REQUEST FOR GENERAL EDUCATION DISTRIBUTION DESIGNATION

Directions: Please indicate which learning outcomes will be addressed in this course (place the corresponding number and outcome where indicated). A minimum of five learning outcomes must be addressed for a course to be eligible for general education distribution designation. Please provide a brief narrative as to how the course objectives/key concepts address each learning outcome selected, and indicate what tools for assessment will be used.

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<th>Course Title: Calculus I</th>
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<td>Department: Mathematics</td>
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No. 3  | Learning Outcome: **Demonstrate the ability to think critically.**

**Narrative:** Students will ask themselves questions at every step of the problem-solving process. Only by asking questions can one understand the problem, devise a method, carry out the method, and finally learn from the solution. The instructor will design assignments for students to practice this process. Those assignments will be used to assess this learning outcome.

**Assessment tools:** In the Instructor Rubric there will be a section for critical thinking, which can be measured by looking at the key steps to determine whether the student is asking the right questions.

No. 4  | Learning Outcome: **Demonstrate the ability to think creatively**

**Narrative:** Students will carry their bags of tricks at all times and use them creatively to solve non-routine problems. The instructor will design assignments that require some creativity, such as transforming an alien problem into a familiar one that can be solved easily. Those assignments will be used to assess this learning outcome.

**Assessment tools:** In the Instructor Rubric there will be a section for creativity, which can be measured by observing a key step requiring an indirect knowledge.

No. 5  | Learning Outcome: **Produce competent written work.**

**Narrative:** Students will write solutions to problems explaining all the necessary steps in a clear and mathematically correct manner. The instructor will design assignments that require explaining the steps using complete sentences, including sentences that are partly mathematical. Those assignments will be used to assess this learning outcome.

**Assessment tools:** In the Instructor Rubric there will be a section for competency in writing, which can be measured by evaluating the grammar, punctuation, clarity, and the usage of mathematical terminology.

No. 9  | Learning Outcome: **Demonstrate knowledge of quantitative literacy**

**Narrative:** Students will demonstrate quantitative literacy by applying the rate of change while working with numerical tables, graphs, or algebraic expressions. The instructor will design assignments that require understanding the rate of change, and how to apply it in conjunction with numerical tables, graphs, or algebraic expressions. Those assignments will be used to assess this learning outcome.

**Assessment tools:** In the Instructor Rubric there will be a section for quantitative literacy, which can be measured by noting correct final answers.

No. 10 | Learning Outcome: **Use multiple perspectives and methodologies to analyze real or hypothetical problems**

**Narrative:** Students will view the rate of change in four different perspectives—verbal, numeric, graphic, algebraic. For all these perspectives the instructor will design assignments that require understanding the rate of change. Those assignments will be used to assess this learning outcome.

**Assessment tools:** In the Instructor Rubric there will be a section for multiple perspectives, which can be measured by noting correct answers in more than one perspective.