Request Form for General Education Certification:
Math/Logic Requirement: (Please include a syllabus)

Faculty Member(s):
Course Number:
Course Name:
This Course is currently Listed in the Undergraduate Catalog  Yes___  No____
(If your answer is “No”, please explain the status with the curriculum committee)_________________________________________________________
__________________________________________________________________
Department of faculty member(s):__________________________________

Course Description:

I.   Explain how the proposed course satisfies each of the following Approval Criteria for Math/Logic

1. Have as its primary purpose the modeling of phenomena in mathematical terms.

2. Study the theory supporting the modeling at a level of abstraction sufficient to deduce results about the mathematical objects (such as sets, probability distributions, graphs, algorithms, formal languages, functions, etc.) arising from the theory.

3. Expand the students' knowledge of mathematics beyond what is required by MATH 101 and any of the course's prerequisites.
II. Please provide an example of a signature assignment that the proposed course would use to enable assessment of each of the three math/logic learning outcomes, using the evidence and grading rubric for the respective outcomes.

Student Learning Outcome 1: Students model phenomena in mathematical terms. (List SLO 1 on syllabus.)

Evidence: Students presented with a phenomenon such as a physical situation or English statement must effectively model the problem using mathematical objects taught in the course. (Questions will be embedded on the final exam).

Standard At least 80% of students score 3 or 4 on rubric.

Rubric for SLO 1

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Does not meet expectations 1</th>
<th>Approaches Expectations 2</th>
<th>Meets Expectations 3</th>
<th>Exceeds Expectations 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Modeling the phenomena</td>
<td>Manifestly incorrect model</td>
<td>Major flaws in model</td>
<td>Minor flaws in model</td>
<td>Correctly models</td>
</tr>
<tr>
<td>Assigns values to the variables</td>
<td>Manifestly incorrect variable assignment</td>
<td>Major errors</td>
<td>Minor errors</td>
<td>Values correctly assigned to variables</td>
</tr>
</tbody>
</table>
**Student Learning Outcome 2:** When given a question, students apply models and establish conclusions. *(List SLO 2 on syllabus.)*

**Evidence:** Students given a mathematical model of a phenomenon must use the methodology and tools of the course to establish conclusions related to the phenomenon. (Questions will be embedded on the final exam).

**Standard** At least 80% students score 3 or 4 on rubric

**Rubric for SLO 2**

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Does not meet expectations 1</th>
<th>Approaches Expectations 2</th>
<th>Meets Expectations 3</th>
<th>Exceeds Expectations 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Applying mathematical methodology and tools.</td>
<td>No coherent application</td>
<td>Major errors or incomplete application</td>
<td>A few errors or omitted steps</td>
<td>Complete and correct application</td>
</tr>
<tr>
<td>Accuracy of the process and conclusion</td>
<td>Wrong conclusion and wrong process</td>
<td>Wrong process but correct conclusion</td>
<td>Wrong conclusion but correct process</td>
<td>Correct conclusion properly deduced</td>
</tr>
</tbody>
</table>
**Student Learning Outcome 3:** Students demonstrate an understanding of the supporting theory apart from any particular application.

**Evidence:** Students answer theoretical questions in ways that reflect understanding of the relevant theory.

**Standard** At least 80% of students score 3 or 4 on rubric.

**Rubric for SLO 3**

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Does not meet expectations 1</th>
<th>Approaches Expectations 2</th>
<th>Meets Expectations 3</th>
<th>Exceeds Expectations 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Understanding of theory(s)</td>
<td>Fails to interpret or incorrectly interprets mathematical statements, and thus fails to correctly answer questions about their theoretical relationships. Or correctly answers less than 70% of a series of theoretical multiple choice questions.</td>
<td>Correctly interprets mathematical statements, but (generally) incorrectly answers questions about their theoretical relationships. Or correctly answers at least 70% of a series of theoretical multiple choice questions.</td>
<td>Correctly interprets mathematical statements, and (generally) correctly answers questions about their theoretical relationships, but without clearly showing steps taken. Or correctly answers at least 80% of a series of theoretical multiple choice questions.</td>
<td>Correctly interprets mathematical statements, and correctly answers questions about their theoretical relationships, clearly showing steps taken. Or correctly answers at least 90% of a series of theoretical multiple choice questions.</td>
</tr>
</tbody>
</table>
III. SYLLABUS REQUIREMENT
Syllabi should include the following:
“General Education Student Learning Outcomes” section where the general education outcomes are listed. After listing the outcomes, there should be a clear statement indicating where those outcomes will be assessed “These outcomes will be assessed in…final exam, essay 2, etc.” The name of the…final exam, essay 2, etc., will have to match the one given under Evaluation/Grading Distribution/ and it should indicate clearly the percentage of the grade that the assignment has in the course.
Example:

General Education Student Learning Outcomes

- Students model phenomena in mathematical terms.
- When given a question, students apply models and establish conclusions.
- Students demonstrate an understanding of the supporting theory apart from any particular application.

These outcomes will be assessed on the SHORT ESSAY #3 (you must specify which one!!!)

Grades

Grades on individual assignments reflect the quality of your work in terms of how it meets the respective goals for each project. Your final grade will be calculated according to the following formula:

<table>
<thead>
<tr>
<th>Assignment</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Homework and Discussion</td>
<td>10%</td>
</tr>
<tr>
<td>Quizzes</td>
<td>10%</td>
</tr>
<tr>
<td>Short Essays (3, 2-3 pgs. each, in-class and take home)</td>
<td>15%</td>
</tr>
<tr>
<td>Midterm Exam</td>
<td>20%</td>
</tr>
<tr>
<td>Comparative Analysis Paper (6-8 pgs.)</td>
<td>20%</td>
</tr>
<tr>
<td>Final Exam</td>
<td>25%</td>
</tr>
</tbody>
</table>
IV. APPROVAL AND SIGNATURES.

1. Signature of Department Chair or Program Director:

__________________________________________  Date: ________________

2. Signature of Academic Dean:

__________________________________________  Date: ________________

3. Signature of Provost:

__________________________________________  Date: ________________

4. Signature of Committee on General Education Chair:

__________________________________________  Date: ________________

5. Signature of Faculty Senate Secretary:

__________________________________________  Date: ________________

Date Approved by Faculty Senate: ________________