

## **Assessment for the Chemistry, Geosciences, and Physics Programs 2005 and later**

The California Commission on Teacher Credentialing requires that students in the subject matter preparation programs complete some type of formative and summative assessment other than grades in courses. It also requires that the program have some type of routine assessment mechanism. Students in the chemistry, geosciences, and physics programs who want certification for entering a credential program must complete the following assessments. (Students who fail one or more criteria may graduate without certification.) The portfolio and the advising meetings needed to complete these assessments provide a mechanism whereby the program coordinator makes certain that students are aware of and have completed requirements for entry into the SDSU credential program.

### **I. Satisfactory Grades:**

A. At most one C- or D in preparation for the major.

B. At most one C- or D in the major.

(If the same or an alternative course allowed for any given requirement is repeated, the higher grade will be used.)

II. Portfolio Assessment: A satisfactory portfolio must be submitted during the first week of the final semester and reviewed by the science subject matter preparation program coordinator, with input from an additional faculty member if the results are questionable. See directions below. Start saving appropriate papers, exams, lab reports, and other assignments plus the early field experience write-up from TE 211 and safety handouts.

### **III. Summative Assessment:**

A satisfactory recommendation must be submitted prior to finals week of the final semester:

For Chemistry: A satisfactory recommendation from the senior laboratory project supervisor.

For Geological Sciences: A satisfactory recommendation from the senior research project supervisor.

For Physical Science: A satisfactory recommendation from the instructor of Physics 357.

**Portfolio Directions for the Chemistry, Geosciences, and Physics Programs 2005 and later**  
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The portfolio must include:

A. Professional Background

1. Advising worksheet or Degree Evaluation showing courses completed, where, when, and grade earned.
2. Resume in which the student describes experiences he/she has had working with high school level students and/or experiences working in the sciences.
3. Letter of recommendation from a middle school or high school teachers.

B. Two papers written independently to show the student is making a commitment to the program and to demonstrate his/her ability to write and work independently.

Essay I Directions: Write a five-page research paper in which you explore the contributions of African Americans, Chicano/as, Muslims, Gays and Lesbians, and/or Women to science and technology. The paper should begin with your personal hypothesis about a specific question you pose, followed by a presentation of evidence, and end with a conclusion based on the evidence. Topics may focus on one or more of the above groups. Internet and library research must be documented in the Works Cited page. Reference to at least one formal journal article is required. Photocopies of a two to three pages of the most important sources should be attached and identified as appendices.

Essay II Directions: Write 3 to 5-page paper in which you analyze how you have learned. Which teaching strategies were most effective? Which were less effective and why? How did laboratory and fieldwork contribute to understanding the content and process of science? How have different types of assessments (tests, lab reports, projects, etc.) contributed to the learning process? If you identify specific faculty members, use Post-it notes, which can later be removed. All statements will be confidential.

C. Photocopies or a description of safety procedures needed in various situations.

D. Samples:

1. Early field experience:
  - a. A reflection or interview write-up from TE 211.
  - b. The journal entries and final reflections write-up for the 10-hour experience.
  - c. The journal entries and final reflections write-up for the 20-hour experience.
2. (Chemistry or Physics students) An exam, paper, project, or lab report that deals with a scientific moral, ethical, technological, or environmental problem that affects society. Students should use a "hi liter" to indicate the relevant part(s) if only part of the sample deals with the required issue.  
(Geoscience students) A sample, course notes, or short write-up that proves the student "know(s) the location of the ozone layer in the upper atmosphere, (can) explain its role in absorbing ultraviolet radiation, and (can) explain the way in which this layer varies both naturally and in response to human activities" (CTC Required Element 15C.1).
3. One exam, paper, Scantron test plus lecture/lab notes, or lab report from selected lower division breadth or other courses (5-7 total) taken since deciding to pursue the single subject teaching program and completed prior to the last two semesters.
4. One exam, paper, project, and/or lab report from selected upper division major or other courses (5-7 total) taken since deciding to pursue the single subject teaching program and completed prior to the last two semesters.