

Course Submission Form

Instructions: All courses submitted for the Common Core must be liberal arts courses. Courses submitted to the Course Review Committee may be submitted for only one area of the Common Core and must be 3credits/3contact hours. Colleges may submit courses to the Course Review Committee before or after they receive college approval. STEM waiver courses do not need to be approved by the Course Review Committee. This form should not be used for STEM waiver courses.

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Current Status Approved	Course Selected: Subject MATH (MATH - Mathematics) Catalog Nbr 128	

Course Revision & College	
Form Submission Revised Submission	College Queens College
Please describe revisions that have been made to this course The syllabus and submission form have been revised with more detail to align assessment with the Pathways SLOs as requested by the CCRC. Please note that the file "MATH_128_Syllabus.docx" is retained for comparison with the new file "MATH_128_Syllabus_v2.docx".	

Course Data		
Course ID 150732	Subject MATH (MATH - Mathematics)	Catalog Nbr 128
Catalog Status Pending	Contact Hours 3	No. of Credits 3
CourseTitle Mathematical Design		
Course Description Students will program computers to create digital art based on mathematical exploration of two-dimensional geometry. Topics include transformations of the plane, trigonometric functions, polar coordinates, parametric functions, and Mobius transformations. No prior experience in programming is necessary.		
Department Mathematics		
Pre-Requisites/Co-Requisites		

Course Syllabus [Attachment Filename(s)]
MATH_128_Syllabus.docx
MATH_128_Syllabus_v2.docx

Location(Required or Flexible) and Learning Outcomes
REQUIRED FLEXIBLE

<p>English Composition</p> <p><input checked="" type="checkbox"/> Math & Quantitative Reasoning</p> <p>Life and Physical Sciences</p>	<p>World Cultures & Global Issues</p> <p>US Experience in its Diversity</p> <p>Creative Expression</p> <p>Individual and Society</p> <p>Scientific World</p>
Learning Outcomes: Questions	Learning Outcomes: Responses
<p>* 1. Interpret and draw appropriate inferences from quantitative representations, such as formulas, graphs, or tables.</p>	<p>Throughout the semester students will have the opportunity to show mastery of the learning objectives through daily informal assessments, formal summative assessments every two weeks, and projects created during the semester culminating in a portfolio of student work.</p> <p>Students will be learning, interpreting, and drawing inferences from functions on graphs, (trigonometric, polar, parametric). They will be tested on their understanding of this learning objective through the summative assessments that occur every two weeks. Furthermore, their understanding of these ideas will be the basis for the students' projects and portfolio of student work.</p>
<p>* 2. Use algebraic, numerical, graphical, or statistical methods to draw accurate conclusions and solve mathematical problems.</p>	<p>Throughout the semester students will have the opportunity to show mastery of the learning objectives through daily informal assessments, formal summative assessments every two weeks, and projects created during the semester culminating in a portfolio of student work.</p> <p>Students will be expected to learn the appropriate function notation and apply this knowledge to design their own functions that match their aesthetic vision. The particular algebraic, numerical, and graphical methods that the students use will be assessed by having the students write about design criteria in paragraphs as part of their project deliverables.</p>
<p>* 3. Represent quantitative problems expressed in natural language in a suitable mathematical format.</p>	<p>Throughout the semester students will have the opportunity to show mastery of the learning objectives through daily informal assessments, formal summative assessments every two weeks, and projects created during the semester culminating in a portfolio of student work.</p> <p>The projects in this class require students to take an abstract idea (such as the creation of a pen plotter drawing of a family of related functions) and express their ideas using suitable mathematical language in order to create their work. These mathematical functions will need to be inputted into software to complete the visualization.</p>

<p>* 4. Effectively communicate quantitative analysis or solutions to mathematical problems in written or oral form.</p>	<p>Throughout the semester students will have the opportunity to show mastery of the learning objectives through daily informal assessments, formal summative assessments every two weeks, and projects created during the semester culminating in a portfolio of student work. The course projects involve students explaining their choices and solutions in written form once they have achieved their desired output. As part of the projects there will be a peer review component where students will communicate their solutions orally and in writing. Furthermore, the culminating portfolio will also include an oral presentation where students will coherently discuss the mathematics underlying their creations.</p>
<p>* 5. Evaluate solutions to problems for reasonableness using a variety of means, including informed estimation.</p>	<p>Throughout the semester students will have the opportunity to show mastery of the learning objectives through daily informal assessments, formal summative assessments every two weeks, and projects created during the semester culminating in a portfolio of student work. During the design process involved in the projects the students will be creating, the students will use informed estimation and trial-and-error. They must describe this process in the accompanying writeups that they submit and the completeness of the description of their decisions will make up part of their project grade.</p>
<p>* 6. Apply mathematical methods to problems in other fields of study.</p>	<p>Throughout the semester students will have the opportunity to show mastery of the learning objectives through daily informal assessments, formal summative assessments every two weeks, and projects created during the semester culminating in a portfolio of student work. This entire curriculum revolves around developing and applying mathematical methods to the study of art. Their project grade will depend on their being able to use the concepts and methods of art and math in an interdisciplinary way.</p>
<p>A. If there is a change to the course title, what is the new course title?</p>	
<p>B. If there is a change to the course description, what is the new course description?</p>	
<p>C. If there is a change to the pre-requisites and/or co-requisites, what are the new pre-requisites and/or co-requisites?</p>	

<p>Chair (Approver) Comments</p>
<p>Comments The committee voted to approve the course.</p>

