

July 18, 2013

1. College: **Science and Mathematics**
2. Department: **Mathematics and Statistics**
3. Course status: **existing; does not require modification**
4. Course prefix and number: **MTH 138**
5. Course title: **College Algebra**
6. Course catalog description: **Mathematical models; solving equations; creating, interpreting and graphing functions. Particular focus is given to polynomial, exponential and logarithmic functions.**
7. Number of semester credit hours: **3**
8. Estimated total course enrollment per year: **1200**
9. Course prerequisites and/or required qualifications for enrolling in the class: **ACT Math score 21 or higher, SAT Math score 500 or higher, THEA score 250 or higher, or Grade of C or higher in MTH 099 excluding MTH 110, 127, and 129**
10. Course **is/will be** available online.
11. Foundational Component Area: **Mathematics**
12. Explain why this course fits into this foundation component area: **Students will practice both quantitative literacy (computing and examining specific numbers and functions) and qualitative literacy (recognizing patterns in graphs and equations, drawing logical conclusions, etc.). Students will apply properties of algebra to practical problems such as computing salaries, finding temperatures, and determining quantities in solutions. Students will also encounter theoretical problem solving approaches (exponents, factoring, etc.) which are essential for nearly every numerically based science class.**
13. Core Objectives
 - Critical Thinking - Through the work of solving equations, students will be instructed in a vast array of algebraic tools and techniques and will have the opportunity to apply these skills them to think creatively, inquire in a mathematical setting, analyze (critical thinking) given information, and evaluate and synthesis of information on functions, equations and graphs. These creative synthesis techniques will first be demonstrated for students, then students will be assisted in mastering them personally. Students will demonstrate critical thinking through the following assignments: homework, quizzes and exams.
 - Communication Skills - Students will be instructed as to how mathematical information should be communicated to be sure that the meaning is clear. This instruction will include how to use complete and correct notation, how to visually organize sequential mathematical information and how to provide supporting justification for conclusions. In homework, quizzes, and exams, the students will demonstrate communication skills by constructing equations, functions, graphs and sequential arguments to support conclusions (which will appear on homework, quizzes and exams).
 - Empirical and Quantitative Skills - Students will be instructed on using quantitative skills to draw conclusions about equations, functions, and graphs such as the solutions to an equation, the point on a parabola and the asymptotes on a graph. Students will also practice these skills. Most importantly, students will be

equipped with the skills to address every other empirical or quantitative challenge they face: describing empirical observation in terms of equations, manipulating functions and algorithms that already exist, and deriving meaningful quantitative information from existing graphical information. Students will demonstrate these empirical and quantitative skills on homework, quizzes and exams.

Contact person for questions about this submission:

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