Course: Math 27 Calculus I

1. Date of Application: 12/1/2011
2. Name, Dept of Proposer: Math dept, Mathematics and Computer Science
3. Name of Dept/Program housing course: Mathematics and Computer Science
4. Name of Chair/PD: Chris Jones
5. How often is the course taught:semesterly
6. Course Prerequisites:Math 12 or placement based on high school course work and a diagnostic exam
7. Unit value of course:1
8: Normal Class Size: 24
9. Number of sections expected Fall 2012:4
10. Number of sections expected Spring 2013:0
11. Is the course appropriate for first-year students: Yes
12. Relevant Learning Goal(s):Mathematical Understanding
13. Chair will oversee submission of student work: Yes
14. Chair will oversee instructor participation in norming/asst: Yes

15. Teaching: "Math 27 Teaching Narrative

Math 27 is the first semester of Calculus. It consists of Differential Calculus as well as a portion of Integral Calculus.

The first learning outcome for Math 27 states that students will ?apply abstract and logical reasoning to identify patterns and solve mathematical problems.? Students will be guided to achieve this outcome by the material that is covered in Math 27. This material includes the abstract concepts of limits, derivatives, and integrals. Students will learn the meaning and interpretation of these concepts as well as numerous situations in which these concepts can be applied to solve mathematical problems.

The second learning outcome for Math 27 states that students will ?communicate mathematical ideas and concepts accurately and clearly using mathematical symbols, language, and formulas.? Students will be guided to achieve this outcome by both the instruction of the concepts described above as well as the homework and exams that they will complete. Mathematical symbols, language, and formulas will be used throughout the instruction in order to communicate the concepts of limits, derivatives, and integrals to the students. In turn, the students will be required to accurately communicate their understanding of the concepts of limits, derivatives, and integrals through their written homework and written exams. In communicating their understanding of these concepts and in communicating their solutions to the subsequent mathematical problems, they will be required to use mathematical symbols, language, and formulas.
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16. Learning: "Math 27 Learning Narrative

The first learning outcome for Math 27 states that students will ?apply abstract and logical reasoning to identify patterns and solve mathematical problems.? Achievement of this outcome will be measured through the students? homeworks and exams. Homework problems will require the students to apply the concepts of limits, derivatives, and integrals to various types of functions and applications. The students will be expected to understand these concepts rigorously and to apply these concepts to a variety of mathematical problems. In order to achieve this, homework assignments must be frequent (at least weekly). They may be given as online homework problems or written homework

problems. Students will also apply logical reasoning to solve mathematical problems in their exam questions.

The second learning outcome for Math 27 states that students will ?communicate mathematical ideas and concepts accurately and clearly using mathematical symbols, language, and formulas.? Achievement of this outcome will be measured through written homework and exams or through verbal presentations and exams. By written homework and exams, we mean written work that includes not only the ?final answer? to a mathematical problem, but a mathematical description of the steps taken to find the answer. These descriptions will include appropriate mathematical symbols, language, and formulas. If an instructor chooses, the course work may involve verbal presentations of mathematical solutions in addition to or in place of written presentations of mathematical solutions. A verbal presentation must similarly include appropriate mathematical symbols, language, and formulas in communicating the concepts at hand. These written and/or verbal presentations of mathematical ideas must be done frequently enough or in depth enough to guide the students? improvement of such communication. There will be 2-4 exams, and either several written homeworks or a couple of in-depth papers or presentations.
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