

UNIVERSITY OF LOUISIANA  
AT LAFAYETTE

STEP COMMITTEE

Technology Fee Application

Maker-centered Learning Collaborative Classroom (MCL  
Collaborative Classroom)

**Title**

Douglas Williams, Aimee Barber

**Name (Submitter)**

College of Education

**Organization**

## ABSTRACT PAGE

**Title:** Maker-centered Learning Collaborative Classroom (MCL Classroom), MDD 304

**Date:** January 14, 2019

**Name (Contact Persons):** Douglas Williams

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**Dept/College:** Department of Curriculum and Instruction, College of Education

### Abstract

Makerspaces, innovation labs, and creativity spaces are gaining traction in K-12 schools and community centers. The goal of this request is to enhance the preparation of pre-service education majors (early childhood, elementary, middle, and secondary) through an enhanced maker-centered learning collaborative classroom (MCL Collaborative Classroom), Maxim Doucet Hall 304.

Maker-centered learning, an infusing of many of the practices and ethos of the maker movement into education, provides a framework for developing in teachers and students the mindsets, habits of mind, and process of innovative that are foundational in all fields of study.

The proposed classroom enhancements, in Maxim Doucet Room 304, will facilitate pre-service teacher development in teaching language arts, science, mathematics, engineering design, and social studies through maker-centered learning and design thinking.

# Hands-on Science Technology

## A. Purpose of Grant

Both the College of Education and the University's mission emphasize the development of **leaders** and **innovators** who advance knowledge and improve the **human condition**. In the context of teacher preparation, we seek to develop teacher leaders who view themselves as innovators and value the development of habits of mind that will lead to success in school and in life. These habits of mind include curiosity, creativity, collaboration, looking closely, intellectual openness, courage to act, communication, and resilience.

Maker-centered learning, an infusing of many of the practices and ethos of the maker movement into education, provides a framework for developing in teachers and students the mindsets, habits of mind, and process of innovative that are foundational in all fields of study.

IRED 320, a required technology integration class that has approximately **200 education majors each year**, is taught in Maxim Doucet 304. Though this classroom has been used for courses teaching technology integration, educational robotics, educational engineering, computational thinking, coding, **it is lacking** in surfaces for making and building, organized storage for materials, sufficient writing surfaces, essential for expanding the lab's usefulness for education majors and boosting outreach activities (e.g., evening and weekend maker events). This grant will enable more efficient and expanded use of this space for pre-service teacher methods classes, hands-on field experiences, and STEM outreach. This project will transform this space to be more: **flexible** , **collaborative** and **resourced**.

The resources requested were selected to meet these goals of a space that is: flexible (through movable work surfaces to meet a variety of classroom configurations), collaborative (through dry erase boards; work surfaces that facilitate collaboration; six wall mounted TVs and AppleTV to facilitate screen sharing), and resourced (tools for prototyping, making and building; shelving and containers for storing resources).



The **movable maker work surfaces** include *Smith Elemental Activity Table on wheels*, *Volt Swivel Chairs*, and folding tables. These movable work surfaces will allow students and faculty to reconfigure this space to support a variety of group and maker activities.



To support **deeper collaboration**, we request 6 Samsung 40" Flat Screen TVs and AppleTV to form collaborative clusters around the perimeter of the room. To be placed on each side

of each TV, we request Quartet Glass Dry Erase Board, Magnetic, 4' x 3'. These whiteboards and TVs will form collaborative clusters around the perimeter of the room. An additional 4 Quartet Glass Dry Erase Board, Magnetic, 6' x 4' are request to cover the remainder of the open wall space in the room.

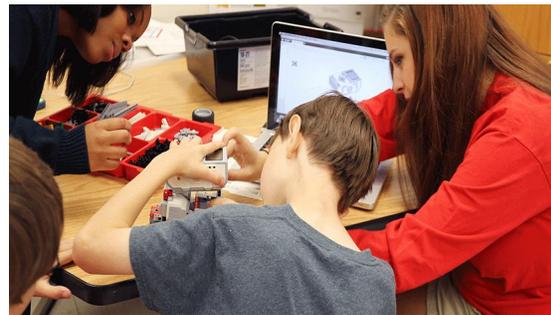
Finally, we request **tools for making, prototyping, and building** and storage designed to support maker-centered learning classrooms such as the Ruckus Dual-Sided Unit for Storage- 54"W x 36"H.



### **B. Impact on Student Body**

This proposal will impact approximately **all education majors**, approximately 200 each year.

Additionally, each year approximately **500 K-12 children** have opportunities to work with our education majors using the equipment. Some of the humanoid robots will be used in demonstrations for the younger children.



### **C. The Projected Lifetime Of Enhancement**

We expect this project to benefit students for at least the next three years.

### **C. Person(s) Responsible for Project**

- a. Implementation: Douglas Williams
- b. Installation: Doug Williams
- c. Maintenance: Doug Williams
- d. Operation: Aimee Barber, Douglas Williams
- e. Training: Aimee Barber, Douglas Williams

### **E. Qualifications:**

**Aimee Barber** is a former first grade teacher with a master's degree in Education of the Gifted and a bachelor's degree in Elementary Education. She is an instructor of Technology in the Classroom and Science for Elementary School where she works with pre-service teachers to bring innovative technologies into K-5 classrooms.

**Dr. Douglas Williams** has a doctoral degree in educational technology with an emphasis on educational multimedia. He has over 15 years of experience in the computer industry as a programmer, network administrator, and website designer. Douglas is an Professor in the College of Education.

## Budget Category Descriptions

<b>Work Surfaces and Seating for Building and Making</b>	<b>Cost</b>	<b>Qty</b>	<b>Total</b>
<b>Purpose:</b> Supports making, building and collaboration. Also facilitates flexible groupings and configuration of the classroom.			
Folding Tables	\$100	3	\$300
Elemental Activity Table- 30" X 60"	\$360	12	\$4,320
Volt 5720 Swivel Chair	\$120	24	\$2,880
<b>Total for Work Surfaces and Seating</b>			<b>\$7,500</b>
<b>Audio Visual for Collaboration</b>	<b>Cost</b>	<b>Qty</b>	<b>Total</b>
<b>Purpose:</b> TVs will be mounted on wall to support 6 collaborative groups. Supports collaboration by allowing sharing of screens from tablet or laptop to screen.			
Samsung 40" Flat Screen TV	425	6	\$2,550
TV Wallmount	50	6	\$300
AppleTV	180	6	\$1,080
<b>Total for Audio Visual</b>			<b>\$3,930</b>
<b>Dry Erase Boards for Collaboration</b>	<b>Cost</b>	<b>Qty</b>	<b>Total</b>
<b>Purpose:</b> Supports collaboration and visible thinking routines from maker-centered learning and design thinking.			
Quartet Glass Dry Erase Board, Magnetic, 6' x 4'	\$400	4	\$1,600
Quartet Glass Dry Erase Board, Magnetic, 4' x 3'	\$150	6	\$900
<b>Total for Dry Erase Boards</b>			<b>\$2,500</b>
<b>Tools for Making, Prototyping, Building</b>	<b>Cost</b>	<b>Qty</b>	<b>Total</b>
<b>Purpose:</b> Tools and resources for making, tinkering, building, and prototyping.			
BLACK+DECKER LDX120PK 20-Volt Lithium-Ion Drill	\$100	2	\$200
Cartman 69 Piece Tool Set	\$40	2	\$80
Gerber EAB Lite Utility Knife	\$10	10	\$100
Glue Gun	\$40	10	\$400
<b>Total for Tools for Making</b>			<b>\$780</b>

<b>Storage for Prototyping Materials and Tools</b>	<b>Cost</b>	<b>Qty</b>	<b>Total</b>
<b>Purpose:</b> Shelving and storage for storing making, prototyping, and inventing materials and tools to support maker-centered learning and design thinking.			
Chrome Wire Shelving, 48 (w) x 24 (d) x 96" (h)	\$227	6	\$1,362
Clear Storage Containers, 18 (L) x 12 (2) x 7" (h)	\$42	20	\$840
Ruckus Dual-Sided Unit for Storage- 54"W x 36"H	\$1,300	4	<b>\$5,200</b>
<b>Total for Storage</b>			<b>\$7,402</b>
<b>Project Total</b>			<b>\$22,112</b>

## Budget Proposal

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Length of Implementation	1	2	3
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(in years)			
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1. Equipment	22,112		
2. Software	0		
3. Supplies	0		
4. Maintenance	0		
5. Personnel	0		
6. Others	0		
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<b>TOTAL:</b>	<b>\$22,112</b>		

## **Timeline**

### **Year 1:**

Order and install hardware.

### **Previously Funded STEP Grants**

Williams and Barber had a STEP Proposal funded in the Fall 2018 cycle to expand replace aging robotics equipment for use by elementary majors.

Mr. David Lynch and Mrs. Louise Prejean had a STEP proposal funded during 2010 to provide software for the department computer lab.

Dr. Doug Williams, Mrs. Louise Prejean, Dr. Yuxin Ma, and Dr. Mary Jane Ford, had a STEP proposal funded during 2006 to provide software for a pedagogical laboratory for pre-service teachers.

Mrs. Louise Prejean, Dr. Yuxin Ma, Dr. Doug Williams, and Dr. Mary Jane Ford, had a STEP proposal funded during 2006 to provide hardware and software for an educational technology course.

Mrs. Louise Prejean, Dr. Mary Jane Ford, and Dr. Doug Williams had a STEP proposal funded during 2005 to provide software for the student computers in the undergraduate computer lab in the College of Education.

Dr. Sally Dobyns, Dr. Doug Williams, and Mrs. Louise Prejean had a STEP proposal funded during 2005 to provide EduCaching equipment for undergraduate and graduate classes.

Dr. Gail Dack, Dr. Ford, Dr. Doug Williams and Mrs. Louise Prejean had a STEP proposal funded during 2005 to provide video equipment for the student computers in the undergraduate and graduate computer labs in the College of Education.

Mrs. Louise Prejean, Dr. Mary Jane Ford, and Dr. Doug Williams had a STEP proposal funded during 2004 to provide robotics software and hardware for the student computers in the undergraduate computer lab in the College of Education.

Dr. Doug Williams, Mrs. Louise Prejean, and Dr. Mary Jane Ford, had a STEP proposal funded during 2004 to upgrade software in the undergraduate computer lab in the College of Education.

Dr. Mary Jane Ford, Dr. Doug Williams, and Dr. Susan Lyman had a STEP proposal funded during 2000 to upgrade the student computers in the undergraduate computer lab in the College of Education. The server was not upgraded as part of this grant.

Dr. Doug Williams, Dr. Mary Jane Ford, and Dr. Susan Lyman had a STEP proposal funded during the 2000-2001 funding cycle to install equipment and software in the College of Education Materials Center.

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