

## CALCULUS II

### MATH 1220<sup>©</sup>, CRN 36024, Spring 2024

[http://faculty.weber.edu/aghoreishi/Math1220\\_S24/Math1220\\_S24.asp/](http://faculty.weber.edu/aghoreishi/Math1220_S24/Math1220_S24.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:** James Stewart, 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 \$145 and will be good for the entire Calculus I-III sequence. For access to the online material use the Class Key: weber 2762 9514 to login at <https://www.webassign.net/v4cgi/selfenroll/classkey.html>.

**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 Cartoon Guide to Calculus, Larry Gonick, ISBN 978-0-06-168909-3.

**Class Meetings:** MTWF 8:30-9:20, TY 426.

**Instructor Information:** Dr. Afshin Ghoreishi, <http://faculty.weber.edu/aghoreishi/>. Office: TY 450M. Office Hours: M 10:30-11:20 and 12:30-1:20, 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:** I will try to answer a few questions at the beginning of each class, but this time will be limited. Be prepared for each class by working on prior homework and reading the book ahead of time. You are encouraged and expected to read the book on your own. Utilize office hours and other sources of tutoring.

We will have weekly homework and you should plan on three exams and a comprehensive “2-Hour” final exam. **Do not enter the class late & do not come to class if you have to leave early. Turn off pagers, cell phones and other such disruptive devices. Do not text message.** Failure to follow these basic courtesies may result in a failing grade.

Note: The university administration has reduced the length of the spring semester by 4 days. This means we will have two less classes than usual. I will do my best to still devote adequate time to all topics, questions and reviews.

**Attendance:** Typically, it is much harder to learn mathematics without attending class. Large number of absences will generally result in a grade of W, UW, or E.

Reason for Missing Class	Solution
1. I am too busy; too many classes, too many hours of work, or too many commitments.	Reduce your life load to a reasonable amount. Rather than doing everything poorly, do better in a smaller number of things. This might include dropping a class or reducing work/commitment hours.
2. I don't like this course.	If you don't like this class specifically, I can help you to get into another section. Otherwise, if you attend class, and work at it, you will do well enough to like it more.
3. I don't need to attend class to learn.	Take the online class or attend an online university, like WGU, or take the AP exam. However, attending class will usually result in a higher course grade.
4. I just need to get a C.	Since I do care about your learning, you are in the wrong section. Also, it is easier to get a C if you attend the class.

The following policy is to help you earn your best possible grade. You can earn extra credit for regular **on-time** attendance and positive contribution as follows: **5 points for missing at most 3 classes**. While, **excessive absence** (8 or more classes) **will result in a grade of UW**. However, if you don't like this policy, I will be happy to place you in another section or find you other accommodations.

**Homework:** A problem list composed of two parts is attached. To be successful in this class you should be able to solve all of them. I will collect all problems listed under the heading “Turn-In Problems”. Last day of each week or earlier, I will announce the sections which will be due next week. **Homework will be due on Wednesday with the grace period until Friday at the start of the class.** That means, generally, the latest time I will accept homework is on Friday at 8:30. (However, we may have to change the HW due days to accommodate the academic calendar.) **No late homework will be accepted.**

Your solutions must be complete, correct and neatly written. **Do not solve two problems side-by-side, write only on one side of each page and staple your homework.** Write your name on the top center position of the front page and number your pages as, for example; 1/7, 2/7, ... , 7/7 (if there are a total of 7 pages), on the top right hand corner of each page. **Failure to follow these will result in losing points.**

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. A lab titled “Mathematica Commands: From Basics to Calculus II” is an additional homework. This lab is available on my website and is due the last day of class. 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. You can use these problems to earn up to 20 extra points in the course. You may submit **up to 5 problems** and earn an extra 4 points for each correct and complete solution. **No** partial credit will be given. All solutions are due the last day of class.

**Exams:** You may use a scientific or graphics calculator, but not any calculator with a computer algebra system. Sample exams will be available from my website: <http://faculty.weber.edu/aghoreishi>. Exams I-III will be administered at the Tracy Hall Testing Center. The final exam is a common departmental exam. **No** make-up exam will be given.

Exam I	Feb	6-7	(tentatively sections 6.1, 6.2*-6.4*, 6.6, 6.8, 7.1 & 7.2)
Exam II	Mar	12-13	(tentatively sections 7.3-7.5, 7.7, 7.8, 8.1-8.3 & 11.1)
Exam III	Apr	9-10	(tentatively sections 11.2-11.11)
Final Exam	Apr	23	(3:00-4:50, Location will be announced later.)

**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.

The Tracy Hall Testing Center is located in the Tracy Hall, Rm. 101C, and will be open M-R 8:30 am - 8:00 pm, F 8:30 am - 4:30 pm, Sat 10:00 am - 4:30 pm. You must complete an exam by one hour after their closing time. You must also take along a picture I.D. **We will meet for our regular lectures during exam days.**

**Grading:** Exams will be curved as needed, but a minimum standard will be retained regardless of the class performance. A typical exam scale is [0, 56) E, [56, 66) D range, [66, 78) C range, [78, 89) B range, [89, 100] A range. Homework will have the standard scale and you will be given the opportunity to replace your lowest homework grade with your grade on a special assignment at the end of the semester. **The highest grade you can earn if you fail the Final Exam is "C-".** However, a high final exam score may justify a slightly higher grade than your average grade! **Excessive absence will result in a grade of UW.**

One-hour exams; 100 points each	300 points	(20 percent each)
Homework	100 points	(20 percent)
Final Exam	100 points	(20 percent)
<i>Fun Problems (optional)</i>	<i>20 extra points</i>	

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Total 500 points

It is possible to customize the above percentage values for best numerical representation of your learning. If you would like to take advantage of this, you must talk to me before the 2<sup>nd</sup> exam.

### Miscellaneous Information

#### Other Important Dates:

Martin Luther King Holiday	Jan	15
Last day to cancel a class	Jan	29
Presidents' Day Holiday	Feb	19
"Spring" Break	Mar	4-8
Last day to drop with a grade of W	Mar	26

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

**Extra Help:**

**SI:** The supplemental instructor for Math 1220 is Sofia Jones. She will announce the SI sessions later.

**Tutoring:** You will find tutors in the **Solution Space, TY 233**. All other tutoring information, including online tutoring, can be found at the website <http://weber.edu/Tutoring>.

**Mathematics Students' Room:** The Mathematics Students' Room, TY 231, is a good place to study. You will find the manuals mentioned above in that room.

<b>Course Coverage and Problem List for Calculus II</b>		
For problems with superscript <sup>M</sup> , use Mathematica or a computer algebra system. Turn in the print out. You may type or hand write any necessary additional work.		
Section	Problems	Turn-In Problems
6.1	1-11(odd), 17-21(odd), 16, 23-28, 31-41(odd), 36, 38, 50	16, 19, 26, 36, 39, 40, 43, 50
6.2*	1-7, 15-35 (odd), 37-41, 47-50, 55-58, 61-74, 77, 78	25, 37, 40, 61, 65, 69, 72
6.3*	1-4, 5-19(odd), 25-52, 53-55, 59, 67, 68, 69-72, 83-94, 97, 98	27, 40, 50, 53, 67, 73, 87, 98
6.4*	1-10, 13, 17-19, 23-43, 45-50, 54-56, 70	10, 17, 24, 25, 27, 37, 47, 50
6.6	1-9 (odd), 11-14, 17, 18, 20, 22-40, 43-48, 51-54, 57, 59-70, 71, 73	9, 12, 27, 32, 47, 61, 64, 66, 68
6.8	1-7, 9-66 (multiples of 3), 32, 47, 55, 59, 68, 73-76	15, 32, 47, 54, 55, 63, 68, 75, 77
7.1	1, 2, 3-42 (multiples of 3), 17, 32, 47-52, 55-58, 61, 64, 66, 69, (not 14 or 25)	9, 17, 24, 32, 39, 47, 61, 66
7.2	2, 3-48 (multiples of 3), 19, 25, 29, 44, 47, 55-58, 61, 62, 67-69	2, 9, 14, 27, 29, 30, 34, 41, 48, 55, 67
7.3	1-3, 5, 6-33 (multiples of 3), 16, 22, 23, 42-44	5, 6, 12, 16, 21, 22, 23, 30, 33, 44
7.4	1-6, 9-51 (multiples of 3), 26, 28, 32, 47, 57-61, 63, 64	15, 24, 26, 28, 32, 39, 47, 60
7.5	1-82 (except 53)	12, 14, 21, 33, 36, 44, 49, 70, 71, 76
7.6 (No Lecture)	Use Mathematica (not tables) for all problems. 5 <sup>M</sup> -33 <sup>M</sup> (except 15)	6 <sup>M</sup> , 11 <sup>M</sup> , 13 <sup>M</sup> , 19 <sup>M</sup> , 20 <sup>M</sup> , 26 <sup>M</sup>
7.7	Simpson's Rule Problems Only: 7-17 (odd, only part (c)), 8(c), 21 (S <sub>n</sub> & E <sub>s</sub> only), 22, 27 <sup>M</sup> -28 <sup>M</sup> (S <sub>n</sub> & E <sub>s</sub> only. Use of Mathematica is optional.)	8(c), 15(c), 22, 27 <sup>M</sup> (S <sub>n</sub> & E <sub>s</sub> only. For ease of calculations you may use Mathematica.)
7.8	1-3, 5-39 (odd), 32, 41, 42, 49-52, 57-59, 77, 79, 80	5, 13, 15, 24, 27, 32, 36, 41, 49, 50
8.1	1, 2, 5-21 (odd), 31 <sup>M</sup> , 34, 35, 45	2, 11, 15, 19, 21, 31 <sup>M</sup> , 34
8.2	1-4 (a parts only), 7-17(odd), 8, 12, 16, 23 <sup>M</sup> -26 <sup>M</sup> , 27, 28, 35	8, 12, 13, 15, 23 <sup>M</sup> , 28
8.3	Hydrostatic Pressure and Force Problems Only: 1-10, 15	4, 7, 15

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Section	Problems	Turn-In Problems
9.1	These three sections are skipped due to the fact the administration has made the spring semester 4 days shorter. These material will be useful in Math 2280.	1-5, 6(not b), 9, 10
9.3		1-4, 11-14
6.5		In each problem, start with the ODE and solve it. 1-4, 10-14, 19, 20(a), 21, 22(a)
11.1	1-18, 24-54 (multiples of 3), 31, 43, 68-70, 73-77 (odd), 79-83	23, 24, 29, 31, 43, 55, 70, 73, 75, 77, 80
11.2	1, 2, 5, 15, 16, 17-63 (odd), 52, 59, 67, 68, 81, 82, 84-88	19, 23, 29, 34, 38, 41, 45, 52, 59, 67, 84
11.3	1-8, 9-23(odd), 14, 20, 29, 32	3, 6, 8, 14, 19, 20, 21, 22, 29
11.4	1, 2, 3-36(multiples of 3), 5, 17, 37-46	5, 15, 17, 20, 24, 30, 40(b(i)), 41(b(i)), 45
11.5	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	4, 5, 12, 13, 16, 19, 23, 27*, 32 * Estimate the sum to within 0.0001.
11.6	1, 2, 3-36 (multiples of 3), 4, 17, 28, 39-45	2, 4, 6, 12, 17, 21, 28, 39, 45
11.7	1-38	6, 7, 10, 13, 17, 19, 28, 31, 32
11.8	1, 2, 3-27 (multiples of 3), 11, 26, 29-31, 34 <sup>M</sup> , 35(a), 36(a), 39	3, 11, 15, 26, 29, 31, 34 <sup>M</sup> , 35(a), 39
11.9	1-19 (odd), 2, 8, 25-31 (odd), 36, 37-40	3, 8, 13, 15, 17, 25, 40(a, b(i))
11.10	1-28 (except 17 & 18), 36, 39, 42, 43, 49, 50, 53-56, 60, 62, 73, 74	12, 23, 25, 28, 33, 34, 39, 51, 54
11.11	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	3 <sup>M</sup> , 5 <sup>M</sup> , 9 <sup>M</sup> , 16 <sup>M</sup> , 25, 26, 27 <sup>M</sup>
10.1	3-8, 11-21 (odd, except 17), 12, 22, 28, 31, 40, 41, 46(a, c)	6, 12, 15, 21, 22, 41, 46(a, c)
10.2	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	4, 7, 11, 17 <sup>M</sup> , 32, 37 <sup>M</sup> , 42, 51, 61, 65
10.3	1-6, 9-45 (multiples of 3), 14, 29, 31, 35, 54, 55-63 (odd), 56, 64	2, 3, 14, 20, 24, 29, 31, 35, 56, 64
10.4	1-12, 17-31 (odd), 22, 24, 35, 37-42, 45-48, 49 <sup>M</sup> -54 <sup>M</sup> , 55	4, 7, 11, 22-24, 27, 31, 45, 51 <sup>M</sup>
10.5	3-48 (multiples of 3), 8	8, 9, 15, 18, 24, 27, 33, 39, 45