



One example is the planned development of a new K-8 Foundational Level General Science credential and certificate at **CSU East Bay**. The campus plans to establish a model pathway for preparation and professional development of elementary and middle school teachers in science. A new *Foundations in Science* program will prepare K-8 teachers in science content and pedagogy. It will be a new four-course sequence designed both for elementary and middle school science teachers that addresses the state's new requirements for the Foundational Level General Science Credential. It is being designed to be taken either (a) as a Minor in Science within the undergraduate curriculum to prepare future teachers or (b) as a Certificate Program in Foundational Science that provides rigorous professional development for current teachers.

At CSU Fullerton, future elementary teachers will have expanded opportunities to develop high-level expertise in inquiry-based science. One approach focuses on integration of kit-based science resources into courses, utilizing materials that emphasize inquiry and is consistent with techniques developed by the Arnold and Mabel Beckman Foundation. A second major approach is a partnership with informal science institutions. The campus will offer Promoting Resources in Informal Science Education (PRISE) internships for future elementary teachers that feature inquiry-based science at informal science organizations across Orange County, including the Discovery Science Center, Fullerton Arboretum, Ocean Institute, and Tucker Wildlife Sanctuary.

A third example involves the teacher pathways at **Humboldt State**. Future elementary teachers will learn inquiry-based science methods in a range of majors, including liberal studies and child development, and then practice them in local school and science museum settings. Current initiatives will be expanded in a unique collaboration with museum partners and providers of outdoor education. In addition, the science education option within the campus' planned Master's degree in biology will include elementary teachers and will give significant attention to inquiry-based science, as will planned science education professional development programs for current teachers, which will incorporate teacher-based research examining student outcomes.

At CSU Los Angeles, future elementary teachers will guide children-primarily from high-need, low-income elementary schools-through inquiry-based, after-school science activities through a collaborative initiative supported by the David and Lucile Packard Foundation. The project will involve Cal State L.A. and nine other CSU campuses working within the state's comprehensive after-school program to provide rich science-learning opportunities that incorporate reading and literacy development. The future teachers, about to embark on their careers, will gain valuable insights and experience working as staff members in the programs and helping children engage in hands-on science.

At Cal Poly San Luis Obispo, the science and mathematics, education and liberal studies programs have been merged. One of the objectives of this merger is to give greater attention to ensuring that liberal studies majors emerge with strong integrated preparation in content and pedagogy for elementary science. Consistent with this objective, the physical science series for Liberal Studies majors has been converted to a hands-on, guided inquiry, collaborative studio format, and similar changes in the life science course are planned. Over the next three years, Cal Poly science faculty will provide professional development to local elementary teachers in grades 3-5 through a recently awarded California Math and Science Partnership (CaMSP) grant. Many of these in-service teachers work with Cal Poly elementary teacher credential candidates.