

**COMMISSION ON TEACHER CREDENTIALING**

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CERTIFICATION, ASSIGNMENT AND WAIVERS DIVISION

95-9514

July 25, 1995

To: All Individuals and Groups Interested in the Activities of the Commission on Teacher Credentialing

From: Ruben L. Ingram, Executive Director

Subject: Single Subject Teaching Credential in Science

As a result of amendments to Education Code Sections 44257 and 44257.2, the Commission has made major changes in the credentials for teaching science. The subject areas of Life Science and Physical Science have been eliminated and are replaced by a new credential for science containing an area of concentration in one of four areas. The four areas of concentration are Biological Sciences, Chemistry, Geosciences, and Physics.

Nothing in this correspondence will affect those persons who currently hold Single Subject Teaching Credentials in Life Science or Physical Science. These credentials will remain valid and the authorization of service under such credentials has not changed. Information regarding holders of emergency permits in life science and physical science can be found on page 5 of this correspondence.

The new subjects that will be listed on Single Subject Teaching Credentials and Emergency Permits are as follows:

Science: Biological Sciences  
Science: Chemistry

Science: Geosciences  
Science: Physics

Enclosed with this correspondence is a chart entitled "*Science Credentials And Their Authorizations*" which clarifies the authorization of the "new" science and "old" life and physical science credentials. This "new" science credential will have a broader authorization than the previous life and physical science credentials. The new credential will authorize the holder to teach the following in grades preschool, K-12, and classes for adults:

coordinated science  
general science  
integrated science

introductory science  
specialized classes in the area of concentration

This correspondence covers several of the topics dealing with the transition from the life science and physical science credentials to the new science credentials.

## Evaluating Out-of-State Course Work

Effective July 1, 1995, the Commission will begin to evaluate applications submitted by individuals who have completed their teacher preparation program outside California using the new areas of science concentration. To apply for the Single Subject Credential in Science, an out-of-state prepared applicant will need to submit verification of the regular requirements: possession of a bachelor's or higher degree, completion of an appropriate professional teacher preparation program including student teaching, and passage of the California Basic Educational Skills Test (CBEST). A One-Year Nonrenewable Credential may be issued to applicants who have completed all requirements with the exception of CBEST and have been offered employment with a California school district or county office of education.

Because the authorization of the new science credential is more specific, the applicant will also need to verify one of the following:

- bachelor's or higher degree in one of the science areas of concentration completed at a regionally accredited college or university, OR
- credential or certificate in one of the science areas of concentration issued by the state education office where the course work was completed, OR
- eighteen semester units in one of the science areas of concentration completed at a regionally accredited college or university. *For a guide to subjects within the broader science categories, see page 7.*

If one of the above cannot be established, certification staff will return the application for a statement from the college or university where the program was completed or from the out-of-state licensing agency for verification of the subject area of the degree or program. In the rare case where it still cannot be determined which science concentration area to place on the document, the applicant will be referred to a California college or university for a course work equivalency evaluation.

Individuals who meet these requirements will be issued either the One-Year Nonrenewable or the Two-Year Preliminary Single Subject Teaching Credential in Science. To satisfy the subject-matter competence requirement, the applicant has two options:

- (1) achieve a passing score on the appropriate Single Subject Assessment for Teaching examination given by the National Evaluation Systems, Inc. (NES) starting in November 1995 and the appropriate Praxis Series Subject Assessment given by the Educational Testing Service (ETS) starting in December 1995 OR
- (2) complete a Commission-approved subject-matter program, or its equivalent, and obtain verification from the authorized person in the education department of a California Institution of Higher Education (IHE) with the approved program. An IHE may have recency requirements that have to be met before verification of completion of a subject-matter program can be obtained.

For a list of the new science examinations, see page 6 and for a list of the IHEs with Commission-approved new science subject-matter programs, see page 4.

## Candidates Working Toward Old Life & Physical Science Authorizations

Candidates who have taken one or more courses in Commission-approved subject-matter programs in Life Science or Physical Science on or before December 31, 1994, are entitled to complete those programs and have those subjects listed on their Single Subject Teaching Credentials as long as the subject-matter programs are completed by January 1, 1998. Candidates may no longer begin taking course work in these programs for the first time.

Colleges and universities are urged to advise all students interested in teaching science (even those who have begun the Life Science or Physical Science programs) to enroll in a Commission-approved new Science subject-matter program with an appropriate concentration in biological sciences, chemistry, geosciences, or physics as soon as it is available at the institution. This new science credential will have a broader authorization than the previous science credentials including the authority to teach coordinated science, general science, integrated science, and introductory science, as well as specialized classes in the area of concentration. However, as noted in the paragraph above, individuals may continue in their life science and physical science subject-matter programs so long as the subject-matter program is completed by January 1, 1998.

California IHEs with Commission-approved subject-matter programs in Life Science or Physical Science may evaluate the course work of individuals who have completed their science course work outside California so long as such individuals have taken one or more life or physical science courses on or before December 31, 1994, and, if needed, finish the subject-matter program by January 1, 1998. The institution may evaluate for either the new science program if the institution has an approved new program or the old life and physical science program, whichever is preferred by the applicant. *For a list of the IHEs with Commission-approved new science subject-matter programs, see page 4.*

### Advancement to Student Teaching

In the Commission's Standards of Program Quality and Effectiveness for Single Subject Teaching Credential, Standard 18 defines the subject-matter proficiency that must be attained by a candidate to be advanced to daily student teaching responsibilities. According to this standard, an institution may advance a candidate who has either:

- (1) attained the Commission's standard for advancement on the relevant subject-matter examination or
- (2) completed at least four-fifths of a program of subject-matter preparation that waives this examination.

In 1993, the Commission established flexible standards for advancement to student teaching. A candidate for the Single Subject Credential in Science may, at the institution's discretion, be advanced to student teaching by passing either the appropriate two NES Single Subject Assessment for Teaching multiple choice

examinations or the appropriate two ETS Praxis Series Subject Assessment Constructed Response examinations. Candidates who have passed neither of these assessments should not be enrolled in student teaching unless they have completed at least four-fifths of an approved subject-matter program. For institutions and candidates who take advantage of this standard, passage of subject-matter examinations or completion of subject-matter programs are still required for earning the credential.

### Institutions With Commission-Approved New Science Subject-Matter Programs \*

(Effective July 1, 1995)

Name of Institution	Biological Sciences	Chemistry	Geosciences	Physics
CSU Chico	X	X	X	X
CSU Fresno	X	X		X
CSU Sacramento	X	X	X	X
CSU Northridge	X	X	X	X
CSU Los Angeles	X	X	X	X
Fresno Pacific College	X			

\* Several other institutions have developed or are in the process of developing programs for Commission approval.

## Emergency Single Subject Teaching Permits in Science

### Emergency Single Subject Teaching Permit in Science (Long-Term Permit)

Effective file date July 1, 1995, the Commission will issue all initial Emergency Single Subject Teaching Permits in Science with the new science concentration areas of biological sciences, chemistry, geosciences, and physics. *For a guide to subjects within the broader science categories, see page 7.* To qualify for an Emergency Single Subject Permit in Science after July 1, 1995, an individual will need to verify eighteen semester units or nine upper division semester units in science including at least half of the units in the area of concentration. This equates to nine semester units (fourteen quarter units) if qualifying on eighteen total semester units or more than four upper division semester units (more than six quarter units) if qualifying on upper division semester units. The units outside the area of concentration may be in one or more of the other three science areas. For example:

To qualify for an initial issuance of an Emergency Single Subject Teaching Permit in Science: Chemistry after July 1, 1995, an applicant will need to verify nine semester units of course work in chemistry and nine semester units of course work in any combination of biological sciences, geosciences, or physics.

An individual may renew an Emergency Single Subject Permit in Life Science or Physical Science issued prior to July 1, 1995 if he or she has completed the appropriate renewal requirements of six semester units of course work and enrollment in a Commission-approved Life Science or Physical Science program. The individual also has the option of changing to one of the new science concentration areas. However, staff will evaluate for the eighteen semester units or nine upper division semester units in the concentration area as noted above.

Neither the Emergency Single Subject Teaching Permit in Science: Biological Sciences nor the Single Subject Teaching Credential in Science: Biological Sciences will authorize the holder to teach a health course.

### Emergency Limited Assignment Single Subject Teaching Permit

Effective July 1, 1995, the Commission will issue all initial Emergency Limited Assignment Single Subject Permits in Science in the new science concentration areas of biological sciences, chemistry, geosciences, and physics.

Individuals who hold Emergency Limited Assignment Single Subject Teaching Permits in Life Science or Physical Science may continue to renew these permits if the individual is working toward a supplementary authorization in Introductory Life Science, Introductory Physical Science, or Introductory General Science or a Single Subject Teaching Credential in Life Science or Physical Science. The individual also has the option of changing to the new science concentration areas. After July 1, 1996, the supplementary authorizations in Introductory Life Science, Introductory Physical Science, or Introductory General Science will not be initially issued. If an individual has not qualified for the supplementary authorization by July 1, 1996, the Commission will automatically issue the Emergency Limited Assignment Permit in one of new concentration areas at the next renewal.

## Subject-Matter Examinations for Single Subject Teaching Credentials in Science Effective 11/1/95 \*

Subject Area	Examination	CR	MC
Science: Biological Sciences	<ul style="list-style-type: none"> <li>•General Science (#04)</li> <li>•Biology (#05)</li> <li>•Biology: Content Essays (#30233)</li> <li>•General Science: Content Essays (#30433)</li> </ul>	Praxis Praxis	SSAT SSAT
Science: Chemistry	<ul style="list-style-type: none"> <li>•General Science (#04)</li> <li>•Chemistry (#06)</li> <li>•Chemistry: Content Essays (#30242)</li> <li>•General Science: Content Essays (#30433)</li> </ul>	Praxis Praxis	SSAT SSAT
Science: Geosciences	<ul style="list-style-type: none"> <li>•General Science (#04 )</li> <li>•Geosciences (#07)</li> <li>•General Science: Content Essays (#30433)</li> </ul>	Praxis	SSAT SSAT
Science: Physics	<ul style="list-style-type: none"> <li>•General Science (#04)</li> <li>•Physics (#08)</li> <li>•Physics: Content Essays (#30262)</li> <li>•General Science: Content Essays (#30433)</li> </ul>	Praxis Praxis	SSAT SSAT

### Examination Notes

CR - Constructed Response Examinations (Content Essays)

MC - Multiple Choice Examinations

SSAT - Examinations administered by National Evaluation Systems, Inc. (NES).

For examination information, telephone (916) 928-0212

PRAXIS - Examinations administered by Educational Testing Service (ETS). For examination information, telephone (609) 771-7395

- ✓ Test numbers (in parenthesis) and names are subject to change.
- ✓ For the first year of implementation, the Geosciences subject area has only three examinations.
- ✓ All SSAT General Science multiple choice examinations and Praxis General Science Content Essays examinations are the same examinations and can therefore be used for more than one subject area.
- ✓ Examination scores must be used for credentialing purposes in California within five years of the test date.
- ✓ After November 1, 1995, the Life and Physical Science examinations are only available to those individuals who have passed one or more of the examinations required for the Life Science or Physical Science Teaching Credential. Individuals should contact the Commission for more information.
- ✓ Score reports for the December 9, 1995 SSAT examinations will not be mailed until mid-February 1996. Candidates who do not pass a test taken at the December 9, 1995, test administration may register for the same test(s) for the March 9, 1996 test administration and receive a waiver of the Late Registration or Emergency Registration fee, if necessary.

## Guide to Subjects Within the Broader Science Categories

To assist in defining which science area a course may cover, the Commission has prepared this guide. This is not an exhaustive list and is only offered as a guide. Remember, the most important factor is the content of the course work not the title of the course or department in which it appears.

Emphasis Area	Biological Sciences	Chemistry	Geosciences	Physics
Examples of Related Courses or Course Content	Anatomy Biology Botany DNA & RNA Structure Ecology Environmental Science Evolution Genetics Marine Biology Microbiology Physiology Structure & Function of Cells Zoology	Atomic, Molecular, and Ionic Structures Chemical Reactions Properties and Processes of Elements, Compounds, Mixtures, Inorganic and Organic Substances Properties of Molecules Qualitative and Quantitative Analysis States of Matter, Including Models of Gases, Liquids & Solids	Astronomy Cosmology Earth Science Forestry Fossils Geology Meteorology Minerology Oceanography Paleontology Soil Science Weather & Climate	Electromagnetic Radiation Including Spectra, Visible Light & Color Fission Fusion & Vaporization Gravitation Light & Optics Nuclear & Atomic Physics Principles of Mechanics, Heat, Electricity, & Magnetism Principles of Momentum & Energy Quantum Theory Thermodynamics Wave & Particle Motion

## Science Credentials And Their Authorizations

*NOTE: Shaded Boxes Indicate the Area of Assignment Authorized by the Credential*

Type of Credential	Biology	Chemistry	Physics	Earth Science or Geoscience	Integrated Science (gr 7 - 9)	Integrated Science (gr 10 - 12)	Intro/General Science	Intro Life Science	Intro Physical Science
Life Science									
Physical Science									
Science: Biology									
Science: Chemistry									
Science: Physics									
Science: Geoscience									

### Single Subject Teaching Credentials (service in grades preschool, K - 12, and adults)

#### Standard Elementary Teaching Credentials (service in grades K - 9)

MAJOR in a biological science									
MAJOR in a physical science		☆ gr K - 9	☆ gr K-9	☆ gr K - 9					
MINOR in a biological science									
MINOR in a physical science		☆ gr K - 9	☆ gr K - 9	☆ gr K - 9					gr K - 8

#### Standard Secondary Teaching Credential (service in grades 7 - 12)

MAJOR in a biological science									
MAJOR in a physical science		☆	☆	☆					
MINOR in a biological science									
MINOR in a physical science		☆	☆	☆					gr 7 - 8

☆ Service is restricted to the specific subject area of the major, minor, or supplementary authorization listed on the credential.

Type of Credential	Biology	Chemistry	Physics	Earth Science or Geoscience	Integrated Science (gr 7 - 9)	Integrated Science (gr 10 - 12)	Intro/General Science	Intro Life Science	Intro Physical Science
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**General Teaching Credentials**

Elementary (gr K-8)					gr 7 - 8				
Junior High (gr 7-9)									
Secondary (gr 7-12)									

**Credential Combinations**

Single Subject-life science with a supp authorization in a specific physical, earth or geoscience		☆	☆	☆					gr 7 - 8
Single Subject-physical science with a supp authorization in a specific life science									
Standard Secondary with a major in a biological science with a supp authorization or minor in a specific physical science		☆	☆	☆					gr 7 - 8
Standard Secondary with a major in a physical science with a supplementary authorization or minor in a specific life science		☆	☆	☆					
Standard Secondary with a major in an earth or geoscience with a supplementary authorization or minor in a specific life science									

☆ Service is restricted to the specific subject area of the minor or supplementary authorization listed on the credential.

Type of Credential	Biology	Chemistry	Physics	Earth Science or Geoscience	Integrated Science (gr 7 - 9)	Integrated Science (gr 10 - 12)	Intro/General Science	Intro Life Science	Intro Physical Science
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*Introductory Supplementary Authorizations Added to Single Subject, Standard Secondary, or Special Secondary Teaching Credentials (service in grades 9 and below)*

Intro General Science									
Intro Life Science									
Intro Physical Science	*	*	*						
Intro Science	*	*	*						

*Specific Supplementary Authorizations Added to Single Subject, Standard Secondary, or Special Secondary Teaching Credentials (service in grades K - 12) ♦*

Biology									
Chemistry									
Earth Science									
Physics									
Biological Science									
Geoscience									

*Supplementary Authorizations Added to Multiple Subject or Standard Elementary Teaching Credentials (service in grades 9 and below)*

General Science									
Life Science									
Physical Science	*	*	*						
Science	*	*	*						

- ♦ Supplementary Authorizations in Animal Science and Plant Science are also issued. They authorize teaching either animal or plant science only.
- \* The holder is authorized to teach this subject area; however, the subject area is not commonly taught in grades 9 and below.