



Course-Based Research Experiences

To increase younger students' access to opportunities for research and help reduce barriers for these students as they enter undergraduate education, Brown Pre-College Programs has implemented Course-Based Research Experiences (CREs) modeled from the framework of Course-Based Undergraduate Research Experiences (CURE) and designed specifically for the Summer@Brown Program for Pre-College students.

Many colleges and universities, in an effort to provide research experiences to a broad section of students offer Course-Based Undergraduate Research Experiences (CURE). A CURE, particularly at the introductory first-year college level, can play a significant role in increasing the number and diversity of students with access to independent research experiences. While CUREs vary, there are consistent factors, including:

- increasing exposure for students to hypothesis-driven research on unknown topics;
- allowing students to experience the joys and struggles of conducting research;
- and encouraging them to disseminate findings to a broad audience.

Academically talented students ready for study at a first-year collegiate level thrive in Brown's Pre-College programs, which in turn provides Pre-College instructors with a wonderful "laboratory" for pedagogical experimentation. For instructors interested in designing and implementing their own CURE for undergraduates, a Pre-College CRE enables an opportunity to preview the curriculum and take the best practices learned through the summer course to refine future work in the CURE space.

Course-based Research Experiences (CRE) provide instructors the opportunity to guide Pre-College students through the process of proposing and conducting independent research, building from questions that are currently unanswered within that discipline. Instructors interested in facilitating a Pre-College CRE will design a course that provides the student a research challenge for which the answers are unknown, supports them in a five week hybrid course and culminates in an opportunity for the student to present and disseminate their findings. The curriculum should be necessarily fluid, with students finding success and experiencing failure as they progress – much like a true research lab. Learning outcomes for the course include:

1. students' gaining a mastery of some specialized techniques and/or a broader knowledge of the content area covered;
2. experience conducting research;
3. an understanding of how to use this experience to overcome traditional institutional barriers;
4. developing a greater capacity for self-advocacy;
5. the ability to apply for further research opportunities in higher academic pursuits.

If you are interested in proposing a Course-Based Research Experience for Brown Pre-College Programs, please email the STEM Program Director, Abbey_Aevazelis@Brown.edu, for more information on the process or visit the Propose a Course section of our [Instructors page](#).

CRE Resources

CURENET: COURSE-BASED UNDERGRADUATE RESEARCH EXPERIENCES

Stay up to date on current CURE implementation, pedagogy, and practitioners around the country.

CURE: CURRENT KNOWLEDGE AND FUTURE DIRECTIONS ARTICLE

From Erin Dolan, co-founded of CUREnet, this article was commissioned by the Committee on Strengthening Research Experiences for Undergraduate STEM Students found in the web archives of the National Academies of Sciences, Engineering and Medicine.

RESEARCH FOR ALL: A CURE FOR UNDERGRADUATES ARTICLE

Article from the American Society for Biochemistry and Molecular Biology's journal, American Society for Biochemistry and Molecular Biology, ASBMB Today.

CURE CAN MAKE SCIENTIFIC RESEARCH MORE INCLUSIVE

This article from the American Society for Cell Biology, CBE – Life Sciences Education, discusses the importance of inclusion in the undergraduate research space.

