

Department of Mathematics

Title of Course: Precalculus
Course: MAT 206
Semester:
Credits: 4

Class hours: 4
Lab hours (if applicable):
Instructor:
Tel#:
Office:
Email:

Course Description: This course covers basic algebraic and trigonometric skills, graphing algebraic and transcendental functions and Analytic Trigonometry

Prerequisites/Co-requisites: Intermediate Algebra and Trigonometry (MAT 056) or the equivalent with the departmental approval.

Student Learning Outcomes:

Course Student Learning Outcomes	Measurements
1. Students will be able to graph, interpret, and analyze linear, quadratic, and other higher order polynomial functions	1. Homework assignments and/or take home projects; Quizzes and/or Midterm Exams; Final Exam.
2. Students will understand quadratic and rational functions and the properties associated with their graphs.	2. Homework assignments and/or take home projects; Quizzes and/or Midterm Exams; Final Exam.
3. Students will be familiar with transcendental functions, their respective graphs, and properties.	3. Homework assignments and/or take home projects; Quizzes and/or Midterm Exams; Final Exam.
4. Students will be able to verify trigonometric identities and solve trigonometric equations.	4. Homework assignments and/or take home projects; Quizzes and/or Midterm Exams; Final Exam.

General Education Outcomes and Assessment:

General Education Learning Outcomes	Measurements
Communication Skills- Students will be able to write, read, listen and speak critically and effectively.	Assignments and/or take home projects; exams and/or Midterm Exam; Final Exam.
Quantitative Reasoning- Students will be able to use quantitative skills and the concepts and methods of mathematics to solve problems.	Assignments and/or take home projects; exams and/or Midterm Exam; Final Exam.
Information & Technology Literacy- Students will be able to collect, evaluate and interpret information and effectively use information technologies.	Assignments and/or take home projects; exams and/or Midterm Exam; Final Exam .

Required Text: PreCalculus, Tenth edition; Roland E. Larson; Cengage Learning, Boston, Massachusetts, 2018

Other Resources: WebAssign

Evaluation & Requirements of Students: At the beginning of the semester, the instructor will advise the student of the determination of the final grade, which will be based on class work, tests, and the final examination. Students are required to attend all scheduled classes.

Outline of Topics:

TOPICS	TEXT PAGES
REVIEW OF FUNDAMENTAL CONCEPTS OF ALGEBRA (Appendix A)	
A.1 Real Numbers and Their Properties	A1 – A12
A.2 Exponents and Radicals (OPTIONAL: Exponents & the Calculator)	A13 – A24
A.5 Solving Equations	A45– A57
A.6 Solving Inequalities in One Variable	A58 – A66
FUNCTIONS AND THEIR GRAPHS	
1.1 Rectangular Coordinates	2 - 10
1.2 Graphs of Equations	11 – 21
1.3 Linear Equations in Two Variables	22 – 34
1.4 Functions	35 – 48
1.5 Analyzing Graphs of Functions	49 – 59
1.6 A Library of Parent Functions	60 – 66
1.7 Transformations of Functions	67 – 75
1.8 Combinations of Functions: Composite Functions	76 – 83
1.9 Inverse Functions	84 – 92
1.10 Mathematical Modeling and Variation	93 – 103
POLYNOMIAL AND RATIONAL FUNCTIONS	
2.1 Quadratic Functions	114 – 122
2.2 Polynomial Functions of Higher Degree	123 – 135
2.3 Polynomial and Synthetic Division	136 – 144
2.4 Complex Numbers	145 - 151
2.5 Zeros of Polynomial Functions	152 - 165
2.6 Rational Functions	166 – 177
7.4 Partial Fractions	502 – 509
EXPONENTIAL AND LOGARITHMIC FUNCTIONS	
3.1 Exponential Functions and Their Graphs	198 – 208
3.2 Logarithmic Functions and Their Graphs	209 – 218
3.3 Properties of Logarithms	219 – 225
3.4 Exponential and Logarithmic Equations	226 – 235
TRIGONOMETRY	
4.1 Radian and Degree Measure	260 – 269
4.2 Trigonometric Functions: The Unit Circle	270 – 276
4.3 Right Triangle Trigonometry	277 - 287
4.4 Trigonometric Functions of Any Angle	288 – 296
4.5 Graphs of Sine and Cosine Functions	297 – 307
4.6 Graphs Other Trigonometric Functions	308 – 317
4.7 Inverse Trigonometric Functions	318 – 327

TOPICS (continued)	TEXT PAGES
ANALYTIC TRIGONOMETRY	
5.1 Using Fundamental Identities	348 – 354
5.2 Verifying Trigonometric Identities	355 – 362
5.3 Solving Trigonometric Equations	363 – 373
5.4 Sum and Difference Formulas	374 – 380
5.5 Multiple-Angle and Product-to-Sum Formulas	381 – 389

College Attendance Policy

At BMCC, the maximum number of absences is limited to one more hour than the number of hours a class meets in one week. For example, you may be enrolled in a three-hour class. In that class, you would be allowed 4 hours of absence (not 4 days). In the case of excessive absences, the instructor has the option to lower the grade or assign an F or WU grade.

Academic Adjustments for Students with Disabilities

Students with disabilities who require reasonable accommodations or academic adjustments for this course must contact the Office of Services for Students with Disabilities. BMCC is committed to providing equal access to all programs and curricula to all students.

BMCC Policy on Plagiarism and Academic Integrity Statement

Plagiarism is the presentation of someone else’s ideas, words or artistic, scientific, or technical work as one’s own creation. Using the idea or work of another is permissible only when the original author is identified. Paraphrasing and summarizing, as well as direct quotations, require citations to the original source. Plagiarism may be intentional or unintentional. Lack of dishonest intent does not necessarily absolve a student of responsibility for plagiarism.

Students who are unsure how and when to provide documentation are advised to consult with their instructors. The library has guides designed to help students to appropriately identify a cited work. The full policy can be found on BMCC’s web side, www.bmcc.cuny.edu. For further information on integrity and behavior, please consult the college bulletin (also available online).