NEW YORK CITY COLLEGE OF TECHNOLOGY
The City University of New York

DEPARTMENT:	Mathematics
COURSE:	MAT 1372
TITLE:	Statistics with Probability
DESCRIPTION:	Topics covered include sample spaces and probabilities, discrete probability distributions (Binomial, Hypergeometric), expectation and variance, continuous probability distributions (Normal, Student, Chi-Square), confidence intervals, hypothesis testing, and correlation and regression. Spreadsheets are used throughout the semester.
TEXTS:	1. Introductory Statistic, Third Edition Sheldon Ross, Academic Press 2. Statistics with Microsoft Excel 5th Edition Beverly J. Dretzke, Pearson
CREDITS:	3 (2 class hours, 2 lab hours)
PRE- or COREQUISITES:	MAT 1375
	Prepared by: Prof. T. Johnstone Prof. B. Kostadinov Prof. J. Natov Fall 2010 Revised by Prof. S. Singh Fall 2011

A. Testing/ Assessment Guidelines:

The following exams should be scheduled:

1. A one session exam at the end of the First Quarter.
2. A one session exam at the end of the Third Quarter.
3. A one session Final Examination.

Course Intended Learning Outcomes/Assessment Methods

Learning Outcomes	Assessment Methods
1. Collect, organize and graph raw data.	Exams
2. Compute statistical parameters (mean, median, mode, average deviation, variance, and sample standard deviation).	Exams
3. Create grouped frequency distributions, probability distributions, histograms as well as identify bell-shaped distributions (normal, t-distribution) and non-bell shaped distributions (Chi-square).	Exams
4. Assign probabilities to events using counting methods, conditional probability and discrete probability distributions.	Exams
5. Determine if the data supports a hypothesis at a given significance level using known distributions.	Exams
6. Use spreadsheet software and other computer technology to assist in creating distributions and testing hypothesis.	Exams

General Education Learning Outcomes/Assessment Methods

Learning Outcomes	Assessment Methods
1. Understand and employ both quantitative and qualitative analysis to solve problems.	Exams
2. Make meaningful and multiple connections between mathematics and other areas of study leading to a major or profession.	Exams
3. Employ scientific reasoning and logical thinking.	Exams
4. Communicate effectively using written and oral means.	Exams

Mathematics Department Policy on Lateness/Absence

A student may be absent during the semester without penalty for 10% of the class instructional sessions. Therefore,

If the class meets:	The allowable absence is:
1 time per week	2 absences per semester
2 times per week	3 absences per semester

Students who have been **excessively absent and failed the course at the end of the semester will receive either**

- the WU grade if they have attended the course at least once. This includes students who stop attending without officially withdrawing from the course.
- the WN grade if they have never attended the course.

In credit bearing courses, the WU and WN grades count as an F in the computation of the GPA. While WU and WN grades in non-credit developmental courses do not count in the GPA, the WU grade does count toward the limit of 2 attempts for a developmental course.

The official Mathematics Department policy is that two latenesses (this includes arriving late or leaving early) is equivalent to one absence.

Every withdrawal (official or unofficial) can affect a student's financial aid status, because withdrawal from a course will change the number of credits or equated credits that are counted toward financial aid.

New York City College of Technology Policy on Academic Integrity

Students and all others who work with information, ideas, texts, images, music, inventions, and other intellectual property owe their audience and sources accuracy and honesty in using, crediting, and citing sources. As a community of intellectual and professional workers, the College recognizes its responsibility for providing instruction in information literacy and academic integrity, offering models of good practice, and responding vigilantly and appropriately to infractions of academic integrity. Accordingly, academic dishonesty is prohibited in The City University of New York and at New York City College of Technology and is punishable by penalties, including failing grades, suspension, and expulsion. The complete text of the College policy on Academic Integrity may be found in the catalog.

MAT 1372 Statistics with Probability **Texts: #** 1. Introductory Statistics 3rd Edition by Sheldon Ross
2. Statistics with Microsoft Excel 5th Edition by Beverly J. Dretzke

Session	Statistics with Probability	Text #1	Homework	Text #2
1	Introduction to Excel			p. 1-5, 9-11 and 13-23
2	Graphical Descriptive Techniques	2.1-2.4	p. 25# 1, 2, 3; p. 39# 1, 3; p. 47# 1, 3.	SORT, FREQUENCY p. 28-29
3	Measures of Central Location and Variability	3.2-3.5	p. 79# 1, 9; p. 86# 1, 2, 11; p. 98# 1, 5; p. 105# 1,2, 6	AVERAGE(:), VARP(:), STDEVP(:) p. 36-45
4	Covariance and Coefficient of Correlation	2.5, 3.7	p. 54# 1, 5; p. 128# 1, 3	COV(X,Y), CORREL(X,Y) p. 189-193
5	Least Squares Method and Regression	12.1-12.3	p. 542# 1, 5; p. 548# 1, 2, 3	SLOPE, INTERCEPT p. 205-210
6	Assigning Probabilities to Events; Probability Rules	4.1-4.3	p. 150# 1, 3, 4, 7, 10, 11, 12; p. 156# 1, 2, 7, 9, 10	
7	Experiments Having Equally Likely Outcomes	4.4	p. 164# 1, 2, 3, 6, 9, 10, 12, 14	
8	Conditional Probability and Independence	4.5	p. 177# 1, 2, 3, 4, 7, 11, 15, 18, 28, 29, 33, 35, 38	
9	Relative Frequency Distribution and z-scores			FREQUENCY(bin:data) p. 45-48, p59-76
10	**First Examination**			
11	Random Variables, Probability Distributions	5.2	p. 215 #1, 3, 4, 9, 10, 15, 17, 18	
12	Expected Value and Variance	5.3 5.4	p. 225 #1, 3, 4, 5, 9, 11, 19, 23, 27, 30 p. 236 #2, 3, 5, 10, 11, 17, 18, 19	
13	Binomial Distribution	5.5	p. 244 #2, 3, 5, 10, 11, 21, 23	BINOMDIST(s,n,p,false) p. 104-108
14	Poisson Distribution	5.7	p. 253 #1, 3, 5	POISSON(x,mean,false) p. 111-115

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Session	Statistics with Probability	Text #1	Homework	Text #2
15	Continuous Random Variables	6.2	p. 264 #1, 2, 3, 6, 7	
16	Normal Random Variables	6.3,6.4	p. 269 #1, 2, 3, 5, 7, 19; p276 #3, 4, 5	NORMSDIST(z), NORMSINV(p) p. 115-122
17	Finding Normal Probabilities	6.5,6.7	p. 281 #1, 3, 5, 9, 13; p289 #1, 3, 9, 13	
18	Sample Mean	7.3	p. 303 #1, 3, 5	
19	Distribution of the Sample Mean	7.4.1	p. 311 # 1, 3, 5, 7, 11, 13	
20	Distribution of the Sample Variance of a Normal Population	7.6	p. 325 # 1	
21	**Midterm Examination**			
22	Estimating Population Means	8.2	p. 334 # 1,3,5,7,9	
23	Hypothesis Testing with Known Standard Deviation	9.2-9.3.1	p. 392 # 1,3 p. 400 # 1,3,5,7,9,11 p. 408 # 1,3,5	p. 131-153
24	Inference about a Population Mean with Unknown Standard Deviation	9.4	p. 417 # 1,3,5,13, 17	TDIST(x,df,tails), TINV(p,df), p. 140-153
25	Class Project Presentation			
26	Class Project Presentation			
27	Chi-Squared Goodness of fit Test	13.2	p. 615 # 1,3,7,11	CHIDIST(x,df), CHIINV(p,df) p. 249-255
28	Chi-Squared Test for Independence - Contingency Table	13.3	p. 626 # 1,3,5,9,11	
29	Review			
30	**Final Examination**			