Students from some demographic groups have been historically marginalized in STEM education, including, but not limited to, women, students of color, English learners, and those from low-income households. Despite concerted efforts to improve equity in STEM education, disparities still exist between individuals of historically marginalized groups and their more privileged peers. To address this inequity, my research has focused on designing science learning environments that support learning and participation of English learners in high schools and community-based afterschool settings. Building on this previous work with younger learners and their teachers, I have recently expanded my research foci to historically marginalized students in college STEM classes. In this presentation, I will share my research projects that involve first-generation college students in a general chemistry course and multilingual college students majoring in STEM fields. Specifically, I will show how I strive to design college STEM classes that encourage these students to leverage their diverse learning resources for participating in learning activities and learning new content and skills. Through this presentation, I hope to highlight experiences and voices of historically marginalized students and