

Kent Core Learning Outcomes Assessment Plan

Course number, title (credit hours): **MATH 11008 Explorations in Mathematics (3)**

Department/School: Mathematical Sciences

Proposed Kent Core Category: (please check appropriate box)

<input type="checkbox"/> Composition	<input type="checkbox"/> Humanities and Fine Arts	<input type="checkbox"/> Social Sciences
<input checked="" type="checkbox"/> Mathematics and Critical Reasoning	<input type="checkbox"/> Humanities	<input type="checkbox"/> Basic Sciences
	<input type="checkbox"/> Fine Arts	<input type="checkbox"/> Additional

A sample syllabus must accompany the plan.

I. Kent Core learning objectives	II. Ohio Transfer Module 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?
Strengthen quantitative reasoning skills		Demonstrate procedural fluency with basic quantitative methods to solve routine problems in discrete linear change (e.g., arithmetic sequences or simple interest) discrete exponential change (e.g., geometric sequences or compound interest), summarizing and analyzing data (e.g., box-plots, graphs, and the normal distribution), counting (e.g., basic probability calculations or counting the number of edges in a complete graph), or ratios and similarity.	<p>A population undergoing exponential (geometric) growth will take the same amount of time to grow from 3 million to 6 million as from 6 million to ____.</p> <p>If the price of an item is increased by 20% and then the new price is decreased by 20% will the final price be more, less, or the same as the original price? Explain.</p>	

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Understand basic concepts of the academic discipline		Understand key concepts (such as the concept of a fairness criterion in voting theory) in two or more areas of mathematics applicable to contemporary life (such as the area of voting theory) as demonstrated by, for example, responses to unrehearsed conceptual questions or solutions to previously un-encountered problems.	Define in your own words a) the Method of Pairwise Comparisons and b) the Condorcet Criterion and then c) explain why the Method of Pairwise Comparisons satisfies the Condorcet Criterion.	

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<p>Acquire critical thinking and problem solving skills</p> <p>Apply principles of effective written and oral communication</p> <p>Broaden their imagination and develop their creativity</p> <p>Develop competencies and values vital to responsible uses of information and technology</p> <p>Engage in independent thinking, develop their own voice and vision, and become informed, responsible citizens</p> <p>Integrate their major studies into the broader context of a liberal education</p> <p>Strengthen quantitative reasoning skills</p> <p>Understand basic concepts of the academic discipline</p>		<p>Create and critique written mathematical arguments or counterexamples supporting or refuting propositions regarding social choice theory, graph theory, growth (or decay), symmetry, probability, or statistics.</p> <p>Demonstrate, by means of a written log of attempts and ideas, persistence in trying to solve problems, awareness of thinking (metacognition), application of general problem-solving principles, and creativity in developing solution strategies.</p> <p>Critically and habitually assess the reasonableness of proposed solutions of problems by means of common-sense reasoning, "sanity" checks, alternate solution methods, comparison of units of measure, or other techniques that combine knowledge of mathematics with knowledge of an application domain or model.</p>	<p>Students work in groups then write about their progress individually on the following problem: "Is it possible to arrange the numbers 1 through 5 in a string (sequence) so that every number from 1 to 15 is the sum of a substring (numbers that are next to each other in the same order in the string)? (For example, '35124' is a string that has '512' as a substring whose sum is 8 ($5+1+2 = 8$) but '52' is not a substring of '35124' because 5 and 2 are not next to each other in '35124' and '42' is not a substring because the order is not the same.)"</p> <p>A weather forecasting site gives the chance of precipitation for each day in its weekly forecast. It also gives a more detailed forecast in which the chance of precipitation is given for the morning, daytime, and night of each day. For each of the following forecasts, decide whether the detailed forecast is consistent with the whole-day forecast according to the laws of probability and give a short</p>	
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			argument to support your position. (All percentages are rounded to the nearest 10%.) a) Friday: 30% chance of rain; Friday morning: 10%, daytime: 10%, night: 10% b) Saturday: 30% chance of rain; morning: 30%, daytime 30%, night: 30%.	

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.

Department Chair/School Director (or designee) Signature

Date