

## EM in Research 101 Package

As part of a project to boost the productivity of undergraduate research programs at universities a series of videos and activities were created to expose students to research concepts and opportunities early in their academic careers. These are organized into five modules that can be adapted and used in a variety of freshmen and sophomore level courses. The main outcomes for students will be that they walk away with 1) basic facts about research and research experiences, 2) an understanding of what is called an “Entrepreneurial Mindset” focused on curiosity, connections, and creating value, and 3) a lower barrier of entry for those contemplating opportunities to engage in research. At the end of any course which implements these modules we also have a brief survey to be deployed at the end of the term. Faculty who implement these modules and deploy the accompanying survey in a freshman or sophomore level course will receive a stipend for their participation in this project.

The five modules are organized by video and include the following:

- 1) What is Research?
  - a) “What is Research” Video
  - b) “Minute Paper - Research Reflection” Handout
  - c) “Minute Paper - Research Reflection” Instructor Guide
  - d) “Researcher Interview” Handout
  - e) “Researcher Interview” Instructor Guide
- 2) Why Should I Do Research?
  - a) “Why Should I Do Research?” Video
  - b) “Why Do Research Reflection Activity” Handout
  - c) “Why Do Research Reflection Activity” Instructor Guide
- 3) What Is The Entrepreneurial Mindset?
  - a) “What Is The Entrepreneurial Mindset?” Video
  - b) “Exploring Opportunities” Handout
  - c) “Exploring Opportunities” Instructor Guide
  - d) “Technology in Daily Life” Handout
  - e) “Technology in Daily Life” Instructor Guide
- 4) How Does Research Get Done?
  - a) “How Does Research Get Done?” Video
  - b) “Find a Grant Program” Handout
  - c) “Find a Grant Program” Instructor Guide
- 5) How Can I Get Involved In Research?
  - a) “How Can I Get Involved In Research?” Video
  - b) “Research Opportunity Bingo” Handout
  - c) “Research Opportunity Bingo” Instructor Guide

### Why EM? Why Research?

An Entrepreneurial Mindset is characterized by the 3 C's of Curiosity, Connections, and Creating Value. When students combine an entrepreneurial mindset with their engineering skills they are able to see opportunities around them and bring their ideas to fruition. We want our students to make an impact on the world wherever they apply themselves. Undergraduate research experiences are one of the many opportunities available to our students in their academic pursuits and there is much evidence that students who engage with research make significant gains on a variety of metrics. One of our objectives is to infuse EM within a research context in order for students to be aware of opportunities to engage in research and make the most of those research experiences.

### Tips and Tricks for Implementation

- Familiarize yourself with the content and scope of these modules by watching the "EM in Research 101" playlist of videos.
- Identify themes (or existing projects) that are taught in your course that naturally compliment engineering research or emerging technologies.
- Identify course objectives (e.g., from course catalog or syllabus) that align with research and/or EM.
- Read through Instructor Guides for other module-specific tips and tricks.