# *Calculus II*

*Class Time*:     MR      12-12:50 P.M.                    *Class Room*: Leo 330
                  T       1-1:50 P.M.                      *Class Room*: Leo 318
                  W       1-1:50 P.M.                      *Class Room*: RLC 107

*Instructor*: Angel R. Pineda, Ph.D.                 *Office*: RLC 200A
*Email*: angel.pineda@manhattan.edu                  *Phone*: 718-862-7730

*Office Hours*: Monday 2-2:50 P.M., Tuesday 12-12:50 pm, Wednesday 4:30-5:20 P.M., Thursday 11:00-11:50 A.M., or by appointment.

*Textbook:* Calculus for Scientists and Engineers: Early Transcendentals, by Briggs, Cochran, and Gillett, Pearson 2013. (If you didn't take MATH 185 at Manhattan College: buy the bundle in the bookstore that includes the soft cover book and access code for MyMathLab. You can also buy Maple when you get the book).

*Required Technology:* MyMathLab Access (for Online HW, Course ID: pineda76947)
*Recommended Technology:* Maple

*Catalog Course Description:*
Applications of the definite integral, transcendental functions, integration techniques and infinite series.

*Prerequisite:* A minimum grade of C in MATH 185 Calculus I

*Attendance:* Attendance is mandatory. Four or more unexcused absences must be reported to the dean of your school. If you are late, please notify the instructor at the end of the class.

*Course Objectives:*
After completing this course, the students should be able to:
- Set up and solve application problems requiring integration, such as area between curves and volumes of solids of revolution.
- Apply the law of exponential growth and decay.
- Apply numerical integration techniques and understand the advantages or disadvantages of the different methods.
- Use the standard techniques of integration such as u-substitutions, integration by parts, integration by partial fractions, powers of trig functions, and trig substitutions.
- Understand the basic concepts of sequences and series.
- Approximate functions with Taylor polynomials and express functions in Taylor and MacLaurin series.
- Integrate and differentiate power series.
- Be able to find the interval of convergence of a power series.

*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. Homework assignments, announcements and other class related information will be sent via email.
- *Course Information and Documents:* material covered each week, assignments and solution keys.
- *Student Discussion Board:* this online forum allows for students and faculty to communicate about the course.
- *Grades:* students will be able to keep track of their grades online.

*Grading:*
Homework (10%)
Homework with be done online using MyMathLab. 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.

In-class Worksheets, Quizzes and Labs (10%)
We will have in-class group work, regular quizzes and labs using Maple. These different ways of exploring the material will help you understand the material by working in groups, by solving simple problems in quizzes and by using technology to solve problems that are difficult to do by hand.

Midterm Exams: (60%)

| Exam I | Exam II | Exam III | Exam IV |
|---|---|---|---|
| Thursday February 18 | Thursday March 10 | Thursday April 7 | Thursday April 28 |

Common Comprehensive Final Exam (20%), sometime from May 12 to May 18, 2016. Once the final exam time is determined, it will be shared with the students. Before that time, do not make travel plans before May 19, 2016.

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:*
 January 29: Late Registration & Add/Drop Ends
 February 18: Exam I
 March 10: Exam II
 March 11: Midterm Grades Due
 March 14-18: Spring Break (No Classes)
 March 25-28: Easter Holiday (No Classes)
 March 29: Monday Schedule
 April 7: Exam III
 April 22: Last Day to Withdraw from Courses
 April 28: Exam IV
 May 9: Friday Schedule (No Classes)
 May 10: Last Day of Classes
 May 12-18: Final Exam Period

*Class Policies*
- 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.
- Failure to attend class on a day of a quiz will result in a zero grade for that quiz.
- The lowest worksheet, quiz or lab grade will be dropped.
- No make-up exams will be given, unless you have a medical or family emergency. These emergencies require valid documentation. The grade for a missed exam is zero.
- 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.
- No food or drink is allowed in labs.

*Calculator 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.

*Suggestions*
- The course requires a time commitment of about 8-12 hours outside of class time per week (2-3 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.
- I encourage you to come to office hours regularly. I will do my best to help you.

*Center for Academic Success*
It provides student-centered programs and initiatives designed to enhance the learning experience of all students. The CAS provides one-on-one and small group tutoring in a wide range of subjects, including all core courses at the Writing Center, Learning Center and Leo Learning Center. The CAS also provides academic coaching, workshops, supplemental instruction and online tutoring. All of the services are free for students. Appointments are preferred but walk-ins are welcome. For more information please visit http://manhattan.edu/academics/center-academic-success

*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 Community Standards, pp 45-47, for specific examples of the above.

*Special Accommodations:*
- Students with special needs should bring appropriate documentation to the Specialized Resource Center, Miguel 300, http://manhattan.edu/academics/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.

*Course Outline:*
- Chapter 5: Integration
5.3 Fundamental Theorem of Calculus
5.4 Working with Integrals
5.5 Substitution Rule
- Chapter 6: Applications of Integration
6.1 Velocity and Net Change
6.2 Regions between Curves
6.3 Volume by Slicing
6.4 Volume by Shells
*6.5 Length of Curves
*6.6 Surface Area

*6.7 Physical Applications
6.8 Logarithmic and Exponential Functions Revisited
6.9 Exponential Models
*6.10 Hyperbolic Functions
- Chapter 7: Techniques of Integration
7.1 Basic Approaches
7.2 Integration by Parts
7.3 Trigonometric Integrals
7.4 Trigonometric Substitutions
7.5 Partial Fractions
7.6 Other Integration Strategies
7.7 Numerical Integration
7.8 Improper Integrals (Review 4.7 L'H^opital's Rule)
- Chapter 8: Differential Equations
*8.5 Modeling with Differential Equations
- Chapter 9: Sequences and Infinite Series
9.1 An Overview
9.2 Sequences
9.3 Infinite Series
9.4 The Divergence and Integral Tests
9.5 The Ratio, Root, and Comparison Tests
9.6 Alternating Series
- Chapter 10: Power Series
10.1 Approximating Functions with Polynomials
10.2 Properties of Power Series
10.3 Taylor Series
10.4 Working with Taylor Series

* Additional topics to include if time permits.

*The material in this syllabus may be changed at the instructor's discretion. Any changes will be communicated to the students.*