QUEENSBOROUGH COMMUNITY COLLEGE
MATHEMATICS AND COMPUTER SCIENCE DEPARTMENT

COURSE OUTLINE

MA-440: PRECALCULUS MATHEMATICS

Pre-requisite: MA-114; or MA 120 with a grade of C- or better; or satisfactory score on CMAT or COMPASS Exams

Hours: 3 Class Hours 2 Recitation Hours 4 Credits

Course Description: Mathematical foundations necessary for the study of the calculus. An introduction to analytic geometry, and the elementary functions of analysis, including algebraic, trigonometric, logarithmic, and exponential functions. The use of the graphing calculator will be included.

Curricula for which the course is required/recommended:
A.S. Degree Programs in Liberal Arts and Sciences (Biological Sciences and Geology, Chemistry, Mathematics and Computer Science, Physics), A.S. Degree in Business Administration

General Education Objectives: Use analytical reasoning skills to identify issues or problems and evaluate evidence in order to make informed decisions; reason quantitatively and mathematically as required in their fields of interest and in everyday life; integrate knowledge and skills in their program of study.

Course Objectives/ Expected Student Learning Outcomes: Understand the definitions, graphs, properties, and applications of the functions which will be of importance during the study of Calculus; learn to read, analyze, and solve situational problems in which mathematics is applicable.

Text: *Precalculus*, 4thEdition
by: Robert Blitzer
Prentice Hall Publishing

Methods by which student learning will be evaluated:
The general guidelines for assessing grades are as follows:

- Examinations, Assignments and Classroom Performance 70%
- Final Examination 30%

The distribution above may be changed at the discretion of the individual instructor.

Academic Integrity: Academic honesty is taken extremely seriously and is expected of all students. All assignments must be the original work of the student (and partners or group, if applicable). All questions or concerns regarding ethical conduct should be brought to the course instructor. "It is the official policy of the College that all acts or attempted acts that are violations of academic integrity be reported to the Office of Student Affairs (OSA). At the faculty member's discretion and with the concurrence of the student or students involved, some cases, though reported to the OSA, may be resolved within the confines of the course and department. The instructor has the authority to adjust the offender's grades as deemed appropriate, including assigning an F to the assignment or exercise or, in more serious cases, an F to the student for the entire course." (Taken from the QCC Academic Integrity Policy, 2/14/2005.)

NOTE: *Any student who feels that he/she may need an accommodation based upon the impact of a disability should contact the instructor privately to discuss his/her specific needs. Please contact the office of Services for Students with Disabilities in Science Building, room 132 (718 631 6257) to coordinate reasonable accommodations for students with documented disabilities*.

SECTION	TOPIC	HOURS
1.2, 1.3, 1.6 – 1.10	**Introduction to Functions**	**12**
2.2 – 2.7	**Polynomial and Rational Functions**	**13**
3.1 – 3.5	**Exponential and Logarithmic Functions**	**8**
4.1 – 4.7	**Trigonometric Functions**	**5**
5.1 – 5.5	**Trigonometric Identities and Trigonometric Equations**	**9**
6.1 – 6.2	**Law of Sines and Law of Cosines**	**3**
9.1 – 9.3	**Conic Sections: Ellipse, Hyperbola, Parabola**	**6**
10.1 – 10.5	**Sequences, Mathematical Induction, the Binomial Theorem**	**8**
	Reviews and Exams	**6**
	Total:	**70**

Precalculus Problems

Section	Pages	Problems
1.2	149 – 154	7, 9, 11, 15, 19, 25, 29 – 49 odd, 67, 71, 77 – 91 odd
1.3	163 – 168	1 – 21 odd, 23 – 28, 29 – 40 odd, 41, 42, 45 – 55 odd, 57, 59, 61
1.6	206 – 209	1 – 31 odd, 107 – 117 odd
1.7	219 – 222	7, 9, 17, 19, 27, 31, 37, 43, 47, 49, 53, 55, 57, 67
1.8	231 – 233	7, 11, 13, 17, 21, 27, 29 – 34, 35 – 38, 39, 45, 47, 49, 51, 53, 57,
1.9	239 – 241	3, 7, 9, 10, 17, 25, 27, 29, 31 – 39 odd, 41, 49 – 59 odd
1.10	250 – 255	1, 3, 11, 15, 17, 29, 35
2.2	284 – 287	5 – 8, 11, 15, 23, 25, 31, 35, 37, 41, 51, 57, 59
2.3	297 – 301	3, 7, 11, 13, 15, 20, 21, 25, 29, 31, 37, 43, 47, 57, 61, 77
2.4	310 – 312	3, 7, 15, 19, 29, 33, 35, 37, 39, 41, 45
2.5	322 – 325	1, 9, 11, 15, 23, 27, 29, 37, 39, 43, 61
2.6	342 – 346	1, 3, 5, 9, 11, 13, 21, 23, 29, 31, 37, 39, 43, 59, 61
2.7	354 – 356	1, 3, 5, 13, 19, 27, 33, 37, 39, 45
3.1	364 – 365	3, 7, 19, 21, 23, 25, 27, 29, 41, 43, 49
3.2	397 – 400	1, 3, 9, 15, 33, 37, 41, 49, 55, 67, 68, 69, 75, 97
3.3	407 – 409	1, 5, 13, 21, 23, 27, 31, 41, 43, 53, 67, 71, 73, 78
3.4	418 – 421	1, 3, 5, 9, 19, 21, 29, 35, 37, 45, 49, 51
3.5	433 – 437	1, 3, 5, 7, 13, 15, 17, 31
4.1	458 – 460	31, 33, 39, 43, 53, 59, 65, 69, 71, 73, 75, 77, 81
4.2	472 – 474	1, 3, 5, 7, 9, 17, 19, 21, 23, 29, 33, 37, 45, 51, 57a
4.3 (review of MA-120)	484 – 487	1 to 49 by odds
4.4 (review of MA-120)	499 – 500	1 to 23 by odds, 35 to 61 by odds
4.5 (review of MA-120)	518 – 519	1, 5, 9, 13, 17, 33, 37, 41, 45
4.6	531 – 534	1, 3, 5, 7, 29, 33
4.7	547 – 549	1, 5, 9 every fourth to 29
5.1	578 – 580	1, 5,9, every fourth to 33, 64
5.2	587 – 589	1, 5, 9, every fourth to 33, 67 (optional)
5. 3	598 – 600	1, 3, 5, 7 15, 17, 69
5.4	605 – 608	1, 3, 5, 7
5.5	619 – 621	11, 13, 19, 25, 41, 57, 85, 97 to 101 all
6.1	635 – 638	1, 3, 7, 9, 15, 17, 19, 21, 23, 25, 27, 31, 33, 35, 37, 43, 45, 49
6.2	643 – 646	1, 3, 5, 7, 9, 11, 13, 19, 21, 23, 25, 27, 33, 39, 41
9.1	859 – 861	1, 3, 9, 13, 15, 19, 21, 23, 25, 27, 29, 31, 33, 35, 37, 41, 45, 51, 53, 55, 57
9.2	873 – 875	1, 3, 5, 7, 9, 11, 13, 15, 17, 19, 23, 25, 27, 29, 31, 33, 37, 39, 43, 45, 47, 49, 51, 53
9.3	885 – 887	1, 5, 7, 9, 11, 13, 17, 19, 21, 23, 25, 27, 31, 35, 39, 43, 45, 47, 49, 51, 53, 55
10.1	933 – 936	1, 5, 7, 11, 13, 17, 19, 21, 23, 27, 29, 31, 33, 35, 39, 41, 43, 47, 51, 53, 55, 57, 59, 61
10.2	943 – 945	1, 5, 9, 11, 13, 15, 17, 23, 25, 29, 31, 35, 37, 39, 43, 45, 47, 55, 57, 61
10.3	955 – 959	1, 3, 5, 9, 13, 15, 17, 19, 23, 25, 27, 29, 31, 33, 35, 51, 53, 55, 57, 59, 61
10.4	965 – 966	1, 3, 5, 7, 11, 13, 15, 17, 19, 21, 25, 27, 29
10.5	972 – 973	1, 3, 5, 7, 9, 15, 19, 27, 29, 31, 35, 37, 39, 45, 47

The approximate hours per chapter are guidelines and are at the discretion of the instructor. The instructor is responsible for making assignments and scheduling examinations. The Final Exam date is scheduled by the Registrar.

FALL 2009
GMG: cs