QUEENSBOROUGH COMMUNITY COLLEGE
Department of Mathematics and Computer Science
COURSE OUTLINE

MA-481 PROBABILITY AND STATISTICS

Co-requisite: MA 442

Hours: 3 Class Hours 3 Credits

Course Description: Combinatorial methods, axioms of probability theory, conditional probability, discrete and continuous random variables, distributions and density functions, binomial, Poisson, normal, and exponential distributions, Law of Large Numbers, Central Limit Theorem, confidence intervals and tests of hypotheses.

Curricula for which the course is required/recommended:
Secondary Mathematics with transfer to Queens College – *TIMEQCC program*

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; use information management and technology skills effectively for academic research and lifelong learning.

Course Objectives/ Expected Student Learning Outcomes: To understand the basic concepts of calculus – based mathematics of statistics

Text: John E. Freund's Mathematical Statistics
by Irwin Miller and Marylees Miller, 7th Edition
Pearson /Prentice Hall Publishers

Methods by which student learning will be evaluated:

The general guidelines for assessing grades are as follows:

- Examinations, Assignments and Classroom Performance 60%
- Final Examination 40%

The distribution is 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.*

Topic	Chapters*	Hours
Combinatorial Methods	**1**	**2**
Probability	**2**	**6**
Probability Distributions and Probability Densities	**3.1 – 3.5, 3.8**	**5**
Mathematical Expectation	**4.1 – 4.4, 4.6**	**5**
Special Probability Distributions:	**5.1 - 5.7**	**6**
Uniform, Binomial, Poisson		
Special Probability Densities:	**6.1 – 6.3, 6.5**	**5**
Uniform, Gamma, Exponential, Chi-square, Normal		
Sampling Distributions	**8.1 – 8.5**	**4**
Central Limit Theorem		
Hypotheses Testing	**12.1 – 12.2, 13.1 – 13.4**	**5**
Exams and Review		**4**
	Total	**42**

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.

List of problems (Dr. Rusinek)
(*Subject to change.*)

Chapters/Sections	Pages	Problems
1	**18 - 21**	**1.24 –1.29** **1.31 – 1.58**
2	**55 - 67**	**2.35 – 2.41** **2.43 – 2.47** **2.49 – 2.51** **2.53 – 2.61** **2.64 – 2.72** **2.76 – 2.81** **2.87 – 2.111**
3.1 – 3.5, 3.8	**89 – 92** **101 – 102** **103** **121** **123**	**3.16 – 3.37** **3.42 – 3.57** **3.62 – 3.68** **3.83 – 3.90** **3.97 – 3.102**
4.1 – 4.4, 4.6	**161 - 162**	**4.60 – 4.65** **4.68 – 4.71** **4.73 – 4.75** **4.76 – 4.83**
5.1 - 5.7	**193 – 197**	**5.40 – 5.46** **5.50** **5.54** **5.57 – 5.60** **5.71 – 5.81**
6.1 – 6.3, 6.5	**229 – 232**	**6.50 – 6.58** **6.62 – 6.67** **6.70 – 6.79**
8.1 – 8.5	**291 – 293**	**8.58 – 8.69** **8.75 – 8.79**
12.1 – 12.2 **13.1 – 13.4**	**395 – 396** **424 – 425** **427**	**12.28 – 12.30** **12.32** **12.34 – 12.36** **13.19 – 13.31** **13.47 – 13.49**