

**KINGSBOROUGH COMMUNITY COLLEGE**  
**The City University of New York**

**CURRICULUM TRANSMITTAL COVER PAGE**

Department: \_\_\_\_\_ Date: \_\_\_\_\_

Title Of Course/Degree/Concentration/Certificate: \_\_\_\_\_

**Change(s) Initiated: (Please check)**

- |   |   |
|---|---|
| <input type="checkbox"/> Closing of Degree            | <input type="checkbox"/> Change in Degree or Certificate                              |
| <input type="checkbox"/> Closing of Certificate       | <input type="checkbox"/> Change in Degree: Adding Concentration                       |
| <input type="checkbox"/> New Certificate Proposal     | <input type="checkbox"/> Change in Degree: Deleting Concentration                     |
| <input type="checkbox"/> New Degree Proposal          | <input type="checkbox"/> Change in Prerequisite, Corequisite, and/or Pre/Co-requisite |
| <input type="checkbox"/> New Course                   | <input type="checkbox"/> Change in Course Designation                                 |
| <input type="checkbox"/> New 82 Course (Pilot Course) | <input type="checkbox"/> Change in Course Description                                 |
| <input type="checkbox"/> Deletion of Course(s)        | <input type="checkbox"/> Change in Course Title, Number, Credits and/or Hours         |
|   | <input type="checkbox"/> Change in Academic Policy                                    |
|   | <input type="checkbox"/> Pathways Submission:   |
|   | <input type="checkbox"/> Life and Physical Science                                    |
|   | <input type="checkbox"/> Math and Quantitative Reasoning                              |
|   | <input type="checkbox"/> A. World Cultures and Global Issues                          |
|   | <input type="checkbox"/> B. U.S. Experience in its Diversity                          |
|   | <input type="checkbox"/> C. Creative Expression                                       |
|   | <input type="checkbox"/> D. Individual and Society                                    |
|   | <input type="checkbox"/> E. Scientific World  |
- Change in Program Learning Outcomes
- Other (please describe): \_\_\_\_\_

**PLEASE ATTACH MATERIAL TO ILLUSTRATE AND EXPLAIN ALL CHANGES**

**DEPARTMENTAL ACTION**

Action by Department and/or Departmental Committee, if required:

Date Approved: \_\_\_\_\_ Signature, Committee Chairperson: \_\_\_\_\_

If submitted Curriculum Action affects another Department, signature of the affected Department(s) is required:

Date Approved: \_\_\_\_\_ Signature, Department Chairperson: \_\_\_\_\_

Date Approved: \_\_\_\_\_ Signature, Department Chairperson: \_\_\_\_\_

I have reviewed the attached material/proposal

Signature, Department Chairperson: \_\_\_\_\_ *Rina Garmish*



TO: Spring 2023 Curriculum Committee

FROM: Prof. Yarmish, Chair, Department of Mathematics & Computer Science

DATE: 01/25/2023

RE: New Course: Statistics with Algebra (MAT 20B0)

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The Department of Mathematics & Computer Science is proposing a new course, in the following manner:

**ADD:**

Statistics with Algebra (MAT 20B0)

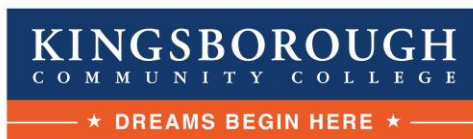
**Rationale for Change:**

The proposed course represents a new pedagogical approach to Elementary Statistics with more supported interaction for preparing students who are CUNY Math certified yet do not have the prerequisite for MAT 2000, and who want a first course in statistics.

Students will work in a laboratory setting with an instructor and will be provided hands-on, personalized guidance in the development and fine-tuning of algebraic skills needed for mastery of statistical concepts. This approach will facilitate success for students who would not otherwise succeed in Statistics.

Additionally, this course aligns with the CUNY transition, effective Fall 2022, to remove courses that follow Elementary Algebra (at Kingsborough MAT R300 – Elementary Algebra II) but precede the first-level Pathways MQR course. The proposed 6-hour, 3-credit MAT 20B0 will replace the 2-semester sequence MAT R300; MAT 2000, previously comprising 8 semester-hours.

The department is hopeful that this new approach will provide much-enhanced student success for Kingsborough students who do not have the prerequisite for MAT 2000, and who want a first course in Elementary Statistics.



### New Course Proposal Form\*

\*This form is **NOT** intended for Internships or Field Work

1. Complete the requested course information in the table below. Indicate “**NONE**” where applicable.

\*For Assignment of New Course Number, contact **Academic Scheduling**.

<b>Department:</b>	Mathematics & Computer Science
<b>Course Designation/Prefix:</b>	MAT
<b>*Course Number:</b>	20B0
<b>Course Title:</b>	Statistics with Algebra
<b>Course Description:</b> (Note: Description should include language similar to Course Learning Outcomes.)	<p>Introduction to statistics, with integrated algebra. Students will apply algebraic techniques and mathematical models to solve verbal problems. Statistical data are interpreted and analyzed. Students will demonstrate ability to communicate quantitative analysis and evaluate solutions. Statistics topics are descriptive measures, probability theory, the normal distribution, hypothesis testing, and regression analysis. This course is intended for students who want a first course in statistics and need strengthening in intermediate algebra.</p> <p>Students who have completed MAT 19A0 or MAT 2000 or MAT 2010 or MAT 2200/BA 2200 or MAT 9100/BIO 9100 will not receive credit for this course.</p>
<b>Prerequisite(s):</b>	(1) Successful completion of CUNY Mathematics remediation; or (2) Math Proficient per CUNY Guidelines
<b>Corequisite(s):</b>	None
<b>Pre-/Co-requisite(s):</b>	None
<b>Open ONLY to Select students (Specify Population):</b>	
<b>Frequency course is to be offered (Select All that Apply)</b>	<input checked="" type="checkbox"/> Fall <input checked="" type="checkbox"/> Winter <input checked="" type="checkbox"/> Spring <input checked="" type="checkbox"/> Summer
<b>Suggested Class Limit:</b>	25
<b>Indicate if a special space, such as a lab, and/or special equipment will be required:</b>	Classroom with smartboard may be requested

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 (Please check **ONE** box based on credits):

1-credit:	<input type="checkbox"/> 1 hour lecture <input type="checkbox"/> 2 hours lab/field/gym
2-credits:	<input type="checkbox"/> 2 hours lecture <input type="checkbox"/> 1 hour lecture, 2 hours lab/field <input type="checkbox"/> 4 hours lab/field
3-credits:	<input type="checkbox"/> 3 hours lecture <input type="checkbox"/> 2 hours lecture, 2 hours lab/field <input type="checkbox"/> 1 hour lecture, 4 hours lab/field <input checked="" type="checkbox"/> 6 hours lab/field
4-credits:	<input type="checkbox"/> 4 hours lecture <input type="checkbox"/> 3 hours lecture, 2 hours lab/field <input type="checkbox"/> 2 hours lecture, 4 hours lab/field <input type="checkbox"/> 1 hour lecture, 6 hours lab/field <input type="checkbox"/> 8 hours lab/field
More than 4-credits: <input type="checkbox"/> Number of credits: ____ (explain mix lecture/lab below)	
_____ Lecture                      _____ Lab	
Explanation: _____	

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

<input type="checkbox"/> Degree Program(s)/Certificate(s)*	<b>List Degree Program(s)/Certificate(s):</b> 1. 2.
<input checked="" type="checkbox"/> General Education/Pathways	<b>Select ONE of the following:</b> <input type="checkbox"/> Life and Physical Science (LPS) <input checked="" type="checkbox"/> Math and Quantitative Reasoning (MQR) <input type="checkbox"/> World Cultures and Global Issues (Group A) <input type="checkbox"/> U.S. Experience in its Diversity (Group B) <input type="checkbox"/> Creative Expression (Group C) <input type="checkbox"/> Individual and Society (Group D) <input type="checkbox"/> Scientific World (Group E)

<input type="checkbox"/> <b>82XX Pilot/Experimental Course</b>	<p><b>If proposed as a “real” course, where will this course fit?</b> Select from the following:</p> <p><b>List Degree Program(s)/Certificate(s):</b></p> <ol style="list-style-type: none"> <li>1.</li> <li>2.</li> </ol> <p><b>Select ONE of the following:</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Life and Physical Science (LPS)</li> <li><input type="checkbox"/> Math and Quantitative Reasoning (MQR)</li> <li><input type="checkbox"/> World Cultures and Global Issues (Group A)</li> <li><input type="checkbox"/> U.S. Experience in its Diversity (Group B)</li> <li><input type="checkbox"/> Creative Expression (Group C)</li> <li><input type="checkbox"/> Individual and Society (Group D)</li> <li><input type="checkbox"/> Scientific World (Group E)</li> </ul>
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**\*If Degree Program/Certificate is Selected:**

- Include an updated **Curricular** Map (Program Learning Outcomes) for each Degree Program/Certificate listed above.
- Include an updated Degree Map (semester-by-semester course sequence) for each Degree Program/Certificate listed above. For Degree Map template, contact Amanda Kalin, ext. 4611, [Amanda.Kalin@kbcc.cuny.edu](mailto:Amanda.Kalin@kbcc.cuny.edu)

The Following NYSED Guidelines must be adhered to for **ALL** Degree Programs:

45 credits of Liberal Arts (General Education) course work for an Associate of Arts Degree (AA)  
 30 credits of Liberal Arts (General Education) course work for an Associate of Science Degree (AS)  
 20 credits of Liberal Arts (General Education) course work for an Applied Associate of Science (AAS)

**Additional Separate Submissions Required:**

1. Curriculum Transmittal Cover Page indicating a “Change in Degree or Certificate”
2. Memo with rationale for inclusion of the course within the curriculum
3. “Current” Degree with all proposed deletions (strikeouts) and additions (bolded) clearly indicated
4. “Proposed” Degree, which displays the degree as it will appear in the *College Catalog*

For a copy of the most up-to-date Degree/Certificate requirements contact Amanda Kalin, ext. 4611, [Amanda.Kalin@kbcc.cuny.edu](mailto:Amanda.Kalin@kbcc.cuny.edu)

**If General Education/Pathways is Selected:**

- [Please refer to NYSED Guidelines for courses that are considered Liberal Arts \(General Education\).](#)
- Pilot/Experimental/82XX courses **CANNOT** be submitted for Pathways until they are submitted as a “real” course.

**Additional Separate Submissions Required:**

1. Curriculum Transmittal Cover Page indicating BOTH “New Course” and “Pathways”
2. CUNY Common Core Pathways Submission Form

4. **List the Course Learning Outcomes** – Course Learning Outcomes are measurable/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.

<b>Course Learning Outcomes</b>
1. Utilize Algebraic Techniques (Linear Equations / Polynomials)
2. Interpret Data (Descriptive Measures)
3. Solve Verbal Problems (Probability Theory)
4. Communicate Quantitative Analysis (Normal Distribution)
5. Apply Mathematical Methods (Hypothesis Testing)
6. Evaluate Solutions (Linear Systems / Regression Analysis)

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.

<b>Course Learning Outcome</b>	<b>Percentage of Grade</b>	<b>Measurement of Learning Outcome (Artifact/Assignment/Activity)</b>
1. Utilize Algebraic Techniques	20	Homework / Test
2. Interpret Data	20	Homework / Test
3. Solve Verbal Problems	15	Homework / Test
4. Communicate Quantitative Analysis	15	Homework / Test
5. Apply Mathematical Methods	15	Homework / Test
6. Evaluate Solutions	15	Homework / Test

6. **Who** is expected to enroll in this course? Please provide details for the student population(s), degree program(s)/certificate(s), and applicable concentration(s), this course is expected to include.

Expected enrollees:

Students who have a requirement for Statistics for graduation and/or admission to post-2-year programs and who are deficient in preparation in terms of algebraic proficiency.

7. Explain **why** this course is a necessary addition to the curriculum. **REMINDER** – Explain the course’s role within the selected Pathways Group or Degree program – How does this course meet the Program Learning Outcomes (PLOs)? Was the course a recommendation from a recent Annual Program Review (APR), Advisory Board, Accrediting Body, etc.? How might this course help students seeking to transfer to a 4-yr college or transition into a career after KCC?

This course is necessary due to CUNY’s elimination of non-credit courses with a concurrent mandate that students be offered a credit course upon entrance which will satisfy their graduation requirements.

This course will help students seeking to transfer to a 4-yr college in that students will then transfer having fulfilled the MQR pathways requirement. For some who wish to transition into a career after KCC, knowledge and understanding of statistics is a very useful – sometimes vital – knowledge base. This will be particularly so for prospective Nursing students and students in certain other medically-related fields.

8. Upon transfer, does this course meet a specified requirement for a degree at a 4-year institution? If so, please include the institution and degree program. It is recommended you review your current [Articulation Agreements](#).

Course will satisfy the MQR pathways requirement for all CUNY undergraduate colleges (STEM Variant).

9. Will adding the course potentially **conflict** with other courses – in content or subject matter – offered in either your Department or in *another* Department? If it will, please explain **how** and indicate **why** the course is still necessary.

This course will not conflict with other offerings.

10. 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:

OER Resource: <http://www.oercommons.org/courses/beginning-and-intermediate-algebra>  
(Free Algebra Guide with Videos)

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

11. **Attach a Common Syllabus** that includes the Topical Course Outline for the 12-week semester. This should be specific and explicit regarding the topics covered and should contain the detailed sample assignments/activities being used to measure the Course Learning Outcomes. **REMINDER** – be mindful to focus on the Course Learning Outcomes, Course Content, and Assessment.

Class Hour	Topics	Section (OpenAlgebra)	Section (Weiss book)
1	Integers	0.1	
2	Properties of Algebra	0.4	
3	One-Step Equations ; Two-Step Equations	1.1 , 1.2	
4	General Linear Equations : Equations with Fractions	1.3 , 1.4	
5	Formulas ; Absolute-Value Equations	1.5 , 1.6	
6	Solve and Graph Inequalities	3.1	
7	Compound Inequalities	3.2	
8	Absolute-Value Inequalities	3.3	
9	Test		



10	Measures of Center		3.1
11	Measures of Variation		3.2
12	The Five-Number Summary; Boxplots		3.4
13	Descriptive Measures for Population; Use of Samples		3.5
14	Probability Basics		4.1
15	Events		4.2
16	Some Rules of Probability		4.3
17	Contingency Tables; Joint and Marginal Probabilities		4.4
18	Conditional Probability		4.5
19	The Multiplication Rule; Independence		4.6
20	Counting Rules		4.8
21	Discrete Random Variables and Probability Distributions		5.1
22	The Mean and Standard Deviation of a Discrete Variable		5.2
23	The Binomial Distribution		5.3
24	Test		
25	Exponent Properties ; Negative Exponents	5.1 , 5.2	
26	Scientific Notation	5.3	
27	Introduction to Polynomials	5.4	
28	Multiply Polynomials ; Multiply Special Products	5.5 , 5.6	
29	Divide Polynomials	5,7	
30	Greatest Common Factor ; Factor by Grouping	6.1 , 6.2	
31	Quadratic Trinomials	6.3 , 6.4	
32	Factoring Special Products ; Factoring Strategy	6.5 , 6.6	
33	Quadratic Equations: Solve by Factoring	6.7	
34	Quadratic Equations: Solve by Completing the Square	9.3	
35	Quadratic Equations: Solve by Quadratic Formula	9.4	
36	Test		
37	Introducing Normally Distributed Variables		6.1
38	Areas under the Standard Normal Curve		6.2
39	Working with Normally Distributed Populations		6.3
40	Normal Approximation to the Binomial Distribution		6.5

41	Sampling Error		7.1
42	The Mean and Standard Deviation of the Sample Mean		7.2
43	The Sampling Distribution of the Sample Mean		7.3
44	Estimating a Population Mean		8.1
45	Confidence Intervals for Mean: Standard Deviation Known		8.2
46	Confidence Intervals for Mean: Standard Deviation Unknown		8.3
47	The Nature of Hypothesis Testing		9.1
48	Critical-Value Approach to Hypothesis Testing		9.2
49	P-Value Approach to Hypothesis Testing		9.3
50	Hypothesis Tests for Mean: Standard Deviation Known		9.4
51	Hypothesis Tests for Mean: Standard Deviation Unknown		9.5
52	Confidence Intervals for One Population Proportion		12.1
53	Hypothesis Tests for One Population Proportion		12.2
54	Test		
55	Reduce Rational Expressions ; Multiply and Divide	7.1 , 7.2	
56	Least Common Denominator ; Add and Subtract	7.3 , 7.4	
57	Complex Fractions ; Proportions	7.5 , 7.6	
58	Square Roots ; Higher Roots	8.1 , 8.2	
59	Adding Radicals ; Multiply and Divide Radicals	8.3 , 8.4	
60	Rationalize Denominators	8.5	
61	Rational Exponents	8.6	
62	Test		
63	Points and Lines ; Slopes	2.1 , 2.2	
64	Slope-Intercept Form ; Point-Slope Form	2.3 , 2.4	
65	Parallel and Perpendicular Lines	2.5	
66	Solving Linear Systems by Graphing	4.1	
67	Solving Linear Systems by Substitution	4.2	
68	Solving Linear Systems by Elimination	4.3	
69	The Regression Equation		14.2
70	The Coefficient of Determination		14.3
71	Linear Correlation		14.4

72	Test		
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12. Selected Bibliography and Source materials:

- 1) Bennett and Briggs, *Using & Understanding Mathematics: A Quantitative Reasoning Approach*, 7<sup>th</sup> edition, Pearson, 2019
- 2) Black, *Business Statistics: For Contemporary Decision Making*, 9<sup>th</sup> edition, Wiley, 2016
- 3) Blitzer, *Introductory Algebra for College Students*, 8<sup>th</sup> edition, Pearson, 2021
- 4) Blitzer, *Thinking Mathematically*, 6<sup>th</sup> edition, Pearson, 2015
- 5) Larson and Farber, *Elementary Statistics: Picturing the World with Integrated Review*, 7<sup>th</sup> edition, Pearson, 2019
- 6) Majewicz, *College Algebra: A Narrative Approach*, 3<sup>rd</sup> edition, Pearson, 2016
- 7) McClave and Sincich, *Statistics*, 13<sup>th</sup> 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*, 2<sup>nd</sup> edition, Pearson, 2017
- 11) Triola, *Biostatistics for the Biological & Health Sciences*, 2<sup>nd</sup> edition, Pearson, 2018
- 12) Triola, *Elementary Statistics with Integrated Review*, 13<sup>th</sup> edition, Pearson, 2018