

CalTeach (EDSTEM)

Courses

EDSTEM 82 K-8 Teaching and Inquiry-Based Lesson Design in the Science and Mathematics Classroom 2 Units

Terms offered: Fall 2025, Spring 2025, Fall 2024

This course surveys basic approaches to K-8 science and math teaching through modeling inquiry-based teaching and discussion. Topics include inquiry-based pedagogy, assessment techniques, lesson plan design and revision, and child development. Students are placed in science and math learning environments with upper elementary and middle school children to practice teaching. This seminar offers an opportunity to explore teaching, foster children's natural curiosity, and inspire local students.

Rules & Requirements

Repeat rules: Course may be repeated for credit with instructor consent.

Hours & Format

Fall and/or spring: 15 weeks - 2 hours of seminar per week

Summer: 8 weeks - 4 hours of seminar per week

Additional Details

Subject/Course Level: CalTeach/Undergraduate

Grading/Final exam status: Letter grade. Alternative to final exam.

Instructor: Stone

EDSTEM 82T Tutoring in Science and Mathematics 2 Units

Terms offered: Fall 2025, Summer 2025 8 Week Session, Spring 2025

This course provides an introduction to basic approaches to tutoring and teaching in science, computer science, engineering and math (STEM) subjects for elementary-, secondary- and college-aged students. Topics include effective STEM pedagogy and assessment; lesson plan design and revision for culturally relevant STEM content; attention to equity across diverse educational settings; and areas of child, adolescent and young adult development relevant to learning. Students will tutor one or more students in field experiences, supporting STEM enrichment and learning support activities either remotely or in tutoring centers/after-school programs.

Hours & Format

Fall and/or spring: 15 weeks - 2 hours of seminar per week

Summer: 8 weeks - 4 hours of seminar per week

Additional Details

Subject/Course Level: CalTeach/Undergraduate

Grading/Final exam status: Letter grade. Alternative to final exam.

Instructor: Stone

EDSTEM 98 Directed Group Study 1 Unit

Terms offered: Fall 2025, Spring 2025, Fall 2024

A study of special topics that are not covered in depth in other courses in the department. Course objectives align with the goals of the CalTeach program, which include developing skills in STEM pedagogy; diversity, equity, inclusion, and social justice in learning environments; and STEM teacher education.

Rules & Requirements

Repeat rules: Course may be repeated for credit without restriction.

Hours & Format

Fall and/or spring:

15 weeks - 1 hour of seminar per week

15 weeks - 1 hour of seminar per week

Additional Details

Subject/Course Level: CalTeach/Undergraduate

Grading/Final exam status: Offered for pass/not pass grade only. Alternative to final exam.

EDSTEM C122 Research Methods for Science and Mathematics K-12 Teachers 3 Units

Terms offered: Fall 2025, Spring 2025, Fall 2024

Students undertake several in-depth research projects to develop methods for engaging in authentic research in the science or mathematics content area related to their major. Interactive lectures and labs are designed to meet the needs of future teachers by practicing specific techniques--including statistics, mathematical modeling, and scientific writing--needed to address scientific questions so that they may guide their future K-12 students to develop skills in problem solving and research.

Rules & Requirements

Prerequisites: UGIS 82

Credit Restrictions: Students will receive no credit for UGIS C122 after completing UGIS 122. A deficient grade in UGIS C122 may be removed by taking UGIS 122.

Hours & Format

Fall and/or spring: 15 weeks - 2 hours of seminar and 2 hours of laboratory per week

Additional Details

Subject/Course Level: CalTeach/Undergraduate

Grading/Final exam status: Letter grade. Alternative to final exam.

Instructor: Wilkerson

Formerly known as: Undergrad Interdisciplinary Studies C122/ Education C122

Also listed as: EDUC C122

EDSTEM 187 Project-Based Instruction 4 Units

Terms offered: Fall 2025, Spring 2025, Fall 2024

Framed around the topic of sustainability, the course engages students from different math, science, and engineering majors in the process of applying the content knowledge from their discipline to build project-based curricula for presentation as part of the field placement. Students develop pedagogical content knowledge and relate teaching theory to practice through readings, classroom activities, discussion, lesson planning, and field observations. Field placements of 4 hours per week will be scheduled in middle and high school math and science classrooms, and discussion groups will be scheduled at a time convenient for each team to work collaborate.

Rules & Requirements

Prerequisites: EDUC 131AC

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture, 1 hour of discussion, and 4 hours of fieldwork per week

Additional Details

Subject/Course Level: CalTeach/Undergraduate

Grading/Final exam status: Letter grade. Alternate method of final assessment during regularly scheduled final exam group (e.g., presentation, final project, etc.).

Instructor: Spencer

EDSTEM 189 Integrating Research Methods into K-12 Teaching in Mathematics and Science 3 Units

Terms offered: Summer 2025 8 Week Session, Summer 2024 8 Week Session, Summer 2023 8 Week Session

This course is designed to provide connections between research methods and science and math content learned in a research lab with teaching in the K-12 classroom. Hands-on inquiry-based science and math lessons are modeled and discussed. Students write research proposals, create posters demonstrating their research accomplishments, develop K-12 lesson plans that align with their research, and assemble digital portfolios on standards-based teaching and assessment.

Rules & Requirements

Prerequisites: Students enrolled in the course must have completed one or more CalTeach courses (EDSTEM 82, EDUC 130 or EDUC 131AC) previously, and have a concurrent approved research placement. For approval, submit a CalTeach Summer Research Institute application. CalTeach staff are able to assist with identifying a research placement upon request

Hours & Format

Summer: 8 weeks - 4 hours of seminar per week

Additional Details

Subject/Course Level: CalTeach/Undergraduate

Grading/Final exam status: Letter grade. Alternate method of final assessment during regularly scheduled final exam group (e.g., presentation, final project, etc.).

Instructor: Stone

EDSTEM 190 Independent Study - Research Methods 3 Units

Terms offered: Summer 2025 10 Week Session, Summer 2024 10 Week Session, Summer 2023 10 Week Session

Students enrolled will develop an independent research project under the supervision of a research mentor. Students will submit a formal research proposal and a final research paper, guided by the instructor.

Hours & Format

Summer: 8 weeks - 19 hours of independent study per week

Additional Details

Subject/Course Level: CalTeach/Undergraduate

Grading/Final exam status: Offered for pass/not pass grade only. Alternative to final exam.

Instructor: Stone

EDSTEM 197 Field Studies in STEM Education 1 - 3 Units

Terms offered: Fall 2025, Summer 2025 8 Week Session, Spring 2025
EDSTEM 197 is designed to provide undergraduate students with practical and immersive field study experiences in science, technology, engineering, and mathematics (STEM) education for K-12 and/or college students. Field Experiences allow students in the course to deeply engage in various facets of STEM teaching such as curriculum development, classroom instruction, pedagogical workshops, and arts integration (STEAM). Alongside a focus on field experiences, students will also be expected to engage in team-building and fieldwork reflection activities with classmates, emphasizing the importance of collaborative environments for STEM teaching & learning.

Rules & Requirements

Repeat rules: Course may be repeated for credit with instructor consent.

Hours & Format

Fall and/or spring: 15 weeks - 2-6 hours of fieldwork per week

Summer: 8 weeks - 4-12 hours of fieldwork per week

Additional Details

Subject/Course Level: CalTeach/Undergraduate

Grading/Final exam status: Offered for pass/not pass grade only. Alternative to final exam.

Instructor: Stone

EDSTEM 303 Apprentice Teaching in Science and Mathematics 3 Units

Terms offered: Fall 2025, Spring 2025, Fall 2024

The course is designed to support new science and mathematics teachers in earning a credential for teaching in California secondary schools. Students demonstrate that they have developed the skills to meet the state credentialing requirements by undertaking an inquiry project on their own teaching practice. Effective teaching methods for the science and mathematics classrooms are emphasized, including strategies for lesson planning, assessment, and English language learner support.

Rules & Requirements

Prerequisites: EDSTEM 187

Repeat rules: Course may be repeated for credit with instructor consent.

Hours & Format

Fall and/or spring: 15 weeks - 2 hours of seminar and 1 hour of discussion per week

Additional Details

Subject/Course Level: CalTeach/Professional course for teachers or prospective teachers

Grading: Letter grade.

Instructor: Stone

EDSTEM 304 Supervised Teaching in Mathematics and Science for Secondary Schools 5 Units

Terms offered: Fall 2025, Spring 2025, Fall 2024

Fieldwork for Cal Teach single subject math or science teaching credential.

Rules & Requirements

Repeat rules: Course may be repeated for credit with instructor consent.

Hours & Format

Fall and/or spring: 15 weeks - 10 hours of fieldwork per week

Additional Details

Subject/Course Level: CalTeach/Professional course for teachers or prospective teachers

Grading: Letter grade.

Instructor: Stone