KINGSBOROUGH
COMMUNITY COLLEGE
★ DREAMS BEGIN HERE ★

Syllabus

1. Course information:

Department:	Mathematics & Computer Science
Course Designation/Prefix:	MAT
***Course Number:**	2000
Course Title:	Elements of Statistics
Course Description:	Concepts of statistics and probability, their application to today's world and the ethical use of data to analyze problems and questions. Topics include tabulation and graphing of distributions, central and dispersal tendencies, comparison techniques, correlations and predictive techniques. Students will learn to use statistical software for solution of statistical problems; the class will incorporate computer laboratory activity. Students who have completed MAT 19A0 or MAT 2010 or MAT 20B or MAT 2200/BA 2200 or MAT 9100/BIO 9100 will not receive credit for this course.
Prerequisite(s):	(1) MAT R300 or (2) MAT 9B0 or (3) MAT 9010 or (4) CUNY Proficiency AND ACCUPLACER (QAS) placement of MAT 900
Corequisite(s):	None
Pre-/Co-requisite(s):	None
Open ONLY to Select students (Specify Population):	
Frequency course is to be offered (Select All that Apply)	☑ Fall ☑Winter ☑ Spring ☑ Summer
Suggested Class Limit:	25
Indicate if a special space, such as a lab, and/or special equipment will be required:	Classroom with smartboard

2. Credits and Hours based on MSCHE Guidelines for *College Credits Assigned for Instructional Hours* -***Hours are based on hours per week in a typical 12-week semester**:

3-credits:	☐ 3 hours lecture ☑ 2 hours lecture, 2 hours lab/field ☐ 1 hour lecture, 4 hours lab/field ☐ 6 hours lab/field

3. **Where** does this course fit? Select from the following:

☑ General Education/Pathways	**Select ONE of the following:** ☐ Life and Physical Science (LPS) ☑ Math and Quantitative Reasoning (MQR) ☐ World Cultures and Global Issues (Group A) ☐ U.S. Experience in its Diversity (Group B) ☐ Creative Expression (Group C) ☐ Individual and Society (Group D) ☐ Scientific World (Group E)

4. **List the Course Learning Outcomes** – Course Learning Outcomes are measureable/demonstrable, containing "**action verbs**" (Blooms Taxonomy). If proposed to PATHWAYS, the Course Learning Outcomes should significantly align with the Pathways Learning Outcomes (refer to the Pathways Common Core Submission Form for Pathways Learning Outcomes). If proposed for a Degree program, the course should align with the Program Learning Outcomes (PLOs). **REMINDER** – Course Learning Outcomes are consistent for **ALL sections** of the same course and **MUST** be included on the syllabus.

Course Learning Outcomes
1. Interpret Data (Descriptive Measures / Probability Theory)
2.Communicate Quantitative Analysis (Normal Distribution)
3. Evaluate Solutions (Linear Systems / Regression Analysis)
4. Apply Mathematical Methods (Hypothesis Testing)

5. **Assessment of Course Learning Outcomes**: The Course Learning Outcomes are measurable/demonstrable through the below listed sample assignments/activities. Include percentage breakdown for grading. **REMINDER** - Assessment of Course Learning Outcomes are based on a **Common Syllabus** – to allow for **any** qualified instructor to teach the course.

Course Learning Outcome	**Percentage of Grade**	**Measurement of Learning Outcome (Artifact/Assignment/Activity)**

1.Interpret Data	25	Homework / Test
2.Communicate Quantitative Analysis	25	Homework / Test
3. Evaluate Solutions	25	Homework / Test
4. Apply Mathematical Methods	25	Homework / Test

6. Proposed textbook(s) and/or other required instructional material(s), including open educational resources (OER)– Please include any supplemental/ materials/texts to allow for **any** qualified instructor to teach the course:

Textbook: Introductory Statistics, MyLab Revision , 10th edition , by Weiss (Pearson Education)

7. **Common Syllabus** that includes the Topical Course Outline for the 12-week semester.

   Note: Lab component (designated by "L" when appropriate).

Class Hour (L – Lab)	Topics	Section (Weiss book)
1	Variables and Data	2.1
2	Measures of Center	3.1
3	Measures of Variation	3.2
4 L	The Five-Number Summary; Boxplots	3.4
5 L	Descriptive Measures for Population; Use of Samples	3.5
6	Discrete Random Variables and Probability Distributions	5.1
7	The Mean and Standard Deviation of a Discrete Variable	5.2
8 L	The Binomial Distribution	5.3
9 L	Review	
10 L	Test	
11	Probability Basics	4.1
12	Events	4.2

13	Some Rules of Probability	4.3
14	Contingency Tables; Joint and Marginal Probabilities	4.4
15	Conditional Probability	4.5
16 L	The Multiplication Rule; Independence	4.6
17 L	Counting Rules	4.8
18 L	Review	
19 L	Test	
20	Introducing Normally Distributed Variables	6.1
21	Areas under the Standard Normal Curve	6.2
22	Working with Normally Distributed Populations	6.3
23 L	Normal Approximation to the Binomial Distribution	6.5
24	Sampling Error	7.1
25	The Mean and Standard Deviation of the Sample Mean	7.2
26 L	The Sampling Distribution of the Sample Mean	7.3
27 L	Review	
28 L	Test	
29	Estimating a Population Mean	8.1
30	Confidence Intervals for Mean: Standard Deviation Known	8.2
31 L	Confidence Intervals for Mean: Standard Deviation Unknown	8.3
32	The Nature of Hypothesis Testing	9.1
33	Critical-Value Approach to Hypothesis Testing	9.2
34	P-Value Approach to Hypothesis Testing	9.3
35 L	Hypothesis Tests for Mean: Standard Deviation Known	9.4
36 L	Hypothesis Tests for Mean: Standard Deviation Unknown	9.5
37 L	Review	
38 L	Test	
39	Confidence Intervals for One Population Proportion	12.1
40 L	Hypothesis Tests for One Population Proportion	12.2
41	Linear Equations with One Independent Variable	14.1

42	The Regression Equation	14.2
43	The Coefficient of Determination	14.3
44 L	Linear Correlation	14.4
45 L	Review	
46 L	Test	
47 L	Review for Final Exam	
48 L	Review for Final Exam	

8. Selected Bibliography and Source materials:

1) Bennett and Briggs, ***Using & Understanding Mathematics: A Quantitative Reasoning Approach***, 7th edition, Pearson, 2019

2) Black, ***Business Statistics: For Contemporary Decision Making***, 9th edition, Wiley, 2016

3) Blitzer, ***Introductory Algebra for College Students***, 8th edition, Pearson, 2021

4) Blitzer, ***Thinking Mathematically***, 6th edition, Pearson, 2015

5) Larson and Farber, ***Elementary Statistics: Picturing the World with Integrated Review***, 7th edition, Pearson, 2019

6) Majewicz, ***College Algebra: A Narrative Approach***, 3rd edition, Pearson, 2016

7) McClave and Sincich, ***Statistics***, 13th edition, Pearson, 2021

8) Sturm-Beiss and Yarmish, ***Essential College Pre-Algebra***, Kendall Hunt, 2015

9) Sturm-Beiss and Yarmish, Math Prep ***Elementary Algebra Exam***, Kendall Hunt, 2017

10) Sullivan, ***Statistics: Informed Decisions Using Data Plus Integrated Review***, 2nd edition, Pearson, 2017

11) Triola, ***Biostatistics for the Biological & Health Sciences***, 2nd edition, Pearson, 2018

12) Triola, ***Elementary Statistics with Integrated Review***, 13th edition, Pearson, 2018