I. Course Information/Signature Page

Date: 11/18/2019
Course Title: College Algebra for Business
Proposed Course Title *(only for courses proposing new titles through Curriculum Committee)*:
 Click here to enter proposed course title.
Department/Subject Designator: MAT 133
Number credits: 3.0
Pre-requisites/Co-requisites: MAT 096
Sponsor Proposer: Elizabeth Congdon
Sponsor Department(s): Mathematics
Cross-listed proposer (if applicable): Click here to enter cross-listed proposer.
Cross-listed department (if applicable): Click here to enter cross-listed department.
Effective semester/year of Proposed GE Addition: Fall 2020

Approvals		Yes	No
Sponsoring Department: (Chair signs for Department) *Jimmy G Brenn*	Date 5 Feb 2020	✓	
Comments:			
Department Chair: *Jimmy G Brewe*	Date 5 Fe 2020	✓	
Comments:			
Sponsoring Division: (Dean signs for Division) *Michele A Snyde*	Date 2/13/2020	✓	
Comments:			
Cross-listed Department (if applicable): (Chair signs for Department)	Date		
Comments:			
Cross-listed Division (if applicable): (Dean signs for Division)	Date		
Comments:			
These signatures will be obtained upon approval of the course as a General Education course			
General Education Committee: (Chair signs for Committee)	Date		
Comments:			
Registrar:	Date		
Comments:			
EVP/CAO:	Date		
Comments:			

II. SUNY GER Categories

a. Select a category for which the course is proposed to become a General Education course. *Please note that your course must meet the learning outcomes for the specific General Education category selected.*

☒Mathematics
☐Natural Sciences
☐Social Sciences
☐American History
☐Western Civilization
☐Other World Civilization
☐Humanities
☐The Arts
☐Foreign Language
☐Basic Communication

b. Select any infused competencies for which your course meets. *Please note that if selected, your course must demonstrate that it meets these learning outcomes.*

☐Critical Thinking
☐Information Management

c. Justification. Please specify how this course meets the General Education content guidelines. Your response should specifically address how your course meets the content guidelines detailed in the Guidelines for the Approval of State University General Education Required Courses found at: http://system.suny.edu/media/suny/content-assets/documents/academic-affairs/general-education/GenEdCourseGuidelines_2017.pdf

This course includes algebraic concepts and topics at a college level. As such, the course content addresses all 5 SUNY Math Gen Ed outcomes. The Map below shows the link between course Student Learning Outcomes and Gen Ed Learning Outcomes.

III. Learning Outcomes

a. Have the student learning outcomes changed to meet the General Education category requirements? *Please note if the student learning outcomes have changed, these changes must also be submitted to the Curriculum Committee for approval.*

Yes ☒   No☒

b. If this is a course which does not require Curriculum Committee approval, please provide the student learning outcomes as listed on the College Catalogue. *Please note student learning outcomes must encompass SUNY outcomes for the selected SUNY-GER category.*

Click here to enter the student learning outcomes as listed on the College Catalogue.

c. If this is a new or revised course concurrently submitted to the Curriculum Committee please attach the Curriculum Committee proposal forms to this document.

IV. Catalogue Description

a. If this is a course which does not require Curriculum Committee approval, please enter the actual description of this course as listed in the SUNY Broome College Catalogue.

Click here to enter the course description as listed in the SUNY Broome College Catalogue.

b. If this is a new or revised course concurrently submitted to the Curriculum Committee please attach the Curriculum Committee proposal forms to this document.

V. Topical Outline

Please describe the specific topics which will be addressed within this course. *You should ensure that your topical list meets the General Education category student learning outcomes.*

1. Review linear functions and their applications.
2. Solve systems of linear equations using substitution, elimination
3. Understand the definition of a function of x and find the domain and range of a function.
4. Use function notation.
5. Perform operations on functions including composition.
6. Perform arithmetic operations and simplification of rational expressions including complex fractions.
7. Perform operations and simplify expressions involving radicals and rational exponents.
8. Rationalize denominators and numerators.
9. Use interval notation.
10. Solve quadratic equations and inequalities and applications thereof.
11. Use properties of exponential and logarithmic functions.
12. Solve logarithmic and exponential equations
13. Identify and graph the following families of relations:
    a. $ax + by = c$ b. $y = ax^2 + bx + c$ c. $y = x^n$ d. $y = 1/x$ e. $y = a^x$
14. Recognize transformations of functions
15. Determine the horizontal and vertical asymptotes of a rational function.
16. Solve rational and polynomial equations.
17. Sketch a comprehensive graph of a polynomial and rational functions including end behavior, extrema and real zeros.
18. Graph piece-wise functions.
19. Use technology to determine regressions (linear, polynomial, exponential, and logarithmic)

VI. List of Sample Readings

Please provide a list of specific readings required for this course, including applicable texts. If applicable, please include links to the specific readings. *You should ensure selected readings demonstrate their use will lead to achievement of the General Education category student learning outcomes.*

Text not yet determined.

VII. Syllabus

It is encouraged, but not required, that you attach a copy of the course syllabus to facilitate review of your course. The syllabus should indicate that completion of this course will satisfy the specified SUNY-GER area(s).

Please note according to SUNY guidelines, any course that fulfills General Education requirements must assess the SUNY-specified learning outcomes for that particular General Education area. Therefore, the syllabus should specifically address the required learning outcomes for the SUNY-GER area(s) identified along with how they will be delivered and assessed.

VIII. SUNY Broome General Education Assessment Plan

Both SUNY and Middle States require that the College's General Education Curriculum be regularly assessed in order to ensure its rigor and quality. As mandated by SUNY, SUNY Broome is required to develop and implement periodic evaluation of assessment of student achievement of student learning outcomes associated with the SUNY General Education Requirement.

Please complete the General Education Assessment Plan form constructed by the Student Learning Assessment Committee (SLAC) and General Education Committee and submit with this form. This form outlines the assessment schedule for the next 3 planned SUNY GER assessments, SUNY GER outcomes, and the alignment of local, SUNY GER, and SUNY Broome ILOs. The completion of this form is integral for the SLAC and General Education Committee to assess the overall State of the SUNY General Education Curriculum at SUNY Broome. **If you have questions about completing this section of the form, please contact the Chair of SLAC, General Education, or your division representative.**

Submission Instructions: Email the completed **General Education Course Proposal Form**, including Assessment Plan, copy of the course syllabus, course readings, and any supporting material to the Chair of the General Education Committee. In addition, please send a hard copy of this form and Curriculum Committee proposal forms (as required) to the Chair of General Education. For courses going through Curriculum Committee, the proposer is expected to provide evidence of the course receiving approval from the Curriculum Committee.

SUNY Broome General Education Course Assessment Map & Plan
SUNY Broome GE Course SLO Alignment with SUNY-GER Course Alignment/SUNY Broome ILOs

Course Title and Number: Please list the course number and title here: *MAT 133 College Algebra for Business*

Course Modalities: Please list the modalities which the course is offered (in class, online, blended, Fast Forward). Please note, you are expected to assess across <u>all</u> modalities in which your course was offered at the time of assessment during your assessment schedule. *In class*

SUNY-GER Category: Please list the SUNY–GER category here by <u>number</u> (see below): *Mathematics #1*

SUNY GER Learning Outcomes: Please list the outcomes from the knowledge area to be covered here (please review Guidelines for the approval of State University Gen Ed Requirement Courses). Each outcomes within the knowledge area proposed must be included and mapped to SUNY-GER SLOs & BCC ILOs.

Students will demonstrate:
1. interpret and draw inferences from mathematical models such as formulas, graphs, tables and schematics
2. represent mathematical information symbolically, visually, numerically and verbally
3. employ quantitative methods such as arithmetic, algebra, geometry, or statistics to solve problems
4. estimate and check mathematical results for reasonablenedd
5. recognize the limitations of mathematical and statistical methods

Assessment Schedule: Please list the assessment schedule here, including semester and year it will occur; if assessment is done each semester, please indicate this. *2021 (spring and fall), 2025 (spring and fall), etc.*

Alignment of Local (select), SUNY-GER, & SUNY BCC ILOs: *(you may add more rows to the table as needed)****
Please find the new SUNY BCC ILO which corresponds to your course SLO. For courses previously approved, please use the crosswalk table below.

Course SLO (every course SLO should be listed, as stated within the college catalogue & course syllabus)	SUNY-GER SLO (indicate which GER SLO is met; if none, write N/A)	SUNY BCC ILO (indicate which SUNY BCC ILO is met; every course SLO should be mapped to a BCC ILO)	Assessment Timeline (indicate the frequency in which assessment occurs, including semester and year within assessment cycle)	Learning Activity (indicate the learning activity used to assess the SLO/ILO; both indirect & direct assessments should be used)	Criteria for Success/Benchmark (indicate the criteria used to assess SLO/ILOs & the benchmark for success)
1. Recognize and graph basic functions that are linear, polynomial, exponential, logarithmic, and rational by hand, and recognize transformations of the above named functions using a graphing calculator.	1. interpret and draw inferences from mathematical models such as formulas, graphs, tables and schematics; 2. represent mathematical information symbolically, visually, numerically and verbally; 3. employ quantitative methods such as, arithmetic, algebra, geometry, or statistics to solve problems	(ILO 2) Critical analysis and decision-making (ILO 4) Scientific and quantitative reasoning	SUNY-GER outcome 1, 2 and 3 in the spring in the years listed above	Relevant questions used on activities, quizzes or exams A scoring rubric will be used	Benchmark: 60% of the students in the categories of **completely correct or generally correct** as defined by the scoring rubric for the assessment

| 2. Solve applications involving linear functions, polynomials, rational functions, exponential functions, logarithmic functions and trigonometric functions. | 2. represent mathematical information symbolically, visually, numerically and verbally; 3. employ quantitative methods such as, arithmetic, algebra, geometry, or statistics to solve problems; 4. estimate and check mathematical results for reasonableness; and 5. recognize the limitations of mathematical and statistical methods. | (ILO 2) Critical analysis and decision-making (ILO 4) Scientific and quantitative reasoning | SUNY-GER outcomes 2 and 3 in the spring in the years listed above SUNY-GER outcomes 4 and 5 in the fall in the years listed above | Relevant questions used on activities, quizzes or exams A scoring rubric will be used | Benchmark: 60% of the students in the categories of **completely correct or generally correct** as defined by the scoring rubric for the assessment |
| 3. Perform algebraic operations on expressions involving polynomials, rational functions, exponential functions, and logarithmic functions. | 2. represent mathematical information symbolically, visually, numerically and verbally; | (ILO 2) Critical analysis and decision-making (ILO 4) Scientific and quantitative reasoning | SUNY-GER outcomes 2 and 3 in the spring in the years listed above SUNY-GER outcomes 4 in the | Relevant questions used on activities, quizzes or exams A scoring rubric will be used | Benchmark: 60% of the students in the categories of **completely correct or generally correct** as defined by the scoring |

	3. employ quantitative methods such as, arithmetic, algebra, geometry, or statistics to solve problems; 4. estimate and check mathematical results for reasonableness		fall in the years listed above		rubric for the assessment
4. Solve equations and inequalitites of polynomials, rational functions, exponential functions, and logarithmic functions by algebra or by analysis using a graphing calculator.	2. represent mathematical information symbolically, visually, numerically and verbally 3. employ quantitative methods such as, arithmetic, algebra, geometry, or statistics to solve problems; 5. recognize the limitations of mathematical and	(ILO 2) Critical analysis and decision-making (ILO 4) Scientific and quantitative reasoning	SUNY-GER outcome 2 and 3 in the spring in the years listed above SUNY-GER outcome 5 in the fall in the years listed above	Relevant questions used on activities, quizzes or exams A scoring rubric will be used	Benchmark: 60% of the students in the categories of **completely correct or generally correct** as defined by the scoring rubric for the assessment

	statistical methods				
Click here to enter text.	Click here to enter text.	Click here to enter text.	Click here to enter text.	Click here to enter text.	Click here to enter text.
Click here to enter text.	Click here to enter text.	Click here to enter text.	Click here to enter text.	Click here to enter text.	Click here to enter text.

SUNY GER SLO (SUNY General Education Student Learning Outcomes)
Knowledge and Skill Areas:
1. Mathematics
2. Natural Sciences
3. Social Sciences
4. American History
5. Western Civilization
6. Other World Civilizations
7. Humanities
8. The Arts
9. Foreign Language
10. Basic Communication
Competencies:
1. Critical Thinking
2. Information Management
GEC 10/31/17, Rev. 3/19

NEW SUNY Broome ILOs (Institutional Learning Outcomes)
1. Cultural and global awareness
2. Critical analysis and decision making
3. Oral and written communication
4. Scientific and quantitative reasoning
5. Technological competency
6. Information Literacy

OLD SUNY Broome ILOs (Institutional Learning Outcomes)
1. **(ILO 1)** Apply relevant knowledge, technology, and tools from the academic disciplines in the contexts of personal, professional, and civic interactions, with sensitivity to diverse peoples and cultures.
2. **(ILO 2)** Read, write, speak, and listen effectively in both personal and professional spheres.
3. **(ILO 3)** Retrieve, organize, analyze, evaluate, and appropriately use information.
4. **(ILO 4)** Perform effectively as a team member.
5. **(ILO 5)** Reflect on, reason about, and form independent judgments on a variety of ideas and information, and use these skills to guide their beliefs and actions.
6. **(ILO 6)** Exercise individual and social responsibilities through personal development and self-advocacy, healthy life-style choices, ethical behavior, civic involvement, interaction with diverse cultures, commitment to life-long learning, and engagement with global issues.
7. **(ILO 7)** Integrate knowledge and skills gained and adapt them to new settings, questions, and responsibilities.

GER Requirements Crosswalk SUNY Broome Community College			
MSCHE GER Curriculum Components	**SUNY GER Curriculum Areas & Components**	**New BCC ISLOs**	**Old BCC ISLOs**
Cultural and global awareness and cultural sensitivity	Western Civilization, Other World Civilizations, Foreign Language, Humanities, Arts	**(ILO 1)** Cultural and global awareness	ISLO 1, ISLO 4, ISLO 6
Values, ethics, and diverse perspectives	Social Science, American History, Other World Civilizations, Foreign Languages, Humanities, Arts	**(ILO 1)** Cultural and global awareness	ISLO 1, ISLO 5 ISLO 6

Critical Analysis and Reasoning	Critical Thinking	(ILO 2) Critical analysis and decision-making	ISLO 5, ISLO 7
Oral and written communication	Basic Communication (Written and Oral)	(ILO 3) Oral and written communication	ISLO 2
Scientific and Quantitative Reasoning	Natural Science, Social Science, Mathematics	(ILO 4) Scientific and quantitative reasoning	ISLO 3
Technological Competency	Basic Communication, Information Management	(ILO 5) Technological competency	ISLO 1
Information Literacy	Information Management	(ILO 6) Information literacy	ISLO 3

10/18/17, 6/18