Course Syllabus

MATH 2212 - Calculus of One Variable II

Fall semester, 2022

Course: MATH 2212 – Calculus of One Variable II (**CRNs**: 83411, 86155, 92299, and 83712)

Textbook: (Required) *Calculus: Early Transcendentals, 9th edition* by James Stewart / Daniel K. Clegg / Saleem Watson; Cengage Learning, 2020, + access code to WebAssign (the supplemental website). See more detailed textbook info at the end of this syllabus.

Prerequisites: A grade of C or higher in MATH 2211, or an equivalent transfer credit.

Class structure: The class is taught in the lecture/recitation format, with two weekly lectures and one weekly recitation (break-out) class period. Both lectures and recitations are mandatory to attend and are integral for your success in the course.

Common lecture:

- **Days, Time, and Location:** Tue/Thur at 12:45pm-2:00pm in Urban Life 100.
- **Instructor:** Dr. Joshua Miller.

Break-out (recitation) section, CRN 83411:

- **Day, Time, and Location:** Thursday at 9:30am-10:20am in Spark 302.
- **Instructor:** Dr. Joshua Miller.

Break-out (recitation) section, CRN 86155:

- **Day, Time, and Location:** Thursday at 10:30am-11:20am in Langdale Hall 329.
- **Instructor:** Dr. Joshua Miller.

Break-out (recitation) section, CRN 92299/83712:

- **Day, Time, and Location:** Thursday at 11:30am-12:20pm in Spark 301.
- **Instructor:** Dr. Joshua Miller.

Instructors' contact info:

- DR. JOSHUA MILLER: **Office:** 25 Park Place, room 1427; **Email:** jmiller208@gsu.edu.

Instructors' office hours:

- DR. JOSHUA MILLER: Mon/Wed 9:30am–10:30am, Tue 9:00am–12:00am; or by appointment.
  - In person at my office or virtually using the link below:
  - https://gsumeetings.webex.com/meet/jmiller208

Supplemental Instruction: Supplemental Instruction (SI) is a learning-enhancement program geared towards helping students study and perform better in various courses. The SI leader for our class is YANAI GASHU (ygashu1@student.gsu.edu). SI study sessions will be held every TR 2:30pm-3:30pm at Spark 421

WebAssign supplemental website: http://webassign.com/. Signing up for a WebAssign account is a required component of this class, because it will be used for assigning graded online homeworks. Moreover, the entire textbook is available electronically on the website, as well as additional study and review resources. Use the following class key to sign up for our class on WebAssign: : **gsu 6240 4922**

iCollege: Most course-related materials are available or will be posted throughout the semester on GSU's iCollege website. You can log in to iCollege at http://icollege.gsu.edu/.

Course content: Applications and techniques of integration; parametric equations; polar coordinates; improper integrals; infinite sequences and series.

Course evaluation: Your course grade will be determined as follows:

a. **Tests (51%).** There will be three in-class tests – closed-books, closed-notes, with basic calculators allowed (see the calculator policy below) – given in lecture class periods. Each test will contribute 17% to your course grade.

b. **Homeworks (13%).** Online homeworks will be made available on the WebAssign website (see above) throughout the semester. The average of all homework grades will contribute 13% to your course grade.

c. **Quizzes (13%).** There will be several types of quizzes in this course: online quizzes on WebAssign and/or on iCollege, as well as short pop quizzes administered in the lecture and/or in the recitation class. In the end of the semester, two lowest quiz grades will be dropped, and the average of the remaining quizzes will contribute 13% to your course grade.

d. **Final Exam (23%).** The comprehensive final exam is scheduled for **December 6th** at 10:45am-1:15pm in the same lecture classroom (Urban Life 100). Except for its duration, the format and policies for the final exam are the same as for the tests. If your Final Exam score is higher than your lowest test score, it will be used to replace the lowest test score in the determination of your final grade.

Letter grades will be awarded as follows:

97%-100% → A+	80%-82% → B-
93%-96% → A	77%-79% → C+
90%-92% → A-	70%-76% → C
87%-89% → B+	60%-69% → D
83%-86% → B	Below 60% → F

Example of final course grade computation
Tests: T1 = 88, T2 = 73, T3 = 76; Homework average = 96.4; Quiz average = 81.7; Final exam = 79;
Final grade: (88+79+76)*0.17 + 96.4*0.13 + 81.7*0.13 + 79*0.23 = 82.633, which rounds to 83, which is a B. (Note the replaced grade for Test 2.)

Writing in mathematics: Your grades on all written assignments will be based on clear presentation as well as correct mathematics. It is often a good idea to model your writing on the examples worked in class or posted online. If you are unsure of whether or not written work is acceptable, you should ask about it. Please be aware that the process, and not merely the final answer, is critical to your understanding of the material and your success in the course. Precise, effective writing will be rewarded. Careless or incomplete work will be penalized, even if by chance it leads to a correct numerical answer. This means your final answer is worth less than the procedure you used to get your answer.

Prerequisite policy: During the first two weeks of the semester the Department of Mathematics and Statistics checks whether or not each student has met the prerequisites for this course. If you do not have the prerequisites, please inform me and change to another course right away. If our check finds that you do not have the prerequisites, you must drop this course or you will be dropped (or withdrawn) automatically.

Other faculty initiated withdrawals: If you stop attending the course before the semester midpoint (October 11th, 2022), you may be administratively withdrawn from the course and receive a withdrawal grade. Attending the course implies consistent class attendance and active involvement both on iCollege and on WebAssign. Failure to meet the following requirements will be considered as lack of attendance:

1. If you do not attend any of the class periods during the first two weeks of the semester, you may be administratively withdrawn from the class for non-attendance.
2. If you do not register for WebAssign with your instructor's class key during the first two weeks of the semester, you may be administratively withdrawn from the class for non-attendance.
3. If you create a WebAssign account and have an average of less than 50% for all homeworks through section 6.5 by the end of the third week, you may be administratively withdrawn from the class for non-attendance.
4. If you create a WebAssign account and have an average of less than 50% for all homeworks through section 10.2 by the semester midpoint, you may be administratively withdrawn from the class as "stopped attending".

Makeup policy: Tests may be made up **only** in the event of a documented verifiable excuse. Missing the final exam will result in a grade of F for the course unless arrangements are made **prior** (at least 2 weeks) to its administration.

Calculator policy: For all graded assignments you are allowed (but not required!) to use a non-programmable, non-graphing, non-symbolic/algebra-solving scientific calculator. Use of mobile phones is not permitted in place of a calculator under any circumstances. Breaking these rules will be treated as cheating according to the university guidelines below.

Academic integrity policy: Cheating/plagiarism will not be tolerated on any work. A test score of "0" for academic dishonesty will NOT be replaced by the final exam. Academic dishonesty on the final exam may result in an "F" for the course. A first occurrence will result in a grade of 0 on the assignment for all concerned parties as well as an Academic Dishonesty form being filed with the Dean's Office. A second occurrence will result in a grade of F for the course for the concerned parties and a second Academic Dishonesty form being filed. (See also the University's policy on Academic Honesty at http://codeofconduct.gsu.edu/.)

Copyright and Honesty Clause. All content created in this course, including videos, handouts, etc., may be used only by students enrolled in the course for purposes relating to the course. The selling, sharing, publishing, presenting, or distributing of instructor-prepared course lecture notes, videos, audio recordings, or any other instructor-produced materials from any course for any commercial or non-commercial purpose is strictly prohibited, unless explicit written permission is granted in advance by the course instructor. This includes posting any materials on websites such as Chegg, Course Hero, OneClass, Stuvia, StuDocu, and other similar sites. Unauthorized sale or commercial or non-commercial distribution of such material is a violation of the instructor's intellectual property and the privacy rights of students attending the class, and is prohibited. Failure to abide by these limitations constitutes a violation of the Policy on Academic Honesty and will be treated accordingly.

Disruptive student conduct in the classroom or other learning environment: The university's disruptive student policy applies and students should familiarize themselves with the relevant parts of the student code of conduct at http://codeofconduct.gsu.edu/.

Additional conduct guidelines: Appropriate conduct is expected from all students. Arrive on time, and do not leave early. If you must leave early for some reason, please inform me prior to class and do so as quietly as possible. **Please turn off all cell phones, laptops, and other electronic communication devices and keep them off the desk.** Text messaging, instant messaging, emailing, etc. during class is strictly prohibited and is grounds for dismissal. If you are using your cell phone or computer or another device for tasks that are not math related, or talking, or otherwise disrupting students, you will be asked to leave. After the third incident you may be administratively removed from the class (as per the Student Handbook).

Inclement weather policy: If the University is closed due to inclement weather, any exam that may have been scheduled for that date will be administered on the next available class date. If an in-class assignment is due that day, it will be due the next class.

Withdrawal policy:

1. **Undergraduates:** If you withdraw from this class on or before the Midpoint of the semester (**5:00pm on Tuesday, October 11th, 2022**), you will receive a WP regardless of your performance. The computer will then turn this into a W or a WF depending on how many cumulative withdrawals you have in the University. Voluntary withdrawals after the Midpoint are not allowed.
2. **Others:** If you withdraw from this class on or before the Midpoint of the semester (**5:00pm on Tuesday, October 11th, 2022**), you will receive a W or a WF depending on your performance. You must be passing (70 average or better at the time of withdrawal) to receive a W.

Academic support:

1. Form study groups with classmates.
2. Attend all Supplemental Instruction sessions (see above). You can also visit other classes' SI sessions.
3. See your instructor during office hours. You can also see any other current Calculus-I instructor.
4. Visit the Math Assistance Complex (MAC) located in the GSU Sports Arena, room 110 (http://mathstat.gsu.edu/undergraduate/current-students/mac/, 404-413-6462).
5. Visit the Counseling and Testing Center: learning assistance, test anxiety classes, student support services (http://counselingcenter.gsu.edu/, 404-413-1640).

Additional notes:

1. Your constructive assessment of this course plays an indispensable role in shaping education at Georgia State University. Upon completing the course, please take time to fill out the online course evaluation.
2. Students who wish to request accommodation for a disability may do so by registering with the Access and Accommodations Center (https://access.gsu.edu/). Students may only be accommodated upon issuance by the Center of a signed Accommodation Plan and are responsible for providing a copy of that plan to instructors of all classes in which accommodations are sought.
3. GSU has a process for students seeking excused absences through the Dean of Students Office. Should a student test COVID positive, they have to submit documentation to https://deanofstudents.gsu.edu/student-assistance/professor-absencenotification/. Instructors will then be notified by the Dean of Students of any excused absence without the need to manage medical information individually.

THIS SYLLABUS PROVIDES A GENERAL PLAN FOR THE COURSE; DEVIATIONS MAY BE NECESSARY.

Tentative course outline: This day-by-day outline provides a general plan for the course; deviations may be necessary.

Week	Dates	Sections
1	Aug.22 - Aug.28	Intro, 5.R, 6.1
2	Aug.29 – Sep.2	6.5, 7.1, 7.2
3	Sep.5 – Sep.9	Sep.5: Labor Day, no classes. 7.4, 7.5
4	Sep.12 – Sep.16	*Test 1 Review* **Test 1**
5	Sep.19 – Sep.23	7.8, 8.1
6	Sep.26 – Sept.29	10.1, 10.2
7	Oct.3 – Oct.7	10.3, 10.4
8	Oct.10 – Oct.14	*Test 2 Review* **Test 2**
9	Oct.17 – Oct.21	11.1, 11.2
10	Oct.24 – Oct.28	11.3, 11.4
11	Oct.31 – Nov.4	11.5, 11.6, 11.7
12	Nov.7 – Nov.11	*Test 3 Review* **Test 3**
13	Nov.14 – Nov.18	11.8, 11.9
14	Nov.21 – Nov.25	Thanksgiving break, no classes.
15	Nov.28 – Dec.2	11.10, 11.11
16	Dec.5	*Final Exam Review*
16-17	Dec.6 – Dec.13	**Final Exam** **(date and time: see above)**

Some textbook purchasing options:

- *Bundle: Calculus: Early Transcendentals, loose-leaf version, 8th + Enhanced WebAssign printed access card for Calculus, multi-term courses*, ISBN 9781305616691. This is the 3 semester book which includes multivariable calculus; bundled with Enhanced WebAssign.
- *Bundle: Single Variable Calculus: Early Transcendentals, loose-leaf version, 8th + Enhanced WebAssign printed access card for Calculus, multi-term courses*, ISBN 9781305713734. This is for the first 2 semesters of Calculus; bundled with Enhanced WebAssign.
- *Enhanced WebAssign printed access card for Calculus, multi-term courses, life of edition*, ISBN 9781285858265. This is the access code only with no print text, but includes the e-book in WebAssign.
- *Calculus: Early Transcendentals, hardcover, 8th*, ISBN 9781285741550. This is the standalone 3 semester book, without access to WebAssign, which would have to be purchased separately.

MATH 2212 Curriculum

Chapter 5: Integrals

5.R – Chapter Review

Chapter 6: Applications of Integration

6.1 – Areas Between Curves
6.5 – Average Value of a Function

Chapter 7: More Techniques of Integration

7.1 – Integration by Parts
7.2 – Trigonometric Integrals
7.4 – Integration of Rational Functions by Partial Fractions
7.5 – Strategy for Integration
7.8 – Improper Integrals

Chapter 8: Further Applications of Integration

8.1 – Arc Length

Chapter 10: Parametric Equations and Polar Coordinates

10.1 – Curves Defined by Parametric Equations
10.2 – Calculus with Parametric Curves
10.3 – Polar Coordinates
10.4 – Calculus in Polar Coordinates

Chapter 11, Sections 11.1-11.7: Infinite Sequences and Series

11.1 –Sequences
11.2 – Series
11.3 – The Integral Test and Estimates of Sums
11.4 – The Comparison Tests
11.5 – Alternating Series and Absolute Convergence
11.6 – The Ratio and Root Tests
11.7 – Strategy for Testing Series

Chapter 11, Sections 11.8-11.11: Power Series and Taylor Series

11.8 – Power Series
11.9 – Representations of Functions as Power Series
11.10 – Taylor and Maclaurin Series
11.11 – Applications of Taylor Polynomials

Addendum to the Syllabus

MATH 2211 – Calculus of One Variable I

Section CRN 92299 (Honors)

Fall semester, 2022

Honors class section: Students enrolled in the Honors class section (CRN 92299) will have to complete an additional project to satisfy the requirements of the Honors dimension of the course. Therefore, the grade distribution in this class section is different from the rest.

Course evaluation: Your course grade will be determined as follows:

a. Tests (48%). See above.

b. **Homeworks (12%).** See above.

c. **Quizzes (12%).** See above.

d. **Applied project (6%).** To support your understanding and ability to employ calculus in areas outside of the mathematics classroom, you will be completing an applied project. Specific project directions will be announced when the project is assigned.

e. **Final Exam (22%).** See above.

Example of final course grade computation:

- Tests: T1 = 88, T2 = 73, T3 = 76; Homework average = 96.4; Quiz average = 81.7; Project = 90; Final exam = 79;
- Final grade: $(88+\underline{79}+76)\cdot 0.16 + 96.4\cdot 0.12 + 81.7\cdot 0.12 + 90\cdot 0.06 + 79\cdot 0.22 = 83.032$, which rounds to 83, which is a B. (Note the replaced grade for Test 2.)