



# Project Leadership: Evidence-Based Leadership Skills to Increase Self-Efficacy in Laboratory Courses and Diversity in Future Leaders

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The mission of Project Leadership is to teach leadership and teamwork skills to empower a diverse range of students to become inclusive STEM leaders. We created evidence-based descriptions of leadership skills to be taught in laboratory courses and aid in student self-efficacy. Skill descriptions were created by first performing keyword searches for teamwork and leadership in online library databases. Subsequently, we read through the sources and identified skills that are beneficial to current upper-level undergraduate biology students. After aligning these skills with The Student Leadership Competencies Guidebook 1, we used various resources to write detailed descriptions of leadership skills. In total, we created descriptions of four leadership skills: being proactive, managing oneself and others, effective teamwork, and effective communication. While creating these leadership skills, we engaged in meaningful conversations surrounding the goals of Project Leadership, such as how to accurately define the word diversity.

Through our conversations, we concluded that to reach the goal of increasing diversity in STEM leadership, Project Leadership needs to directly acknowledge the way in which continued discrimination in America has led to the marginalization and thus underrepresentation of African-Americans, Native-Americans, Hispanics, and Latinos in the STEM workforce 2. The effectiveness of explicitly teaching leadership skills on student self-efficacy and increased diversity of STEM leaders will be evaluated with a survey that is currently in the process of being IRB approved. Our work will serve as a roadmap for others to generate more leadership skill descriptions and aid future discussions centered around diversity and leadership.

## PROJECT LEADERSHIP: EVIDENCE-BASED LEADERSHIP SKILLS TO INCREASE SELF-EFFICACY IN LABORATORY COURSES AND DIVERSITY IN FUTURE LEADERS

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### THE 4 STEPS OF BUILDING LEADERSHIP SKILLS

#### STEP 1

##### Search the literature to find a skill

Background research is performed to determine which leadership skills are important to focus research efforts on.



#### STEP 2

##### Write an evidence-based description

A detailed description of chosen leadership skills is put together. Using academic references, descriptions of how the skills can be actively integrated into a classroom setting are created.



#### STEP 3



##### Receive feedback

After constructing a detailed description of the leadership skill, feedback is received from peers as well as the mentor. Having multiple points of view working on chosen skills will give a comprehensive view of leadership skills.

#### STEP 4



##### Revise and repeat

Revision of leadership skill description occurs after receiving feedback from peers and mentors. The process is repeated until a satisfactory product is reached.