The Science Education Programs Office
School of Physical Sciences, UC Irvine, is pleased to offer
a variety of professional growth programs for K-12 teachers of science

The 17th Annual
UC Irvine

Summer Science Institute

August 4 - August 22, 1997

Director:  Dr. George E. Miller
Assoc. Dir.: Dr. Mare Taagepera
Assoc. Dir.: Dr. Frank Potter

Join a growing network of teachers
from Orange County and
surrounding areas.

✔ Strong science content courses
✔ Hands-on experience suitable for elementary, middle & high school
✔ Ideas & handouts for classroom use
✔ Information and practice with accessing the Internet
  for science materials
✔ Networking with experienced science teachers
✔ Professional growth science units
We offer 1, 2 & 3 week courses for teachers at all levels

**Elementary**
- Ecology of Orange County
- Astronomy is 'Looking Up'
- Computer Technology in the Sciences - Earth, Physical, Life Sciences
- Inquiry-based Science Practice
- Independent Study

**Middle & High**
- Ecology of Orange County
- BioCom: Biology a Community Context
- Forensics - The Investigative Sciences
- Computer Technology in Science
- Astronomy is ‘Looking Up’
- Evolutionary Biology and Nature of Science
- Senior High School Science Seminar Series
- Independent Study

and these year-round supported projects with summer institutes (no registration fee required)
- *Orange County Science, Technology, Society (STS) Network* - Grades 8 - 12.
  (Supported by a grant from the National Science Foundation)
- *California Science Project (CSP)* - Grades K - 12.
  (Supported by a grant from the State of California)

![Course fees are minimal. $40 to register, then: if the district or school doesn't pay for you, apply for a scholarship.](image)

![Credit and initial transcript- it will cost you $60.00 per 3 quarter units (due in August).](image)

![For more information: (714) 824-6390](image)

1. **SCHEDULE**
   All classes are offered daily, **Monday - Friday, 8/4 - 8/22/97, @ 8:00 - 3 p.m.**, unless otherwise noted.

2. **CREDIT**
   All classes are available for credit as noted. Credit is offered in upper division quarter units for professional development and supplemental credential use only.

3. **DEADLINE: MAY 31, 1997**
   All classes are filled as applications are received. We cannot guarantee positions on the waiting list after this date.

4. **COSTS**
   - **$40.00** non-refundable application processing fee.
     Registration fee for **courses** is **$250.00 per 3 units**. Please approach your school and district office for funding via the *Eisenhower Funds*. 1997-98 funds will be available to your district July 1; these are applicable to inservice in math and science. You are encouraged to seek this source of funding.

   A number of scholarships are available through the Science Education Programs Office. Requests may be made upon submission of a completed application form and inclusion of a single page detailing your need for financial support.

   Additional costs include **$60.00 per 3 units credit** processing fee (payable during the Institute).

For Information:
Ann Miller, Coordinator
Science Education Programs, Physical Sciences, UC Irvine, CA 92697-4680
tel: (714) 824-6390  fax: (714) 824-7621
Elementary Teachers (K-6)

Choices of modern unified science concepts and methods courses which can lead to the UCI Elementary Science Teacher Certificate (total of 18 quarter units taken over a minimum of 2 summers). Thematic and integrated approaches will be used with emphasis on allowing students to construct their own understanding of science concepts.

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Weeks One & Two: August 4 - August 15, 1997

**Ecology of Orange County**: Approaches to the Orange County Ecosystems; (6 biology units). From the Ocean to the Mountains and into the Classroom. How do abiotic and biotic factors interact to determine ecosystems? Examine methods for student scientific inquiry in the field and in the classroom. Ecosystems will be used as the vehicle to demonstrate an integrated approach to science that can be utilized from kindergarten to grade twelve. This is the content institute of the California Science Project in Orange County, and is offered to all teachers of science K-12. Instruction by scientists and teachers from the California Science Project.

Week One: August 4 - August 8, 1997

**Physics**: Astronomy is Looking Up Grades 4-9. (3 science units). Activities, models, sky observations, a resource notebook and interdisciplinary lesson extensions are offered to help you teach a hands-on astronomy unit. Major concepts will include the sun, reasons for seasons, the moon, solar system, comets, stars, constellations, and tools of the astronomer. One evening required. Sue Hayden, Placentia Yorba Linda, American Astronomical Society Teacher Resource Agent

Weeks Two: August 11 - August 15, 1997

**Computer Technology in the Sciences**: Earth, Physical & Life Sciences (3 units). Emphasis will be on using the WWW for accessing topics that pertain to Earth, Physical, and Life Sciences. Computer use in the classroom will be explored. Dr. Frank Potter, UC Irvine

Week Three: August 18 - August 22, 1997

**Science Teaching**: Inquiry-based Science (3 science units). Unravel the challenging mysteries in the life sciences. Witness an as yet ‘unexplained event’ dealing with living organisms, then use the scientific method and some simple tools to develop a means to understanding the event. Relate current topics in biology to classroom observations, and help your students develop interest and understanding of the biological sciences. Learn strategies that can be applied to all science teaching. Dr. Jeff Kauffman, Irvine Valley College; Dr. Margot Griswold, Chambers Group; Kathy Marvin, Robin Von Vorhis, IUSD

**Independent Study** (3 science units)

All Grade levels; an opportunity for development of a science curriculum unit or a teacher based classroom research project.

On your own time, preliminary proposal due by 8/4/97. Project completion date is negotiable.
# Middle and High School Teachers

For Middle and High School Teachers we offer several Science programs with various emphases. Each course focuses on the commonalities between the various science disciplines from the perspective of a specific discipline. These courses are excellent opportunities for teachers interested in adding one or more of the new supplements to their existing science credential.

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**Weeks One & Two: August 4 - August 15, 1997**

**Ecology of Orange County: Approaches to the Orange County Ecosystems**: (6 biology units). From the Ocean to the Mountains and into the Classroom. How do abiotic and biotic factors interact to determine ecosystems? Examine methods for student scientific inquiry in the field and in the classroom. Ecosystems will be used as the vehicle to demonstrate an integrated approach to science that can be utilized from kindergarten to grade twelve. This is the content institute of the California Science Project in Orange County, and is offered to all teachers of science K-12. Instruction by scientists and teachers from the California Science Project.

**Weeks One & Two: August 4 - August 15, 1997**

**BioCom**: (6 biology units). The course is structured around the new text book, *Biology a Community Context*, an inquiry-based learning approach that engages you and your students in the science issues of your own community. Active learning as well as investigative skills are stressed as you discover how to lead your students to investigate, learn, and apply biological concepts to their lives and their community. The Teachers Guide and Instructional Resource binder will be available in addition to other resource materials.

**Week One: August 4 - August 8, 1997** . One evening required

**Physics: Astronomy is Looking Up** (3 science units). Activities, models, sky observations, a resource notebook and interdisciplinary lesson extensions are offered to help you teach a hands-on astronomy unit. Major concepts will include the sun, reasons for seasons, the moon, solar system, comets, stars, constellations, and tools of the astronomer. Sue Hayden, Placentia Yorba Linda, American Astronomical Society Teacher Resource Agent
Week Three: August 18 - August 22, 1997

**Computer Technology in the Sciences: Earth, Physical & Life Sciences** (3 units). Emphasis will be on using the WWW for accessing topics that pertain to Earth, Physical, and Life Sciences. Computer and calculator based labs, and innovative technology for use in the classroom will be explored. Dr. Frank Potter, UC Irvine

Weeks one, two and three, August 4 - August 22, 1997

**Forensics II: The Chemistry, Physics, and Biology behind Investigative Science** (3 chemistry, 3 biology & 3 physics units). Learn the basic science needed to investigate evidence of past events. Learn about the instrumentation used to analyze chemicals. Use laws of motion and conservation of momentum to investigate collisions. Discover how archaeologists use evidence to reconstruct past events. Apply biotechnology to solve mysteries. How does an archaeologist reconstruct the site?
Terry Shanahan, Milliken HS, LBUSD, Deborah Crough, Saddleback HS, SAUSD

Week Three: August 18 - August 22, 1997

**Evolutionary Biology and the Nature of Science:** (3 biology units) The teaching of evolution and the nature of science will be developed to expand the participants understanding of the subject matter. Topics examined will include the Big Bang theory, evolution as the fundamental basis of life, and the beginning of life on earth.

**Senior High School Science Seminar Series: The Science of the 90’s** (3 science units) (1-3pm daily)

Week One: August 4 - August 8, 1997

Week Two: August 11 - August 15, 1997

Week Three: August 18 - August 22, 1997

If you are signing up for this course, please select your three preferred topics areas ranking them 1 (top choice), 2 (next choice), and 3 (acceptable choice) and include with your application form.

- Astronomy
- Global Science
- Human Genome Project
- Brain Studies
- Medical Discoveries
- Chemistry Advances
- New Materials - polymers and ceramics

**Independent Study** (3 science units)

**All Grade levels;** an opportunity for development of a science curriculum unit or a teacher based classroom research project. On your own time, preliminary proposal due by 8/4/97. Project completion date is negotiable.
NSF/STS Project for Middle and High School Teachers
1994 - 1999 and beyond

Orange County Science, Technology & Society (STS) Network

1997 STS Summer Institute
August 4 - August 22, 1997


This project requires a minimum two year commitment of two summers & two academic years. Teachers work with a scientist/engineer mentor on their own time during the academic year. In the 1997 Institute we will examine space technology, biotechnology and water technology with the aim of infusing some of this content into the science curriculum. For middle and high school teachers. Some early and late days, details available upon completion of application form and acceptance into the STS Project.

Summer 1997 Topics (no registration fee - NSF Funded):

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<th>Orange County STS Summer Institute</th>
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<td>Week One: Space Technology</td>
<td>Week Two: Biotechnology</td>
<td>Week Three: Water Technology</td>
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As an STS Fellow you are entitled to:
- Stipends ($1200/yr) in installments
- Collaboration with an STS Mentor
- Networking with other teachers in the project
- Special resources that STS Mentors provide
- 9 quarter units each summer

The 2-year commitment includes:
- 3-week session each August (1997, 1998) for training in STS issues related to six of our nine units
- Monthly meetings during the academic year for additional networking
- STS education, workshop presentations, and action research
- Classroom use/infusion of STS issues and activities by you and your STS Mentor

The STS units will be continually updated and improved each year.

- Energy Technology
- Space Technology
- Biotechnology
- Water Technology
- Petroleum Technology
- Materials Technology
- Communications Technology
- Medical Technology
- Environmental Technology
- Medical Technology
This project requires a minimum commitment of one year.

**Prerequisite:** CSP Fellow, CSIN participant or a district science mentor

**No registration fee - Project funded**

### Science For Every Student:
Making a Difference in your Classroom, School District and Community

- Become a leader in science reform and innovation in your school and district
- Motivate your students by involving them in inquiry of phenomena in their everyday world
- Encourage family interest and understanding in science
- Share strategies for implementation of new recommendations in science education in your school and district
- Create and use authentic methods for assessment and evaluation to better guide instruction and change.
- Network with other science teacher leaders in Orange County

Strategies for effective science learning for all will be explored with such topics as: equity and status issues, SDAIE instruction, inquiry-based learning, successful grant writing, developing mini institutes for colleagues, action research, family science, science fairs, and science as the motivator for developing reading and mathematics skills. Pedagogical discussions will be integrated with discussion of science conceptual understanding using units from district-adopted materials such as FOSS, Scholastic, SEPUP, and Biology, A Community Context. This will be integrated around the science background of ‘Orange County as an Outdoor Lab’. Participants will also have the opportunity to experience the Internet as a resource for science learners and teacher educators.

Upon completion of this course you will be eligible to apply for mini-grants to assist you in your leadership outreach.

**If you are not a CSP Fellow we suggest that you consider taking the first week of ‘The Ecology of Orange County’ (the content institute of the California Science Project) to provide some context for the background science to be used in the leadership institute.**

Stipends, credit and mini grants are awarded.
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Ecology
Astronomy
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Evolutionary Biology
Computer Technology in Science
Science of the 90's Seminar
STS Network Project
CSP Project
BioCom