c), 10(c), 15(c), 21 (Just Simpson's Rule), 22, 27(S <sub>n</sub> & E <sub>s</sub> only. Use of Mathematica is optional)	Simpson's Rule Problems Only: 7-17 (odd, only part (c)), 8(c), 10(c), 21 (Just Simpson's Rule), 22, 27 <sup>M</sup> -28 <sup>M</sup> (S <sub>n</sub> & E <sub>s</sub> only. Mathematica is just for help with the computation.)
7.8	5, 12, 13, 15, 24, 27, 32, 36, 41, 49, 50	1-3, 5-39 (odd), 12, 32, 41, 42, 49-52, 57-59, 77, 79, 80
8.1	2, 11, 12, 15, 19, 21, 31 <sup>M</sup> , 34	1, 2, 5-21 (odd), 12, 31 <sup>M</sup> , 34, 35, 45
8.2	8, 10, 12, 13, 15, 17, 18, 23 <sup>M</sup> , 28	1-4 (a parts only), 7-17(odd), 8, 10, 12, 16, 18, 23 <sup>M</sup> -26 <sup>M</sup> , 27, 28, 35
8.3	4, 7, 8, 15	Hydrostatic Pressure and Force Problems Only: 1-10, 15
11.1	14, 17, 23, 24, 29, 31, 43, 55, 74, 75, 76	1-18, 24-54 (multiples of 3), 31, 43, 47, 55, 68-70, 72-78
11.2	19, 23, 29, 34, 38, 41-45, 52, 59, 67, 84	1, 2, 5, 15, 16, 17-63 (odd), 44, 52, 59, 67, 68, 81, 82, 84-88
11.3	3, 6-8, 14, 19-23, 29	1-8, 9-23(odd), 14, 20, 22, 29, 32
11.4	5, 15, 17, 20, 21, 24, 30, 40(b(i)), 41(b(i)), 45	1, 2, 3-30(multiples of 3), 5, 17, 37-46
11.5	4, 5, 12, 13, 16, 19, 23, 27*, 32 * Estimate the sum to within 0.0001.	1, 3-19 (odd), 4, 12, 16, 23, 27*, 30*, 32-34 * Estimate the sum to within 0.0001, not accurate to four decimal places
11.6	2, 4, 6, 12, 17, 21, 25, 28, 39, 45	1, 2, 3-36 (multiples of 3), 4, 17, 25, 28, 39-45
11.7	6, 7, 10, 13, 17, 19, 28, 31, 32	1-38, except 29
11.8	3, 11, 15, 26, 29, 31, 34 <sup>M</sup> , 35(a), 39	1, 2, 3-27 (multiples of 3), 11, 23, 26, 29-31, 34 <sup>M</sup> , 35(a), 36(a), 39
11.9	3, 8, 13, 15, 17, 25, 40(a, b(i))	1-19 (odd), 2, 8, 25-31 (odd), 36, 37-40
11.10	12, 23, 25, 28, 33, 34, 39, 51, 54	1-28 (except 17 & 18), 36, 39, 42, 43, 49, 50, 53-56, 60, 62, 73, 74
11.11	3 <sup>M</sup> , 5 <sup>M</sup> , 9 <sup>M</sup> , 16 <sup>M</sup> , 25, 26, 27 <sup>M</sup>	1 <sup>M</sup> , 2 <sup>M</sup> , 3 <sup>M</sup> -27 <sup>M</sup> (multiples of 3), 5 <sup>M</sup> , 16 <sup>M</sup> , 25, 26
10.1	6, 12, 15, 21, 22, 41, 46(a, c)	3-8, 11-21 (odd, except 17), 12, 22, 28, 31, 40, 41, 46(a, c)
10.2	4, 7, 11, 17 <sup>M</sup> , 32, 37 <sup>M</sup> , 42, 51, 61, 65	1-8, 11-15 (odd), 17 <sup>M</sup> , 18 <sup>M</sup> , 25, 27, 29, 30, 32, 37 <sup>M</sup> , 42, 49, 51-53, 57, 58, 61, 62, 65, 66
10.3	2, 3, 14, 20, 24, 29, 31, 35, 56, 64	1-6, 9-45 (multiples of 3), 14, 29, 31, 35, 54, 55-63 (odd), 56, 64
10.4	4, 7, 11, 22-24, 27, 31, 45, 51 <sup>M</sup>	1-12, 17-31 (odd), 22, 24, 35, 37-42, 45-48, 49 <sup>M</sup> -54 <sup>M</sup> , 55
10.5	8, 9, 15, 18, 24, 27, 33, 39, 45	3-48 (multiples of 3), 8

Course Coverage and Weekly Schedule for Math 1220 Online	
Week/Date	Activities
1/Aug 26 - Sept 1	<b>HW 1 - Due on Friday, Aug 30, 11:59 pm.</b> Learn sections 6.1, 6.2* and 6.3*.
2/Sept 2-8 (Holiday: Sept 2)	<b>Sec 6.1, 6.2* and 6.3* HW Quiz must be taken on Friday, Sept 6.</b> Learn sections 6.4*, 6.6 and 6.8.
3/Sept 9-15	<b>Sec 6.4*, 6.6 and 6.8 HW Quiz must be taken on Friday, Sept 13.</b> Learn sections 7.1, 7.2 and 7.3.
4/Sept 16-22	<b>Sec 7.1 and 7.2 HW Quiz must be taken on Friday, Sept 20.</b> Prepare for Exam I. Learn section 7.4.
5/Sept 23-29	<b>Must take Exam I (Sec 6.1, 6.2*-6.4*, 6.6, 6.8, 7.1, 7.2) on Tuesday, Sept 24. Sec 7.3 and 7.4 HW Quiz must be taken on Friday, Sept 27.</b> Learn section 7.5.
6/Sept 30 - Oct 6	Learn section 7.7. <b>Sec 7.5 and 7.7 HW Quiz must be taken on Friday, Oct 4.</b> Learn section 7.8. <b>Start the Mathematica Lab.</b>
7/Oct 7-13	Learn section 8.1. <b>Sec 7.8 and 8.1 HW Quiz must be taken on Friday, Oct 11.</b> Learn sections 8.2 and 8.3.
8/Oct 14-20 (Holiday: Oct 18)	<b>Sec 8.2 and 8.3 HW Quiz must be taken on Wednesday, Oct 16.</b> Prepare for Exam II. Learn sections 11.1 and 11.2.
9/Oct 21-27	<b>Must take Exam II (Sec 7.3-7.5, 7.7, 7.8, 8.1-8.3) on Tuesday, Oct 22. Sec 11.1 and 11.2 HW Quiz must be taken on Friday, Oct 25.</b> Learn section 11.3.
10/Oct 28 - Nov 3	Learn section 11.4. <b>Sec 11.3 and 11.4 HW Quiz must be taken on Friday, Nov 1.</b> Learn sections 11.5 and 11.6.
11/Nov 4-10	Learn section 11.7. <b>Sec 11.5, 11.6 and 11.7 HW Quiz must be taken on Friday, Nov 8.</b> Prepare for Exam III. Learn section 11.8 and 11.9.
12/Nov 11-17	<b>Must take Exam III (Sec 11.1-11.7) on Tuesday, Nov 12. Sec 11.8 and 11.9 HW Quiz must be taken on Friday, Nov 15.</b> Learn section 11.10.
13/Nov 18-24	Learn section 11.11. <b>Sec 11.10 and 11.11 HW Quiz must be taken on Friday, Nov 22.</b> Learn sections 10.1, 10.2.
14/Nov 25 - Dec 1 (Holiday: Nov 28-29)	Learn section 10.3. <b>Sec 10.1, 10.2 and 10.3 HW Quiz must be taken on Wednesday, Nov 27.</b> Prepare for Exam IV. Learn section 10.4.
15/Dec 2-8	<b>Must take Exam IV (Sec 11.8-11.11, 10.1-10.3) on Tuesday, Dec 3.</b> Learn section 10.5. <b>Sec 10.4 and 10.5 HW Quiz must be taken on Friday, Dec 6.</b> Prepare for the Final Exam. <b>The Mathematica lab is due on Sunday, Dec 8.</b>
Final Exam Days, Dec 9-12	<b>Must take the Final Exam on Tuesday, Dec 10.</b>