

Request for Proposals #1: Mathematics Pathways Course Development Grants



Issue Date: March 29, 2023

Proposal Due Date: April 28, 2023

Opportunity

The Florida Student Success Center (FSSC) is announcing a new grant opportunity for Florida College System (FCS) and State University System (SUS) faculty members to develop open master course shells that may be used for the instruction of gateway mathematics courses across the state of Florida.

We are primarily looking to fund the development of master course shells for two new courses: MGF X130 Mathematical Thinking and MGF X131 Mathematics in Context. Proposals for new courses will be funded at \$5,000.

We will also accept proposals from applicants who are looking for funding to create master course shells for existing courses: MAC X105 College Algebra and MAC X311 Calculus I, and STA X023 Introductory Statistics I. Proposals for existing courses will be funded at \$3,000.

Funds are intended to compensate instructor time for course development; no budget proposal is required. Priority will be given to group proposals where faculty members from more than one institution are represented, though individual proposals and group proposals with faculty from a single institution will be accepted. Grantees chosen will be required to work with a designated instructional designer selected by FSSC through a complementary RFP Mathematics Pathways Instructional Design Grants.

Background

To facilitate seamless transfer of credits, reduce excess credit hours, and ensure students take the courses needed for their future careers, section 1007.23(3), Florida Statutes, requires the statewide articulation agreement to establish three mathematics pathways for students by aligning mathematics courses to programs, meta-majors, and careers.

Public postsecondary institutions in Florida are required to align associate and baccalaureate degree program requirements to one of the three mathematics pathways identified on the Mathematics Pathways List. Students entering a Florida College System (FCS) institution or state university in the 2024-25 academic year and thereafter must be advised of the mathematics pathways that align with their intended academic and career pathways, including the gateway course associated with that pathway and any subsequent mathematics coursework.

A cross-sector committee of faculty members from career centers and FCS and State University System (SUS) institutions collaborated to identify the three mathematics pathways and associated learning outcomes and gateway courses.

Mathematics Pathways List

Algebra through Calculus Pathway

Gateway Course(s): MAC X105 College Algebra and MAC X311 Calculus I.

Students in the Algebra through Calculus pathway must be advised to enroll in coursework that includes the following student learning outcomes.

- Demonstrate the knowledge of various algebraic relationships and their application.

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- Employ computational techniques to mathematical problem solving.
- Execute appropriate mathematical modeling techniques for solving application problems and interpret results of solutions.
- Develop graphical models using algebraic and problem-solving techniques.
- Articulate a working knowledge of various functions and their application, as appropriate.

Statistical Reasoning

Gateway Course(s): STA X023 Introductory Statistics I.

Students in the Statistical Reasoning pathway must be advised to enroll in coursework that includes the following student learning outcomes.

- Analyze data using graphical and numerical methods to study patterns and departures from patterns, using appropriate technology as needed.
- Critically evaluate a data-collection plan to answer a given research question.
- Use probability concepts and simulation.
- Use statistical models to draw conclusions from data.
- Perform correlation and regression analyses.
- Apply statistical reasoning and data analysis to real-world or major-specific examples.

Mathematical Thinking in Context

Gateway Course(s): MGF X130 Mathematical Thinking and MGF X131 Mathematics in Context.

Students in the Mathematical Thinking in Context pathway must be advised to enroll in coursework that includes the following student learning outcomes.

- Determine efficient means of solving a problem through investigation of multiple mathematical models.
- Apply logic in contextual situations to formulate and determine the validity of logical statements using a variety of methods.
- Apply mathematical concepts visually and contextually to represent, interpret and reason about geometric figures.
- Apply mathematical models to civically contextual situations (e.g., stocks, finance, voting, population dynamics, etc.).
- Recognize the characteristics of numbers and utilize numbers along with their operations appropriately in context.
- Organize, visualize and model data in a meaningful way.
- Analyze and interpret representations of data to draw reasonable conclusions.
- Engage in ways of thinking that may involve sample size, counting strategies, chance, ratios and proportions.

Currently, all 28 FCS institutions and 12 state universities offer MAC X105 College Algebra, MAC X311 Calculus I, and STA X023 Introductory Statistics I. We anticipate that all institutions will begin to offer MGF X130 Mathematical Thinking and MGF X131 Mathematics in Context soon. These latter courses were added to the Statewide Course Numbering System (SCNS) in Spring 2023, for any institution to use in anticipation of the new rule language (Rule 6A-10.024, Articulation Between and Among Universities, Florida Colleges, and School Districts; Rule 6A-10.030, Other Assessment Procedures for College-Level Communication and Computation Skills; and Rule 6A-14.0303, General Education Core Course Options) effective for 2024-25. While the SCNS identifies common learning outcomes associated with each course, institutions and faculty have

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discretion over institution-specific learning outcomes, course curriculum, textbooks and instructional materials, delivery of courses, and assessment of students. For institutions and faculty members who opt to utilize a statewide, no-cost resource for instructional delivery, the Florida Student Success Center is providing grant opportunities for gateway mathematics course development.

Eligibility

All full-time instructors teaching gateway mathematics courses in the FCS or SUS are eligible to apply for course development grants. Faculty may be tenured, tenure-track, or non-tenure-track. Faculty must meet credentialing requirements of the institutional accreditor and have approval of their supervisor to participate. A slight preference will be given to faculty members who served on the statewide mathematics council.

We welcome joint applications from pairs or larger groups of faculty members who would like to work together on developing a course. If you are submitting a joint application, please designate a primary contact.

Timeline and Deliverables

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| April 2023 | <ul style="list-style-type: none">• Contracts executed |
| May – July 2023 | <ul style="list-style-type: none">• Complete master course shell<ul style="list-style-type: none">○ Be prepared to publicly share any course materials developed through this grant under a Creative Commons license○ Use only grantee-authored, Creative Commons licensed, or public domain works when selecting instructional materials○ Include syllabi outline, course instructional materials, activities, assessments• Revise course shell based on faculty and instructional design input |
| August - December 2023 | <ul style="list-style-type: none">• Use the selected or created material |
| January 2024 | <ul style="list-style-type: none">• Evaluate the impact on student learning at the end of the course |

Submission Requirements

The following information must be included in your proposal (should be submitted in one document):

- Applicant name(s), institutional affiliation(s), email address(es), phone number(s), and cv.
 - If a group proposal, identify the lead applicant.
- Two (2) page maximum executive summary of applicant plan for course development, which must minimally include:
 - Course name, number, and semester of planned first implementation.
 - How the deliverables will be met.
 - How feedback from instructional designers and other disciplines will be incorporated into course design.
- Two (2) page maximum summary of applicant qualifications, which must minimally include:
 - The applicants' history of developing courses and utilizing OER.
 - The applicants' activities pertaining to teaching improvement such as participation in teaching-related workshops and conferences.
 - The applicants' record of incorporating new pedagogical techniques or updating topical coverage in courses.

Submit proposals via: <https://www.research.net/r/mathcoursefp1>

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Grant Milestones

Grantee(s) will submit a progress report by June 30, 2023, detailing progress toward meeting course development goals and a description of course development activities. Grantee(s) will work with a designated instructional designer to finalize the open master course shell, which should be available for public usage by Spring 2024 at the latest. The grantee will evaluate the open master course shells in January 2024.

Scoring Criteria

Applicant(s): _____

Scorekeeper: _____

Total Points: _____

Maximum Possible Points: 100

| Category and Description | Scored Points | Notes |
|--|---------------|-------|
| Proposal adequately addresses Florida Student Success Center goals. Maximum 10 points. | | |
| Proposal clearly outlines a plan for course development and includes course name, number, semester of planned first implementation, and how the deliverables will be met. Maximum 20 points. | | |
| Proposal includes a timeline for developing syllabi outline, course instructional materials, activities, and assessments. Maximum 15 points. | | |
| Proposal clearly defines a summary of applicant qualifications including history of developing courses and utilizing OER, activities pertaining to teaching improvement, and applicants' record of incorporating new pedagogical techniques or updating topical coverage in courses. Maximum 20 points. | | |
| Proposal clearly describes how the completed master course shell will be used and evaluated. Maximum 15 points. | | |
| Additional points awarded for joint applications from pairs or larger groups of faculty members who would like to work together | | |

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| on developing a course. Maximum 5 points. | | |
| Additional points awarded for proposals that include the development of master course shells for two new courses: MGF X130 Mathematical Thinking and MGF X131 Mathematics in Context. Maximum 10 points. | | |
| Additional points awarded for proposals submitted by faculty member(s) who served on the statewide mathematics council. Maximum 5 points. | | |