

MONTGOMERY COLLEGE - Germantown Campus
Mathematics & Statistics Department
Course Syllabus

I. Instructor Information

Professor: Zhou Dong

Email: Zhou.Dong@MontgomeryCollege.edu

Phone: (240) 567-7810

Office: HT 134

Mail box: HT 314

Office Hours:

Tuesday	Thursday	Friday
10:00 am – 12:00 pm	10:00 am – 12:00 pm	12:30 pm – 1:30 pm

You may also schedule an appointment outside of these times.

Learning Assistant: Jesus Cuevas

Email: jcuevas6@montgomerycollege.edu or knucklesest@gmail.com

Office Hours: Mondays 10:30 – 11:00 am and Wednesdays 8:30 – 9:00 am

II. General Course Information

Calculus II – MATH182 (Formerly MA182)

4 credits / 5 hours (For computation of tuition, this course is equivalent to five semester hours. Five hours each week.)

A continuation of MATH 181; intended primarily for students of the physical sciences, engineering, and mathematics. Further differentiation and integration of transcendental functions. Methods of integration with applications, indeterminate forms, improper integrals, Taylor's formula; infinite series; polar coordinates.

PREREQUISITE:

A grade of C or better in MATH 181 or equivalent, or consent of department.

HONORS ELIGIBILITY:

- SAT score of 600 or above on each section
OR
- Completion of at least 12 Montgomery College credits with 3.2+ GPA
- Grade of A or B in ENGL 101 or ENGL 101A or Eligible for ENGL 102

Spring 2020: CRN 35578

Class Times: MWF 9:00 am – 10:25 am

Class Room: HT 104

III. Common Course Student Learning Outcomes

Upon course completion, a student will be able to:

- Evaluate integrals by using the appropriate techniques.
- Approximate definite integrals by using appropriate numerical techniques.
- Find limits involving indeterminate forms.
- Evaluate improper integrals.
- Set up, evaluate, and interpret integrals that represent arc length, area, volume, and average value.
- Set up, evaluate, and interpret integrals that model applications in physics.
- Solve selected differential equations using graphical, numerical, and analytic methods.
- Model applications such as population growth with differential equations.
- Determine the convergence or divergence of sequences and series.
- Represent functions with power series and approximate functions with Taylor polynomials.
- Graph polar equations.
- Use integration to find the area of a polar region.
- Use technology as an appropriate tool.

IV. Textbooks, Workbooks, and Supplies

Required materials for the course:

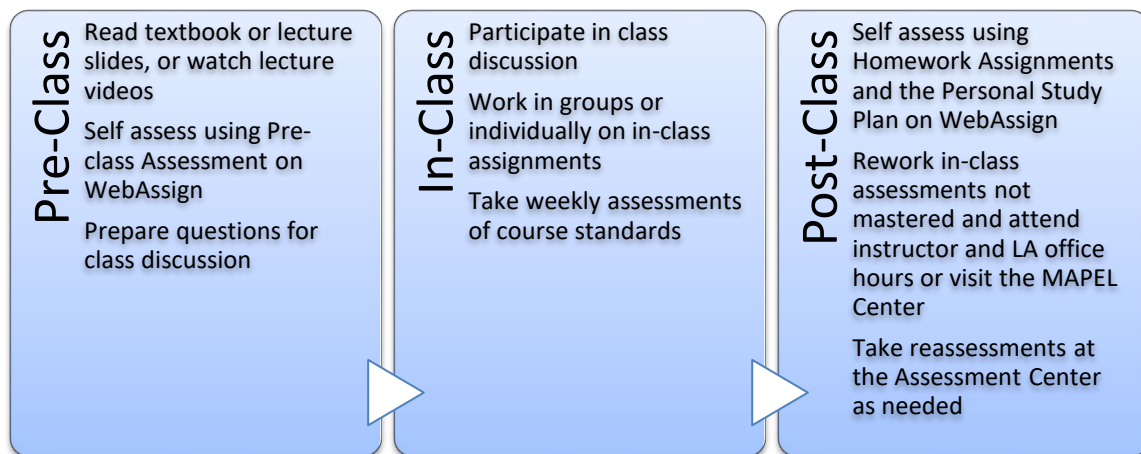
- *Single Variable Calculus: Concepts and Contexts* (4th edition), by James Stewart, Brooks-Cole, 2007. (The ebook is available with WebAssign).
- *WebAssign Access Code* – for access to online homework and the ebook Class Key to enroll on WebAssign: **montgomerycollege 7192 9602**
- *Graphing calculator* - A TI-83 or TI-83 Plus is recommended. Calculators may be borrowed from the MAPEL Center (SA202) for the semester.
- *Remind group* – for course announcements and communication.
Link to join our class group: <https://www.remind.com/join/calc2hc>

V. Course Requirements

This course is designed to give the student a high degree of autonomy and students are expected to self-direct their learning. The final course grade is based solely on the student's mastery of the course standards as determined through assessments (see section B. Course Grade for details). All assignments (pre-class, in-class, and homework) are provided for the student to use at his/her discretion. Feedback on these assignments are provided for learning purposes only and will not affect the student's final course grade.

A. Flipped Classroom Instruction

This course utilizes Flipped Classroom Instruction.



B. Course Grade

This course uses Standards Based Grading. Your course grade will be based solely on mastery of the course standards (see attached list of standards). Each standard is either “Core” or “Advanced”.

Assessments of standards will be graded as follows:

Score	Mastery Level	Student work
4	Perfect Mastery	Demonstrates complete understanding of the underlying concept and provides correct solution with appropriate notation and use of language
3	Imperfect Mastery	Demonstrates complete understanding of the underlying concept but has minor errors in calculation and/or problems with notation and use of language
2	Developing	Demonstrates developing but incomplete understanding of the concept and/or major errors in the computation and presentation of the solution
1	Novice	Demonstrates little to no understanding of the concept with some relevant computations
0	No evidence	Demonstrates no evidence of understanding or not attempted

The initial assessment for all standards will be in class on Wednesdays as indicated in the course schedule. If you do not demonstrate mastery of a standard during the in-class assessment, you will have an opportunity to reassess the standard in the Germantown Assessment Center the following week on Monday or Tuesday, as indicated in the attached schedule. Any standards which you have not shown mastery on during the course of the semester (either in-class or reassessed at the Assessment Center) will be

put on your final exam. The final exam for this class is on Wednesday, May 13, 8:00 am - 10:00 am.

C. Standards

Final letter grades will be determined according to this rubric:

Core Standards	Advanced Standards	Final Grade
Mastery on all	Average score is 3 or above	A
Mastery on all	Average score is between 2 and 3	B
Mastery on all	Average score is below 2	C
Not all mastered Average score is 2 or above	Not applicable	D
Not all mastered Average score is below 2	Not applicable	F

Note:

- Mastery means a score of 3 or 4.
- For the grades of A, B, or C, you must demonstrate mastery on ALL Core Standards.
- Advanced Standards are NOT considered for final grade determination until ALL Core Standards are mastered.

D. Make-up Policy

Make-ups for missed assessments will not be available. You have a total of three opportunities to assess on each standard as described in Section B. Course Grade. The final exam on Wednesday, May 13, 8:00 am - 10:00 am is the last opportunity to assess for all standards.

VI. Student Code of Conduct

A. Standards of College Behavior

Students are expected to adhere to the Montgomery College Student Code of Conduct: https://www.montgomerycollege.edu/_documents/policies-and-procedures/42001-student-code-of-conduct.pdf

B. Academic Honesty

All assessments in this class are closed-notes, closed-book, and individual. No collaboration is allowed on any assessment, whether in class, at the assessment center, or during the final exam. Students should refer to the Student Code of Conduct or the following excerpt for more details:

https://www.montgomerycollege.edu/_documents/academics/support/learning-centers/writing-reading-learning-ctr-germantown/academic-dishonesty-and-how-it-is-handled.pdf

VII. Collegewide Policies and Procedures

A. Attendance Policy

Students are expected to attend all class sessions with scheduled in-class assessments. If a student misses 3 or more in-class assessments, the instructor may drop the student from the course.

B. Withdrawal and Refund Dates

- Refund Drop Deadline – February 2, 2020
- No Grade Drop & Audit/Credit Deadline – February 16, 2020
- W Grade Drop Deadline – April 19, 2020

C. Audit Policy

All students registered for audit are required to consult with the instructor before or during the first class session in which they are in audit status, and students are required to participate in all course activities unless otherwise agreed upon by the student and instructor at the time of consultation. Failure to consult with the instructor or to so participate may result in the grade of “W” being awarded. This action may be taken by the instructor by changing the “AU” to “W” before the drop with “W” date.

D. Disability Support Services

Any student who needs an accommodation due to a disability should make an appointment to see me during my office hours. In order to receive accommodations, a letter from Disability Support Services (G-SA 189; R-CB 122; or TP/SS-ST 122) will be needed. Any student who may need assistance in the event of an emergency evacuation must identify to the Disability Support Services Office; guidelines for emergency evacuations for individuals with disabilities are found at:

<http://www.montgomerycollege.edu/dss>

E. Veteran’s Services

If you are a veteran or on active or reserve status and you are interested in information regarding opportunities, programs and/or services, please visit the Combat2College website at <http://www.montgomerycollege.edu/combat2college>

F. Delayed Opening or Closing of the College

If a class can meet for 50% or more of its regularly scheduled meeting time OR if the class can meet for 50 minutes or more, it will meet. Montgomery College will always operate on its regular schedule unless otherwise announced. Depending on the nature of the incident, notifications of emergencies and changes to the College’s operational status will be communicated through one or more communication methods including the College’s website <http://www.montgomerycollege.edu>. For the most up-to-date information regarding College openings, closings, or emergencies, all students, faculty, and staff are encouraged to sign up for email and text alerts via Montgomery College ALERT. Registration information is available at <http://www.montgomerycollege.edu/emergency>.

G. Communication

This course will use your official Montgomery College email address and the course Remind group for communication.

VIII. Honors Coursework**A. Requirements**

The student will select two “Primary Source Projects” (PSP) in consultation with the instructor from TRIUMPHS: <https://blogs.ursinus.edu/triumphs/>. Students are not limited to topics within calculus. Each PSP must be typeset in LaTeX on Overleaf (<https://www.overleaf.com/>) and may be turned in for assessment up to three times in order to obtain mastery.

The student will create a presentation (oral or poster) or write a reflection paper based on the projects, along with an annotated bibliography. The presentation will be delivered during the last week of classes.

While not a requirement, students are strongly encouraged to present their project at the 4th annual Montgomery College STEM Undergraduate Research Conference on May 19. Conference will take place in the BE building on the Germantown campus.

B. Honors Course Standards

	Code	Standard
C	PSP.1	First Primary Source Project
C	PSP.2	Second Primary Source Project
C	PSP.B	Annotated Bibliography
A	PSP.P	Presentation or paper

C. Honors Coursework Schedule

Date	Honors Coursework due
Fri 1/31	Selection of PSP’s
Fri 2/14	PSP 1 for first assessment
Fri 2/28	PSP 1 for second assessment
Fri 3/13	PSP 2 for first assessment
Fri 4/03	PSP 2 for second assessment
Fri 4/17	Presentation/Paper & Bibliography – first draft
Fri 5/01	Presentation/Paper & Bibliography – second draft
Fri 5/08	Presentation/Paper & Bibliography – final draft and delivery
Fri 5/15	PSP 1 & PSP 2 for final assessment

IX. Schedule

Date	Topic	Text	Assessment	Reassessment
Mon 1/27	Course Introduction	Syllabus		
Wed 1/29	The Substitution Rule	5.5		

Fri 1/31	Integration by Parts	5.6		
Mon 2/03	Additional Techniques of Integration (Trig)	5.7	5.5, 5.6	
Wed 2/05				
Fri 2/07	(Partial Fractions)			
Mon 2/10	Integration Tables and CAS	5.8		5.5, 5.6
Wed 2/12	Approximate Integration	5.9	5.7, 5.8	
Fri 2/14	Improper Integrals	5.10		5.7, 5.8
Mon 2/17				
Wed 2/19	Area	6.1	5.9, 5.10	
Fri 2/21	Volumes	6.2		5.9, 5.10
Mon 2/24				
Wed 2/26	Volumes by Cylindrical Shells	6.3	6.1, 6.2	
Fri 2/28	Arc Length	6.4		
Mon 3/02	Average Value	6.5		6.1, 6.2
Wed 3/04	Applications to Physics and Engineering	6.6	6.3, 6.4	
Fri 3/06				
Mon 3/09	Probability	6.8		6.3, 6.4
Wed 3/11	Polar Coordinates	App H	6.5, 6.6	
Fri 3/13				
<i>Spring Break</i>				
Mon 3/23	Sequences	8.1		6.5, 6.6
Wed 3/25	Series	8.2	6.8, App H	
Fri 3/27				
Mon 3/30	Testing Series	8.3 & 8.4	8.1, 8.2	6.8, App H
Wed 4/01				
Fri 4/03				
Mon 4/06	Power Series	8.5 & 8.6	8.3, 8.4	8.1, 8.2
Wed 4/08				
Fri 4/10				
Mon 4/13	Taylor Series	8.7 & 8.8	8.5, 8.6	8.3, 8.4
Wed 4/15	Taylor Polynomials			
Fri 4/17	Modeling with Differential Equations	7.1		
Mon 4/20	Direction Fields and Euler's Method	7.2		8.5, 8.6
Wed 4/22	Separable Equations	7.3	8.7, 8.8	
Fri 4/24				
Mon 4/27	Exponential Growth and Decay	7.4		8.7, 8.8
Wed 4/29	The Logistic Equation	7.5	7.1, 7.2	
Fri 5/01				
Mon 5/04	Predator-Prey Systems	7.6		7.1, 7.2
Wed 5/06	Presentations / Final Exam Review		7.3, 7.4, 7.5	
Fri 5/08	Presentations / Final Exam Review			

Mon 5/11	<i>No Class - Reassessment at Assessment Center Only</i>	7.3, 7.4, 7.5
Wed 5/13	Final Exam (8:00 - 10:00 am)	

The professor reserves the right to make changes to this syllabus.

Last Updated June 29, 2021