Science and Mathematics Education

Overview

The Graduate Group in Science and Mathematics Education (SESAME) is an interdisciplinary academic unit dedicated to advancing the understanding and practice of learning and teaching in science, engineering, and mathematics. It acts in most respects like a regular department, carrying out research, teaching courses, and offering a graduate program leading to a PhD degree in science or mathematics education. The faculty of the group consists of professors from several of the Berkeley science and engineering departments and the School of Education, and instructors associated with other units on campus, such as the Lawrence Hall of Science. The group operates under the auspices of the Graduate Division.

SESAME is closely related to the EMST (Education in Math Science and Technology) program and shares many courses with EMST. A major difference in the programs is that SESAME students are expected to obtain at least master's level competency in their mathematical or scientific disciplines. It produces scholars who can communicate well with scientists and engineers, as well as with educational researchers and practitioners. The program includes studies that connect human development, cognitive science, and educational technology with the learning of science, mathematics, and engineering.

SESAME PhDs have frequently taken positions in college science, mathematics, and engineering departments, teaching courses in the discipline but also serving as the "education person" in the department and doing research on the teaching and learning of the subject matter. Through the years SESAME students have also focused on learning in informal settings and have gone on to careers in institutions such as museums and science centers.

Undergraduate Program

There is no undergraduate program in Science and Mathematics Education.

Graduate Program

Science and Mathematics Education (http://guide.berkeley.edu/archive/2018-19/graduate/degree-programs/science-mathematics-education): PhD

Science and Mathematics Education

Expand all course descriptions [+]Collapse all course descriptions [-]

SCMATHE 210 Practicum in Science and Math Education Research and Development 1 - 4 Units

Terms offered: Spring 2020, Fall 2019, Spring 2019
Practical experience on an educational research or development project on campus or elsewhere for 8-12 hours per week. Class meetings augment research experience with discussions of readings and interaction with guest speakers.
Practicum in Science and Math Education Research and Development: Read More [+]

Rules & Requirements

Prerequisites: Consent of instructor

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

Hours & Format

Fall and/or spring: 15 weeks - 0 hours of fieldwork per week

Additional Details

Subject/Course Level: Science and Mathematics Education/Graduate

Grading: Letter grade.

Practicum in Science and Math Education Research and Development: Read Less [-]

SCMATHE 220C Instructional Design in Science and Mathematics Education 3 Units

Terms offered: Spring 2019, Spring 2017, Spring 2016
Survey of literature on design of instruction in science and mathematics, including development of computer-based instruction. Includes consideration of evaluation methods and development of instruction modules for topics in science and mathematics.
Instructional Design in Science and Mathematics Education: Read More [+]

Rules & Requirements

Prerequisites: 220B or consent of the instructor

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture per week

Additional Details

Subject/Course Level: Science and Mathematics Education/Graduate

Grading: Letter grade.

Instructional Design in Science and Mathematics Education: Read Less [-]

SCMATHE 292 Research Seminar and Colloquium 1 Unit

Terms offered: Spring 2020, Fall 2019, Spring 2019
Discussion of current education research carried on by students, faculty, and guest speakers. A written analysis of several presentations required.
Research Seminar and Colloquium: Read More [+]

Rules & Requirements

Prerequisites: Consent of instructor

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

Hours & Format

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

Additional Details

Subject/Course Level: Science and Mathematics Education/Graduate

Grading: Offered for satisfactory/unsatisfactory grade only.

Research Seminar and Colloquium: Read Less [-]

SCMATHE 294 Formulation of Educational Research 1 - 3 Units

Terms offered: Spring 2020, Fall 2019, Spring 2019
Development of thesis proposal under supervision of faculty member.
Formulation of Educational Research: Read More [+]

Rules & Requirements

Prerequisites: Consent of instructor

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

Hours & Format

Fall and/or spring: 15 weeks - 0 hours of independent study per week

Additional Details

Subject/Course Level: Science and Mathematics Education/Graduate

Grading: Letter grade.

Formulation of Educational Research: Read Less [-]

SCMATHE 295 Research 1 - 12 Units

Terms offered: Spring 2020, Fall 2019, Spring 2019
Independent research activities under supervision of a faculty member.
Research: Read More [+]

Rules & Requirements

Prerequisites: Consent of instructor

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

Hours & Format

Fall and/or spring: 15 weeks - 0 hours of independent study per week

Additional Details

Subject/Course Level: Science and Mathematics Education/Graduate

Grading: Letter grade.

Research: Read Less [-]

SCMATHE 299 Individual Reading and Study 1 - 5 Units

Terms offered: Spring 2020, Fall 2019, Spring 2019
Individual reading and study under the supervision of a faculty member.
Individual Reading and Study: Read More [+]

Rules & Requirements

Prerequisites: Consent of instructor

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

Hours & Format

Fall and/or spring: 15 weeks - 0 hours of independent study per week

Additional Details

Subject/Course Level: Science and Mathematics Education/Graduate

Grading: Letter grade.

Individual Reading and Study: Read Less [-]

SCMATHE 602 Individual Study for Qualifying Examination 1 - 8 Units

Terms offered: Spring 2020, Fall 2019, Spring 2019
Individual study, under the supervision of a faculty member, designed to prepare the student for Ph.D qualifying examination.
Individual Study for Qualifying Examination: Read More [+]

Rules & Requirements

Prerequisites: Consent of instructor

Credit Restrictions: Course does not satisfy unit or residence requirements.

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

Hours & Format

Fall and/or spring: 15 weeks - 0 hours of independent study per week

Additional Details

Subject/Course Level: Science and Mathematics Education/Graduate examination preparation

Grading: Offered for satisfactory/unsatisfactory grade only.

Individual Study for Qualifying Examination: Read Less [-]