

Manhattan College

Department of Mathematics

MATH 285 Section 06

Calculus III

Fall 2020

Class Time: MR 1:35 pm -2:50 pm *Class Room:* Leo 236
W 2:05 pm -2:55 pm *Remote Instruction/Labs/Testing*
The Google Meet for remote instruction is:
<https://meet.google.com/spf-cqnb-xpg>

Instructor: Angel R. Pineda, Ph.D. *Office:* RLC 201H
Email: angel.pineda@manhattan.edu *Phone:* 718-862-7730
Website: <https://turing.manhattan.edu/~apineda01/>

Office Hours: Monday 3:40-4:30 pm, Wednesday 1-1:50 pm, Thursday 3:05-3:55 pm, or by appointment.
Note: All office hours this semester will be virtual using Google Meet:
<https://meet.google.com/yxb-btsg-jnj>

Textbook: Calculus: Early Transcendentals, 3rd Ed, by Briggs, Cochran, Gillett, and Schulz, Pearson 2019.

Required Technology: MyMathLab Access (for Online HW, Course ID: pineda36741, included with purchase of text for previous calculus courses)
<https://www.pearson.com/mylab>

Required Technology: MATLAB (available for free through Manhattan College Site License)
<https://www.mathworks.com/academia/tah-portal/manhattan-college-40634592.html>

Catalog Course Description:

3 Credits (Meets four hours per week). Algebraic and geometric aspects of vectors, functions of several variables, partial derivatives, multiple integrals, vector calculus, line integrals, Green's Theorem.

Prerequisite: A grade of C or better in Calculus II (MATH 156, MATH 186, or MATH 188).

Learning Outcomes: Upon successful completion of this course, the student will be able to:

- Use and interpret vector operations in 2 and 3 dimensions.
- Find the equations of lines and planes in 3-dimensional space.
- Recognize the basic quadric surfaces.
- Understand and work with functions of several variables.
- Use partial derivatives to find directional derivatives and gradients.
- Solve optimization and approximation problems in higher dimensions.
- Calculate and apply double integrals in rectangular and polar coordinates.
- Use triple integrals in rectangular, cylindrical, and spherical coordinates.
- Differentiate and integrate vector-valued functions
- Parameterize curves and evaluate line integrals.
- Understand and apply Green's Theorem.

Course Homepage (Moodle):

Here you will find four features that will be used in this course:

- *Email:* make sure that your email on Moodle is one that you check regularly.
- *Course Information and Documents:* material covered each week, assignments, supplementary video and solution keys.
- *Student Discussion Board:* this online forum allows for students and faculty to communicate about the course. It is like an online study group.
- *Social Forum:* this online forum will be used to have students share something about themselves so that we all get to know each other.
- *Grades:* students will be able to keep track of their grades online.

Minimum Technology Requirements for Remote Students:

Windows or Macintosh computer - although many courses activities can be completed on a mobile device, students will need a computer in order to fully participate in the remote component of the course.

Windows minimum requirements:

2 GHz Intel core i5

8 GB of Memory

256 GB Hard Drive

Macintosh minimum requirements:

1.3 GHz Intel core i5 or higher

8 GB of Memory

256 GB Hard Drive

Computer should be equipped with a webcam, microphone, and speaker/headphones for participating in virtual class meetings, completing video-based assignments, and completing exams that require video proctoring. Reliable internet access and the Chrome web browser (latest version) are needed.

Assessment of Student Learning:

Homework (10%)

Homework will be done online using MyMathLab. Note that if you purchased access in a previous semester, you do not need to pay again. Use the same username and password that you used in the past. This type of homework allows you to get instant feedback on your work and provides similar examples to the assigned problems. The key is to use these problems to learn the mathematical methods so that you can do well on the quizzes and exams.

Class Work, Quizzes and Labs (10%)

We will have class work, regular quizzes and labs using MATLAB. These different ways of exploring the material will help you understand the material by working in class, by solving simple problems in quizzes and by using technology to solve problems that are difficult to do by hand.

Midterm Exams: (60%, 10% each)

Exam 1	Wednesday Sept. 16
Exam 2	Wednesday Sept. 30
Exam 3	Wednesday Oct. 14
Exam 4	Wednesday Oct. 28
Exam 5	Wednesday Nov. 11
Exam 6	Wednesday Dec. 2

Common Comprehensive Final Exam (20%), sometime from December 14 to 19, 2020. Once the final exam time is determined, it will be shared with the students. Before that time, do not make travel plans before December 20, 2020.

Tentative Grading Scale

Percent	93-100	90-92	87-89	83-86	80-82	77-79	70-76	67-69	60-66	0-59
Grade	A	A-	B+	B	B-	C+	C	D+	D	F

The exact grading scale will be determined after the final exam. The numerical scores in the tentative grading scale guarantee the associated letter grade but the instructor may change the scale to the student's benefit.

Dates to Remember:

August 31: First Day of Classes
September 7: Late Registration & Add/Drop Ends
September 7: Labor Day – No Classes
September 16: Exam 1
September 30: Exam 2
October 12: Fall Break – No Classes
October 13: Monday Schedule
October 14: Exam 3
October 20: Midterm Grades Due
October 28: Exam 4
November 11: Exam 5
November 20: Last Day to Withdraw from Courses
November 25-27: Thanksgiving Holiday – No Classes
November 30 – December 19: Classes are Fully Remote
December 2: Exam 6
December 11: Last Day of Classes
December 14-19: Final Exam Period

Class Policies

- **Attendance:** The official College Attendance Policy, as published in the College Catalog, is: "Students are required to fulfill all course requirements as detailed in the course syllabi for their registered courses. Implicit in these requirements is completion of all course assignments and attendance in all classes. A student who is absent from class cannot expect the course instructor to provide notes or allow makeup tests, quizzes, or laboratories. The student may incur an appropriate grading penalty for such absences if the penalty was described in the syllabus. Reasonable accommodations for absences are recommended, but are solely at the discretion of the course instructor. If the instructor believes that a student's failure to attend class is substantially affecting the student's course grade, then the instructor is strongly encouraged to report the situation to the dean of the school in which the student is matriculated. It is recommended that the dean be contacted by the course instructor after the student incurs four hours of absences in a course. The dean will address the situation with the student."
- **Electronic Devices Policy:** A graphing calculator without symbolic algebra capabilities may be used. However, the use of symbolic calculators including, but not limited to the TI-89, TI-92, or

TI-NSPIRE CAS, will not be allowed. Your instructor reserves the right to check your calculator's memory to look for anything that should not be there. No other electronic devices, including cell phones, may be used for any reason during a quiz or exam.

- **Time-on-Task:** Whether this course is taught online, remotely, or face-to-face, the total amount of time that you spend on this course is equivalent to that which you would spend in the face-to-face version of the course and is consistent with the Federal Credit Hour Definition. For each 3-credit fifteen-week course, you are expected to complete a minimum of nine hours (each academic hour is 50 minutes) of work each week on average, where 9 academic hours is equivalent to 7.5 real hours. This includes studying, working on projects, homework, reading, and any other activities that you must do to be successful in this class. Every student will work at his or her own pace, so you might take more or less than this average amount of time.
- **Late work:** Late worksheets and labs will not be accepted after the solutions are distributed. In case assignments are handed in before the solutions are posted it will be marked 20% off for every day (or part thereof) it is late.
- **Missing Quizzes or Exams:** Failure to attend class on a day of a quiz or exam will result in a zero grade unless it is an excused absence with a documented reason. No make-up exams will be given, unless you have a medical or family emergency. These emergencies require valid documentation.
- **Cell phones** (or other technology not related to the class) in the classroom is only allowed with express permission of the instructor for special circumstances. In general cell phone or other potentially disruptive technology use is not allowed in class.
- **In-Class Camera Policy:** In order to promote community, it is important that faculty are able to interact and engage with students. Thus, during online class activities, students are required to leave their cameras turned on. Students with extenuating circumstances may request an exemption from this requirement to the professor in writing.

Suggestions for Success

- The course requires a time commitment of about 8 hours outside of class time per week (2 per class hour). The material builds on itself, so it is very important not to fall behind.
- Find a study partner or group.
- Treat your homework, quizzes, and labs as a study guide for future exams. Write solutions to problems in a neat and organized fashion.
- Review your notes from the previous lecture before each class.
- Read the textbook. It will complement the presentation in lecture and help give you the big picture of the material.
- I encourage you to come to office hours regularly. I will do my best to help you.

Student Academic Support Services | Center for Academic Success

The [Center for Academic Success](#) (CAS) is committed to providing student-centered programs and initiatives designed to enhance learning and promote success and persistence for all Manhattan College students. Students will work collaboratively with qualified peers and professionals to develop knowledge, skills and strategies needed for success in the classroom and beyond. The CAS has two locations; the Learning Commons in Thomas Hall 3.10 and the Leo Learning Center in Leo 117/118. Services include online and in-person individual tutoring, online small group peer tutoring (select courses), Supplemental Instruction (select courses), student academic success coaching, and online writing center services. All services are free of charge and available to all Manhattan College students. Appointments are preferred but walk-ins are welcome. To make an appointment, students can log into their Jasper

Connect account or visit the CAS in Thomas Hall, 3.10. Students can also contact success@manhattan.edu with any questions. For more information about these services please visit the CAS webpage [here](#), and to learn about CAS Fall 2020 return to campus safety efforts please visit the One Manhattan webpage [here](#).

Academic Integrity:

Recall that as students of Manhattan College, you have each signed The Manhattan College Honor Pledge as a part of the Honor Code:

As a Manhattan College student, I will not lie, cheat, or steal in my academic endeavors, nor will I accept the actions of those who do. I will conduct myself responsibly and honorably in all my activities as a Manhattan College student. I am accountable to the Manhattan College community and dedicate myself to a life of honor.

Whenever you put your name on work to be handed in for grading in this class, you are reaffirming the above pledge. Violations of the Honor Code include, but are not limited to, cheating, plagiarism, fabrication, and other forms of academic misconduct. Please see the Manhattan College Code of Conduct and Academic Policies for a detailed description: <https://inside.manhattan.edu/student-life/dean-of-students/code-conduct.php>

Covid-19 Safety

[The One Manhattan Health and Safety Guidelines](#) provide information on how students, faculty, staff, and visitors must work together to ensure the overall health and safety of the Manhattan College community. [In accordance with section II.L of the Manhattan College Community Standards and Student Code of Conduct](#), students must abide by these Guidelines and are subject to judicial action if they do not do so, including the **mandatory wearing of masks or facial coverings on campus**. The following expectations are also outlined in our policy:

- Symptom monitoring including daily symptom checker
- Contact tracing cooperation and truthful reporting
- Personal protective equipment (PPE) is required on campus, in the library and in classrooms.
- Testing is required for all staff, students, and faculty.
- Social distancing is expected on campus and in class.

Violations of these safety guidelines will be reported to the Dean of Students Office via [this reporting form](#). It is the responsibility of all students to follow them. Should there be repeated violations, the following sanctions will be put into action:

- First Offense – Written Warning
- Second Offense – Interim Disciplinary Probation
- Third Offense – Suspension from participation in all on-campus activities including in-person classes.

Any questions regarding these guidelines, the sanctions, and/or about accommodations can be sent to deanofstudents@manhattan.edu.

Online Proctoring: All students, whether taking the class in-person or remotely, may be required to take examinations that utilize video proctoring software. The purpose of video proctoring is to promote academic fairness and maintain academic integrity. Video recordings of proctored testing sessions are only available to me, the instructor and allow me to monitor students' online exams in the same way I would if they were sitting in a classroom taking the exam. Whether proctoring software is used or not is at my discretion. If you have questions or concerns about the use of proctoring software for a course, please contact me to discuss this matter before the class begins.

Special Accommodations:

- Students with special needs should bring appropriate documentation to the Specialized Resource Center, Thomas Hall 3.15, <https://inside.manhattan.edu/academic-resources/specialized-resource-center/>, to obtain an Academic Adjustment/Auxiliary Aid form. Bring the completed form to me as soon as possible, and together we will decide on how best to fulfill the adjustments and/or aids listed on the form.
- Student athletes should bring their event schedules to me as soon as possible.

Copyright Materials: Copyright in educational materials prepared by the College faculty member is owned by the faculty member, and may not be shared without his or her permission.

The material in this syllabus may be changed at the instructor's discretion. Any changes will be communicated to the students. During these challenging times, we need to be particularly flexible.

Course Content:

Chapter 13: Vectors and the Geometry of Space

- 13.1 Vectors in the plane
- 13.2 Vectors in three dimensions
- 13.3 Dot products
- 13.4 Cross products
- 13.5 Lines and planes in space
- 13.6 Cylinders and quadric surfaces

Chapter 15: Functions of Several Variables

- 15.1 Graphs and level curves
- 15.2 Limits and continuity
- 15.3 Partial derivatives
- 15.4 The chain rule
- 15.5 Directional derivatives and the gradient
- 15.6 Tangent planes and linear approximation
- 15.7 Maximum/minimum problems
- 15.8 Lagrange multipliers (Time permitting)

Chapter 16: Multiple Integration

- 16.1 Double integrals over rectangular regions
- 16.2 Double integrals over general regions
- 12.2 Polar Coordinates
- 16.3 Double integrals in polar coordinates
- 16.4 Triple integrals
- 16.5 Triple integrals in cylindrical and spherical coordinates

Chapter 14: Vector-Valued Functions

14.1 Vector-valued functions

14.2 Calculus of Vector Valued Functions

14.4 Length of curves

Chapter 17: Vector Calculus

17.1 Vector fields

17.2 Line integrals

17.3 Conservative vector fields

17.4 Green's Theorem

17.5 Divergence and Curl (Time Permitting)

17.6 Surface Integrals (Time Permitting)

17.7 Stokes' Theorem (Time Permitting)

17.8 Divergence Theorem (Time Permitting)