center for science and mathematics education

CSM 510: Biology Education Research: Teaching, Learning, and Assessment
Introduction to core policy documents, standards, concepts, and empirical methods in biology education research and their applications to undergraduate classroom settings. Appropriate for graduate students in the biological sciences and/or those enrolled in the Ph.D. Program in Science Education.
3 credits, Letter graded (A, A-, B+, etc.)
Fall, Spring, 3 credits, Letter graded (A, A-, B+, etc.)

CSM 599: Graduate Research in Science Education
Research to be supported by a faculty member in the Program in Science Education.
Prerequisite: Permission required.
Fall, 1-9 credits, Letter graded (A, A-, B+, etc.)
May be repeated for credit.

CSM 600: History and Philosophy of Science Education
An introduction to the history of the field of science education and the related philosophical underpinnings. The course will survey the major events, ideas and philosophies and how these have changed over time. Particular focus will be on the time period from 1890 to the present day.
Offered
Fall, 3 credits, Letter graded (A, A-, B+, etc.)

CSM 610: The Nature and Practice of Science
An overview of the nature and practice of science through the analysis of current issues in science. Through the extensive use of case studies, students will address questions such as: What is science? What distinguishes science from other ways of knowing? What standards of evidence and scientific explanations, processes, and conventions are used in science? What philosophical, social, ethical, and historical perspectives are important in understanding science?
Offered
Fall and Spring, 3 credits, Letter graded (A, A-, B+, etc.)

CSM 620: Science Teacher Education
Introduction to the historical, philosophical and pedagogical issues surrounding science teacher education. Introduction to the nature of the research that has been conducted on teacher education in the past and current trends.
Offered
Spring, 3 credits, Letter graded (A, A-, B+, etc.)

CSM 630: Science Education Research Seminar
Introduction to the major theoretical frameworks and paradigms in societal issues (gender, culture, and diversity). Students will be required to critique research papers in the field and will conduct a literature review in their general thesis area.
Offered
Fall and Spring, 3 credits, Letter graded (A, A-, B+, etc.)

CSM 635: Qualitative Research Methods in Science Education
Introduction to qualitative research methods in science education including a) its purposes, b) data collection techniques, c) methods of data analysis, and d) preparing appropriate research reports.
3 credits, Letter graded (A, A-, B+, etc.)

CSM 640: Directed Study in Science Education
In their fifth semester students will individually complete a directed study with a faculty advisor. The intent of this course is to prepare the students for the doctoral qualifying examination and assist them in refining their research topics.
Offered
Fall and Spring, 3-9 credits, Letter graded (A, A-, B+, etc.)
May be repeated for credit.

CSM 650: Introduction to Measurement and Assessment in Science Education
Introduction to core standards, concepts, and empirical methods in educational measurement and assessment; introduction to the development, use, and evaluation of measurement instruments in science education.
Semesters Offered: Fall and Spring
3 credits, Letter graded (A, A-, B+, etc.)
May be repeated 1 times FOR credit.

CSM 659: Dissertation Research on Campus
Prerequisite: Must be advanced to candidacy (G5); major portion of the research will take place off Campus, but in U.S. and/or U.S. provinces. All international students must enroll in one of the graduate student insurance plans and should be advised by an International Advisor.
Fall, 1-9 credits, S/U grading
May be repeated for credit.

CSM 700: Dissertation Research Off Campus-Domestic
Prerequisite: Must be advanced to candidacy (GS); major portion of the research will take place outside of the United States and/or U.S. provinces. Domestic students have the option of the health plan and may also enroll in MEDEX. International students who are in their home country are not covered by mandatory health plan and must contact the International Health Office for the insurance charge to be removed. International students who are not in their home country are charged for the mandatory health insurance (if they are to be covered by another insurance plan they must file a waiver be second week of classes. The charge will only be removed if other plan is deemed comparable); all international students must receive clearance from an International Advisor.
Fall, 1-9 credits, S/U grading
May be repeated for credit.

CSM 701: Dissertation Research Off Campus-International
Prerequisite: Must be advanced to candidacy (GS). Major portion of research will take place outside of the United States and/or U.S. provinces. Domestic students have the option of the health plan and may also enroll in MEDEX. International students who are in their home country are not covered by mandatory health plan and must contact the International Health Office for the insurance charge to be removed. International students who are not in their home country are charged for the mandatory health insurance (if they are to be covered by another insurance plan they must file a waiver be second week of classes. The charge will only be removed if other plan is deemed comparable); all international students must receive clearance from an International Advisor.
Fall, 1-9 credits, S/U grading
May be repeated for credit.