

Kent Core Learning Outcomes Assessment Plan

Course number, title (credit hours): MATH 11009/10772 : Modeling Algebra/Plus 4 hours/5 hours

Department/School: Mathematics

Proposed Kent Core Category:
(please check appropriate box)

Composition

Humanities and Fine Arts

Social Sciences

Mathematics and
Critical Reasoning

Humanities

Basic Sciences

Fine Arts

Additional

Modeling Algebra has not been accepted as a transfer module course for the State of Ohio

| I. Kent Core learning objectives | III. What corresponding learning outcomes are included in this course? | IV. What method(s) will be used to assess student learning. | V. What evidence of this assessment will be presented annually for the five-year Kent Core review of this course? |
|---|---|--|---|
| Acquire critical thinking and problem-solving skills. | <ul style="list-style-type: none"> Analyze functions. Routine analysis includes discussion of domain, range, zeros, general function behavior (increasing, decreasing, extrema, etc.). In addition to showing procedural fluency, the student can articulate reasons for choosing a particular process, recognize function families and anticipate behavior, and explain the implementation of a process Interpret functions that arise in applications in terms of the context. Determine a reasonable applied domain for the model as well as articulate the limitations of the model Determine parameters of a model (linear, quadratic, exponential given the form of the model and data Build a function that models a relationship between two quantities and build new functions from existing functions. Convert between different representations of functions, Perform operations with functions including addition, subtraction, multiplication, division, composition, and inversion Demonstrate an understanding of the correspondence between the solution to an equation, the zero of a function, and the x- intercepts. | Homework assignments; Performance on in-class activities; Quizzes and exams; Common set of 10 – 15 questions administered as part of the final exam assessing student mastery of key concepts. | <p>Overall student grades will be monitored to track student performance in the course. We will report percentages of students mastering course material in general, i.e. the overall percentage of students scoring 73% or higher on the exam. In addition, we will report mastery of individual learning outcomes based on final exam items.</p> <p>We will use the final exam to assess strengths and weakness in our students and analyze causes of the weakness and adjust course materials, delivery, or assignments as deemed appropriate.</p> |
| Apply principles of effective written and oral communications. | | | |
| Broaden their imagination and develop their creativity. | | | |
| Develop competencies and values vital to responsible uses of information and technology. | | | |
| Engage in independent thinking, develop their own voice and vision, and become informed, responsible citizens | | | |
| Improve their understanding of issues and behaviors concerning inclusion, community and tolerance | | | |
| Increase their awareness of ethical implications of their own and others' actions | | | |

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24 April 2010 (approved by the University Requirements Curriculum Committee)

17 May 2010 (approved by the Educational Policies Council)

13 September 2010 (approved by the Faculty Senate)

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|---|---|--|---|
| Integrate their major studies into the broader context of a liberal education | | | |
| Strengthen quantitative reasoning skills | <ul style="list-style-type: none"> • Distinguish between situations that can be modeled by linear or exponential functions. • Interpret functions that arise in applications in terms of the context. Determine a reasonable applied domain for the model as well as articulate the limitations of the model • Convert between different representations of functions, Perform operations with functions including addition, subtraction, multiplication, division, composition, and inversion. • Interpret the parameters in an exponential function in terms of a context. • For exponential functions use properties of logarithms to express the solution. | Homework assignments; Performance on in-class activities; Quizzes and exams; Common set of 10 – 15 questions administered as part of the final exam assessing student mastery of key concepts. | <p>Overall student grades will be monitored to track student performance in the course. We will report percentages of students mastering course material in general, i.e. the overall percentage of students scoring 73% or higher on the exam. In addition, we will report mastery of individual learning outcomes based on final exam items.</p> <p>We will use the final exam to assess strengths and weakness in our students and analyze causes of the weakness and adjust course materials, delivery, or assignments as deemed appropriate.</p> |

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|--|--|--|---|
| Understand basic concepts of the academic discipline | <ul style="list-style-type: none"> • Create linear models from data and interpret slope as rate of change. Understand the connections between proportional relationships, lines, and linear equations. • Interpret the parameters in a linear function in terms of a context • Use correct consistent, and coherent notation throughout the solution process to a given equation or inequality. • Solve systems of equations using graphical, substitution or elimination methods. • Recognize when a result is applicable and use the result to make sound logical conclusions, provide counter-examples to conjectures • Anticipate the output from a graphing utility and make adjustments, as needed, in order to efficiently use the technology to solve a problem. • Use technology to verify solutions to equations and inequalities which are difficult to obtain algebraically and know the difference between approximate and exact solutions. • Distinguish between exact and approximate solutions and which methods results in which kind of solutions. | Homework assignments; Performance on in-class activities; Quizzes and exams; Common set of 10 – 15 questions administered as part of the final exam assessing student mastery of key concepts. | <p>Overall student grades will be monitored to track student performance in the course. We will report percentages of students mastering course material in general, i.e. the overall percentage of students scoring 73% or higher on the exam. In addition, we will report mastery of individual learning outcomes based on final exam items.</p> <p>We will use the final exam to assess strengths and weakness in our students and analyze causes of the weakness and adjust course materials, delivery, or assignments as deemed appropriate.</p> |

ASSURANCES:

By submitting this proposal, we assure that:

1. The faculty members who teach this course have agreed to the learning outcomes and assessment methods.
2. Assessment results will be reviewed annually by the faculty and submitted to the University Requirements Curriculum Committee.
3. Modifications to the course and/or assessment plan will be based on the annual review.