

# UNIVERSITY OF LOUISIANA AT LAFAYETTE

## STEP Committee Technology Fee Application

### SMART Classrooms to Support Mathematical Sciences (MTHS) Courses

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Title

**Dr. James Kimball**

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Submitter

**Department of Mathematics**

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Organization

Title: SMART Classrooms to Support Mathematical Sciences Courses Date: 06-23-2023  
Name (Contact Person): Dr. James Kimball  
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Department/College/Org: Department of Mathematics/College of Sciences

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## **ABSTRACT:**

The Department of Mathematics is requesting support to install and upgrade multimedia in 4 classrooms in Maxim Doucet Hall to enhance, improve, and expand our co-requisite courses. Recent policies from the Louisiana Board of Regents have required the Department of Mathematics to expand its co-requisite course offerings. Consequently, the department created the Mathematical Sciences prefix (MTHS) to accommodate co-requisite version of MATH 102 (Contemporary Mathematics), MATH 105 (Applied College Algebra), and MATH 109 (Precalculus Algebra). The Department of Mathematics must upgrade several rooms in Maxim D. Doucet Hall to be able to provide the technology and faculty support necessary to appropriately deliver the co-requisite content in these courses. Co-requisite courses require significantly more multimedia content to be delivered in an environment that is active and adaptive.

## **A. Purpose of grant and impact to student body as a whole**

This grant will provide media capabilities in Maxim Doucet (MDD) 306, 307, and 312 and will upgrade the decade old media in MDD 311. Maxim Doucet Hall rooms 306, 307, and 312 currently have chalk boards and no media capabilities, and MDD 311 has media that is over a decade old. In addition to the projection equipment, we are requesting adjustable rolling laptop stands for the rooms dedicated to co-requisite delivery and without a podium. Multimedia capability is necessary for co-requisite delivery in mathematics and statistics, especially in critically important gateway courses. Co-requisite courses require significantly more multimedia content to be delivered in an environment that is interactive and adaptive. Co-requisite classes are more interactive because students interact with each other and with the content being delivered at the front of the room. Activities include interactive graphs and tables, free response questions, and group activities. Co-requisite classes are more adaptive because the faculty must quickly and easily shift from course content to co-requisite content as the need arises. Instructors and Teaching Assistants in our Mathematical Sciences courses must recognize when their students need prerequisite help and shift the class in that direction. Additionally, improved technology allows our instructors to assist students with necessary learning behavior changes such as self-efficacy, avoidance practices, and learned helplessness in mathematics while the students are in the classroom. Overall, the experience is better for our first-time freshmen, and the improvement in pass rates seems to support these efforts and changes. Improvements in the co-requisite curriculum made in Fall 2022 showed an increase in first-time freshmen pass rates by almost 10%. All those courses were taught in classrooms with media capability.

The new courses created for Fall 2023 are MTHS 102&102S, MTHS 105&105S, and MTHS 109&109S. These courses represent the primary first-time freshman gateway courses for both STEM and non-STEM majors at the University. Together, nearly 1,000 students enrolled in our current co-requisite courses in Fall 2022. With the addition of co-requisite courses for Math 102 and Math 109, we expect the number of impacted students to reach nearly 1,400. Each course constitutes 6 credit hours of content delivery, which reduces the number of sections being taught in a single classroom in Maxim Doucet. Since very few departments also teach co-requisite courses, it is becoming increasingly difficult to find other rooms on campus that are available at the same time Monday through Friday.

The Department of Mathematics at UL Lafayette has been a leader within the state of Louisiana regarding our innovation and implementation of co-requisite delivery in mathematics courses. Classrooms with only chalk boards or a projector and a pull-down screen are simply not adequate for our students, especially in a co-requisite style course.

## **B. Projected lifetime of enhancement:**

The required infrastructure and projectors are expected to last 5 to 10 years into the future, depending on the advancement of the current technology.

## **C. Persons responsible:**

- i. Implementation:** Dr. James Kimball, Mrs. Glenda Evans-Broussard, Dr. Jared Guilbeau
- ii. Installation:** GoMedia, Dr. James Kimball, Mrs. Glenda Evans-Broussard, Dr. Jared Guilbeau
- iii. Maintenance:** Dr. Jared Guilbeau, Mrs. Glenda Evans-Broussard
- iv. Operation:** Faculty/Graduate Teaching Assistants in the Department of Mathematics
- v. Training:** No training is required

## **D. STEP Plan Alignment:**

This grant fulfills the following Service Level Objectives/Expectations found in the current STEP Plan

1) SLO-3 – Create, deploy, and maintain effective learning environments that facilitate multiple instructional and learning styles.

2) SLO-7 – Ensure that laboratories, smart classrooms, and infrastructure funded by STEP can be maintained and continue to provide satisfactory service to students.

## Budget Proposal

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1.	Equipment:	1 – Podium (MDD 311)	\$ 2,100
		1 - Projector and equipment upgrade (MDD 311)	\$ 5,600
		3 – New projector and equipment (MDD 306, 307, 312) (\$4,000 per room)	\$12,000
		8 – Projection/Writing Board (\$1,500 per board)	\$12,000
		8 – Adjustable rolling laptop desks (\$200 per desk)	\$ 1,600
2.	Software:	no additional software needed	\$ 0
3.	Supplies:	No additional supplies are needed	\$ 0
4.	Maintenance:	None anticipated	\$ 0
5.	Personnel:	None	\$ 0
6.	Other, Installation Labor:		
		3 - Additional electrical and network drops (\$800 per room)	\$ 2,400
		4 – Equipment Installation (\$600 per room)	\$ 2,400

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**TOTAL:** **\$38,100**

**TOTAL STEP REQUEST:** **\$38,100**