CALCULUS II

MATH 1220 , CRN 36031, Spring 2024

http://faculty.weber.edu/aghoreishi/Math1220_online_S24/Math1220_online_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: 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, 12:30-1:20, T 9:30-10:20 , 10:30-11:20, W 10:30-11:20, 12:30-1:20, and F 9:30-10:20. 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. However, we will communicate mainly through email, aghoreishi@weber.edu. We can also talk via Zoom during agreed upon office hour or another day and time.

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 tutoring and Supplemental Instruction.

Note: The university administration has reduced the length of the spring semester by 4 days. This has resulted in having one less week of classes. I have tried my best to minimize its effect on your learning.

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.

You first homework covers pre-requisite material. This homework is due Friday, January 12. You can find a review handout in the course website.

After the first week, we will have weekly Homework Quizzes. These will be available at 12:00 am and must be submitted before midnight of the same day. Homework Quizzes will be on Fridays, except the last one which will be on the last day of class, Mon, Apr 22. **Homework Quizzes will consists of about 4 to 5 problems chosen mostly 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.

A Mathematica lab titled "Mathematica Commands: From Basics to Calculus II" is an additional homework and is due the last day of class, Mon, Apr 22. 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   Tue, Jan 30. It opens at 12:00 am and closes at 11:59 pm.
Exam II: Sec 7.1-7.5, 7.7, 7.8   Tue, Feb 27. It opens at 12:00 am and closes at 11:59 pm.
Exam III: Sec 8.1-8.3, 11.1-11.4   Tue, Mar 26. It opens at 12:00 am and closes at 11:59 pm.
Exam IV: Sec 11.5-11.11   Tue, Apr 16. It opens at 12:00 am and closes at 11:59 pm.
Final Exam: Comprehensive   Wed, Apr 24. 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 and III (50 points each)	100 points	(20 percent)
Exams II and IV (75 points each)	150 points	(30 percent)
Homework Quiz	150 points	(30 percent)
Final Exam	100 points	(20 percent)

Total	500 points	

Miscellaneous Information

Other Important Dates:

Martin Luther King Day 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:

Tutoring: The supplemental instructor for Math 1220 is Sofia Jones. She will announce the SI sessions later.
In addition, general online and in-person tutoring is available. For in-person tutoring go to Solution Space, TY 233
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.

Course Coverage and Problem List for Calculus II
Textbook: Stewart, 8th Edition
For problems with superscript [M], 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[*] (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[*] (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[*] (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
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[M], 11[M], 13[M], 19[M], 20[M], 26[M]	Use Mathematica (not tables) for all problems. 5[M]-33[M] (except 15)
7.7	8(c), 10(c), 15(c), 21(Just Simpson's Rule), 22, 27(S_n & E_s 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[M]-28[M] (S_n & E_s 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[M], 34	1, 2, 5-21 (odd), 12, 31[M], 34, 35, 45
8.2	8, 10, 12, 13, 15, 17, 18, 23[M], 28	1-4 (a parts only), 7-17(odd), 8, 10, 12, 16, 18, 23[M]-26[M], 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

<table>
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Textbook: Stewart, 8th Edition
For problems with superscript ^{M}, use Mathematica or a computer algebra system. Homework Quiz problems will be chosen mostly from "Minimal List of Problems" and lecture examples.</td></tr>
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Section	Minimal List of Problems	All Problems
11.8	3, 11, 15, 26, 29, 31, 34^M, 35(a), 39	1, 2, 3-27 (multiples of 3), 11, 23, 26, 29-31, 34^M, 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^M, 5^M, 9^M, 16^M, 25, 26, 27^M	1^M, 2^M, 3^M-27^M(multiples of 3), 5^M, 16^M, 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^M, 32, 37^M, 42, 51, 61, 65	1-8, 11-15 (odd), 17^M, 18^M, 25, 27, 29, 30, 32, 37^M, 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^M	1-12, 17-31 (odd), 22, 24, 35, 37-42, 45-48, 49^M-54^M, 55
10.5	8, 9, 15, 18, 24, 27, 33, 39, 45	3-48 (multiples of 3), 8

<table>
<tr><td colspan="2">Course Coverage and Weekly Schedule for Math 1220 Online</td></tr>
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Week/Date	Activities
1/Jan 8-14	**HW 1 - Due on Friday, Jan 12, 11:59 pm**. Learn sections 6.1, 6.2* and 6.3*.
2/Jan 15-21 (MLK Day: Jan 15)	**Sec 6.1, 6.2* and 6.3* HW Quiz must be taken on Friday, Jan 19.** Learn sections 6.4*, 6.6 and 6.8.
3/Jan 22-28	**Sec 6.4*, 6.6 and 6.8 HW Quiz must be taken on Friday, Jan 26.** Prepare for Exam I. Learn section 7.1.
4/Jan 29 - Feb 4	**Must take Exam I** (Sec 6.1, 6.2*-6.4*, 6.6, 6.8) **on Tuesday, Jan 30.** Learn section 7.2. **Sec 7.1 and 7.2 HW Quiz must be taken on Friday, Feb 2.** Learn section 7.3.
5/Feb 5-11	Learn section 7.4. **Sec 7.3 and 7.4 HW Quiz must be taken on Friday, Feb 9.** Learn sections 7.5 and 7.6. **Start the Mathematica Lab.**
6/Feb 12-18	Learn section 7.7. **Sec 7.5 and 7.7 HW Quiz must be taken on Friday, Feb 16.** Learn section 7.8.
7/Feb 19-25 (Pres. Day: Feb 19)	Learn section 8.1. **Sec 7.8 and 8.1 HW Quiz must be taken on Friday, Feb 23.** Prepare for Exam II. Learn section 8.2.

Course Coverage and Weekly Schedule for Math 1220 Online	
Week/Date	**Activities**
8/Feb 26 - Mar 3	**Must take Exam II** (Sec 7.1-7.5, 7.7, 7.8) **on Tuesday, Feb 27.** Learn section 8.3. **Sec 8.2 and 8.3 HW Quiz must be taken on Friday, Mar 1.** Learn section 11.1.
9/Mar 4-10 (Spring Break: M-F)	Mar 4-8 is the spring break. There are only 14 weeks of classes in the spring semester! Use some of the time in this week to get a bit ahead.
10/Mar 11-17	Learn section 11.2. **Sec 11.1 and 11.2 HW Quiz must be taken on Friday, Mar 15.** Learn sections 11.3 and 11.4.
11/Mar 18-24	Learn sections 11.5 and 11.6. **Sec 11.3 and 11.4 HW Quiz must be taken on Friday, Mar 22.** Prepare for Exam III.
12/Mar 25-31	**Must take Exam III** (Sec 8.1-8.3, 11.1-11.4) **on Tuesday, Mar 26.** Learn sections 11.7 and 11.8. **Sec 11.5 and 11.6 HW Quiz must be taken on Friday, Mar 29.**
13/Apr 1-7	Learn sections 11.9, 11.10 and 11.11. **Sec 11.7 and 11.8 HW Quiz must be taken on Friday, Apr 5.**
14/Apr 8-14	Learn sections 10.1, 10.2 and 10.3. **Sec 11.9, 11.10 and 11.11 HW Quiz must be taken on Friday, Apr 12.** Prepare for Exam IV.
15/Apr 15-21	**Must take Exam IV** (Sec 11.5-11.11) **on Tuesday, Apr 16.** Learn sections 10.4 and 10.5. **Sec 10.1-10.3 HW Quiz must be taken on Friday, Apr 19.** Prepare for the Final Exam.
"Final Exam Week" (one class day and three exams days)	**Sec 10.4 and 10.5 HW Quiz must be taken on Monday, Apr 22. The Mathematica lab is also due on Monday, Apr 22. Must take the Final Exam on Wednesday, Apr 24.**