

GUIDE FOR CSU REVIEWERS

**CSU GE-B Area B Physical Universe and Its Life Forms
[Mathematics and Quantitative Reasoning]**

Area B4 courses must emphasize the development of students' mathematical and quantitative reasoning skills beyond the level of intermediate algebra. Courses in the history of mathematics, for example, are not acceptable for Area B4 because they are not focused on building students' mathematical skills. Trigonometry and discipline-specific statistics courses are not acceptable for IGETC Area 2 but may be acceptable for CSU GE-Breadth Area B4. Courses in the other sub-areas of Area B emphasize the perspectives, concepts, principles, theories, and methodologies of the disciplines.

Area B4 courses must emphasize the development of student's mathematical and quantitative reasoning skills beyond the level of intermediate algebra, which must be a stated prerequisite.

Courses approved for this requirement are intended to impart knowledge of the facts and principles that form the foundations of living and non-living systems. Approved Area-B courses should promote understanding and appreciation of the methodologies of science as investigative tools, as well as the limitations of scientific endeavors, namely, what the evidence is and how it was derived. In addition, particular attention should be given to the influence that the acquisition of scientific knowledge has had on the development of the world's civilizations, not only as expressed in the past but also in present times.

Some but not all course outlines submitted for Area B will refer to "the scientific method." Implicit inclusion of the scientific method is acceptable, especially for courses designed for students majoring in science, who would be expected already to be pretty familiar with the "scientific method" per se. EO 595 refers to "methodologies of science as investigative tools," and Area B courses should enhance students' appreciation of how scientists do science. If students appear to emerge from a geology course (even an environmental geology course for non-majors) with a fair idea of how geologists have come to understand what produces a volcano, that knowledge would be satisfactory for Area B1.

Some science courses look a bit like "neither fish nor fowl" but there is a reason for this. The CSU Nursing programs wanted to pare down the number of required courses, so they chose to develop a

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one-semester, comprehensive Chemistry course to meet the licensing board requirements. The CCCs then developed a comparable course. They all look similar to Ventura's CHEM V30. This course does go into the nature of matter, scientific measurements and notation, etc., which are along the same lines as basic scientific methodology.

There are some physical science courses that look like blends of geology, astronomy, physics and chemistry. These "do it all" courses were designed to meet the CCTC standards for prospective elementary school teachers. These are usually acceptable, too, depending on how they are written.

When a science course includes both lecture and lab, please approve it for Areas B1 & B3 or Areas B2 & B3 (assuming the content justifies approval), even if the college failed to request placement in Area B3. Stand-alone lab courses are conventionally designated B3 only.

A stand-alone lab course must have a related lecture course as prerequisite or co-requisite to meet the IGETC lab requirement. (For CSU GE-Breadth Area B3, we may approve a lab course that doesn't have an official prerequisite/co-requisite but require that a particular Area B1 or B2 course be successfully completed prior to or concurrently with the lab course for the lab course to satisfy Area B.)

Physical geography courses are almost always accepted in Area B1. Physical anthropology courses are usually accepted in Area B2 but might be accepted in Area D1.

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