THE PROGRAM
The Science and Mathematics Mentor Teacher/Coach Certificate program assists middle school and high school science and mathematics teachers in developing skills to serve as mentors or coaches to other teachers and/or pre-service students. Strategies that develop leadership skills for coaching colleagues and create collaborative school learning environments are presented. The program collaboration with the Science Mathematics Initiative (SMI) at UCR, and the Inland Area Science Project assists in developing mentors who can work with UCR students that want to become mathematics and/or science teachers in becoming mentors at their school sites. Coursework will present information in the following areas:
• Coaching models appropriate for science and mathematics teachers
• Developing curriculum units in mathematics and science that include educational objectives, multiple measures of assessment and critical and creative thinking skills
• Organizational and project management skills
• Family, community and professional partnerships in educational environments
• Using technology to analyze student learning and deliver presentations
• Methods for developing collaborative school learning environments
• Content courses in mathematics or science
• Practicum experience in three areas of pedagogy, leadership and mathematics and/or science
• Portfolio development
• Reflection of teaching philosophy

ADMISSION
The certificate program is open to fully credentialed science and mathematics middle school or high school teachers who want to become mentors or coaches at their school sites.

REQUIREMENTS
To earn the certificate, participants must successfully complete 14 quarter units—8 required units and 6 elective units, with a grade of “B” or better.

TRANSFER CREDIT
Four quarter units of credit from other institutions are permitted if the courses relate directly to the content of certificate coursework. Applicable courses taken through University Extension prior to application may be counted toward the certificate. Coursework must be taken within the last five years and must be taken at the upper division or graduate level. Requests for transfer credit must be in writing and official transcripts must accompany the request. The requests for transfer credit must be approved by the Director of Education Extension.

TO ENROLL IN THE PROGRAM
An enrollment form must be filed along with a nonrefundable fee of $50 before the completion of the third course. The nonrefundable fee covers academic advisement, tracking of progress/completion and updates on program changes and additions. Enrollment forms are available in Extension's quarterly catalog, at Student Services, in program department offices and on the Web site: www.extension.ucr.edu/certificates.
CORE COURSES (8 units)

Effective Strategies for Mentor Teachers/Coaches in Science and Mathematics
Education X314.75 (2 units)
Introduction to coaching models appropriate in science and mathematics classrooms. Effective strategies for developing skills to serve as mentor teachers to other teachers and pre-service students. Methods for designing and classifying educational objectives, creating assessments and developing a curriculum that includes higher-level thinking skills.

Instructional Leadership as a Springboard to Exemplary Teaching
Education X355.1 (3 units)
Exploration of the role of the teacher as an instructional leader and exemplary teacher. This course presents skills necessary for coaching colleagues and presenting to parents, and provides opportunities for reflection of each individual's teaching philosophy and skill in relation to site, district and state standards.

Practicum in Mentor Teaching/Coaching
Education X314.78 (3 units)
The practicum experience focuses on three areas—pedagogy, leadership and mathematics and/or science content. Participants develop a portfolio as an end product and a video of themselves teaching a lesson in mathematics or science.

ELECTIVE COURSES (6 units)

One of the elective courses must be in a content area course in mathematics or science.

Using Organizational and Project Management Skills to Create Effective Educational Environments
Education X355.3 (1 unit)

Developing Collaborative School Learning Environments
Education X314.30 (2 units)

Family, Community and Professional Partnerships in Educational Environments
Education X355.5 (1 unit)

The Theory of Multiple Intelligences—Educational Implications and Applications
Education X324.32 (3 units)

Effective Presentations Using Technology
Education X325.57 (1 unit)

Using Technology to Analyze Student Learning
Education X355.57 (1 unit)

CONTENT AREA COURSES IN SCIENCE/MATHEMATICS (4 units from the following courses)

Mathematics

Strategies for Effective Mathematics Instruction
Mathematics X432 (4 units)
Using Technology to Teach Mathematics
Mathematics X409.16 (4 units)
Developing the Real Number System
Mathematics X405 (4 units)
Developing the Real Number System, Part B
Mathematics X405.B (4 units)
College Algebra
Mathematics X409 (4 units)
Linear Algebra
Mathematics X409.1 (4 units)
Non-Linear Algebra
Mathematics X409.2 (4 units)

Advanced Algebra
Mathematics X409.3 (4 units)
Fundamental Concepts of Geometry, Part I
Mathematics X415.1 (4 units)
Fundamental Concepts of Geometry, Part II
Mathematics X415.2 (4 units)
Trigonometry and Problem Solving
Mathematics X428.5 (4 units)
Probability and Statistics, Part A
Mathematics X429.A (4 units)
Probability and Statistics, Part B
Mathematics X429.B (4 units)
Content and Methods for Teaching Advanced Placement Calculus
Mathematics X435 (3 units)
Content and Methods for Teaching Advanced Placement Statistics
Statistics X 450 (3 units)

Science

Introduction to Science
Geosciences X403 (4 units)
Topics in Chemistry
Chemistry X 400.6 (4 units)
Chemistry I: Introduction to Chemistry
Chemistry X420.A (2 units)
Chemistry II: Structure of Matter/Chemical Bonding
Chemistry X420.B (3 units)
Chemistry III: Matter, Chemical Reactions, Nuclear
Chemistry X420.C (3 units)
Chemistry IV: Physical and Organic Chemistry
Chemistry X420.D (3 units)
Content and Methods for Teaching Advanced Placement Chemistry
Chemistry X450 (3 units)

Content and Methods for Teaching Advanced Placement Biology
Biology X403.5 (3 units)
Biological Sciences and Lab
Biology X450 (3 units)
Topics in Biological Sciences
Biology X 451 (2 units)
Topics in Teaching Genetics
Biology X 475 (3 units)
Environmental Science and Ecology for Educators
Environmental Science X475 (3 units)
Botany for Educators
Botany X450 (3 units)
Principles of Geology
Geology X480 (4 units)
Astronomy
Geology X481.1 (1 unit)

Oceanography
Earth Science X405 (2 units)
Weather and Climate
Earth Science X406 (3 units)
Introduction to the Concepts of Physics
Physics X412.A (4 units)
Concepts of Physics: Mechanics
Physics X412.B (3 units)
Physics: Electricity and Magnetism
Physics X412.C (3 units)
Physics: Heat and Waves
Physics X412.D (3 units)