

HISTORY 100 ARTICLES

As part of its commitment to the university's "Learn By Doing" philosophy, the Cal Poly History Department offers an introductory seminar (History 100) that gives students entering the major the opportunity to conduct original archival research. Using the University Archives and Special Collections, students formulate a research question on a topic of Cal Poly history, select one or more relevant primary sources from the collections, analyze these sources, and write a five to six page research paper based on this analysis. In the process, students gain insight into historical methods and questions, experience firsthand the challenges of professional research, and contribute to the university community by helping to tell its story. We thank the University Archives and Special Collections Department of Kennedy Library for their support of this project. We look forward to including essays by these new history students as a regular feature of *The Forum*.

CONTRIBUTOR BIO



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DEVELOPMENT OF THE CAL POLY BIOCHEMISTRY DEPARTMENT, 1967–1977

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In the seventies, Cal Poly was granted the title of university, rather than that of college, which it had previously held. Cal Poly had always been, first and foremost, and, arguably, still is a technical school. However, as time has progressed Cal Poly has become significantly less focused on vocation training in the fields of agriculture and engineering. The university title that was bequeathed to Cal Poly was a result of Cal Poly's focus widening from its more vocational roots. When Cal Poly was becoming a university, it began to more thoroughly build its collection of colleges—one of the colleges to greatly develop during this transitory phase was the College of Science and Mathematics. More specifically, the development of the biochemistry major into a more rigorous, individualized program gives concrete evidence that the seventies were the decade in which Cal Poly began to more greatly expand its horizons at the expense of its founding colleges.

This paper will specifically deal with the analysis of the biochemistry course catalogs published by Cal Poly in the terms of 1967–1968 and 1977–1979, with small mention of the catalogs in between. I have chosen to focus on biochemistry for its relatively unique position as a field of study. Biochemistry is a

synthesis subject, combining aspects of chemistry—a more “pure” science—and biology—a science with an enormous number of applications to the agricultural world. By observing how the required classes of biochemistry developed, in comparison to that of the chemistry major, the most similar major, a general expansion of the Chemistry department that can't be explained by the growth of the school is seen. Thus, the school's development away from its more technical aspects can be found. To illustrate this point, I will first compare and contrast the two majors in the term of 1967–1968, the first year that the Chemistry and Biochemistry department existed as its own entity.

In the term of 1967–1968, the required courses of the two majors were remarkably similar. The two majors were nearly identical, less a few small, albeit, key differences. Both majors required that the students take the whole General Chemistry series, Quantative Analysis, the first and second parts of the Organic Chemistry series, Laboratory Glass Blowing, the first part of the Biochemistry series, the Physical Chemistry series, Qualitative Organic Analysis, and the Senior Project.¹ These classes represented the bulk of the classes that majors of biochemistry and chemistry took in the term of 1967–1968. The huge similarities of the two majors are indicative of the school's continued focus on its founding fields. There were not many differences between the two majors likely because Cal Poly lacked the resources (monetary, personnel, etc.) and drive necessary to shift the school's focus more than it already had. Some differences did exist, however this difference is indicative of Cal Poly's position as a more technical school. The primary difference between the two majors manifested in the senior year when chemistry majors were required to take Advanced Organic Chemistry and Inorganic Chemistry, while the biochemistry students were required to take Advanced Biochemistry, Food Analysis and Agricultural chemicals.² This split represents the difference between the two fields of studies. What's notable is that Biochemistry's senior courses are extremely related to technical aspects of agriculture. This implies that biochemistry (and chemistry by association) was still seen as a field to prepare a student specifically for a job in agricultural vocations. This reveals the Chemistry department to be supplemental to the college, rather than anything close to fundamental.

¹ *California State Polytechnic College Catalog, 1967-1968*. (San Luis Obispo, CA: California State Polytechnic University 1967), 257-259.

² *California State Polytechnic College Catalog, 1967-1968, 257-259*.

By 1977, the situation involving the two majors had changed drastically. In 1972, Cal Poly was granted the title of University. In the five years that followed, the school proved that it was worthy of the title, and by the time 1977 rolled around, its Chemistry department, specifically, was far more greatly expanded than it was previously.³ In the terms of 1977–1979 the two majors were only similar in the first two years of courses, and even then there were still differences. Both majors required the entire General Chemistry series, Quantative Analysis, and the first two parts of the Organic Chemistry Series.⁴ Despite these being the only similarities between the two majors, they both still had a similar number of chemistry courses required to be taken in total. That the total number of chemistry department classes remained the same, while the two majors were not particularly similar, implies that by 1977 the Chemistry department had grown greatly; further evidence of this growth lies in the differences between the majors. In the same year it can be seen that Chemistry majors were required to take more math and physics classes, the entire Physical Chemistry series, and Instrumental analysis. Biochemistry majors, on the other hand, were required to take more life science classes, the entire General Biochemistry series (to be addressed later), and the Biophysical chemistry Series (electively, Physical Chemistry could substitute these two classes).⁵ These differences, first, represent the slight gap that was able to grow between chemistry and biochemistry between 1967 and 1977. That this gap was able to form at all more greatly cements the assertion that the Chemistry department, specifically, grew larger in those years, likely indicating that the school was focusing on more colleges than those of Engineering and Agriculture at this point. The major of Biochemistry, furthermore, no longer required specifically agricultural classes to be taken. This further implies that the school had drifted from its original focuses by 1977. A revealing loss for both the majors was the removal of Laboratory Glass Blowing as a required course. Laboratory Glass blowing taught, “Techniques of glassblowing...simple laboratory apparatus.”⁶ An extremely applied and technical class, it is (it still exists today) likely a

³ *California State Polytechnic University Catalog, 1972-1973*. (San Luis Obispo, CA: California State Polytechnic University, 1972).

⁴ *California State Polytechnic University Catalog, 1977-1979*. (San Luis Obispo, CA: California State Polytechnic University, 1977), 197-198.

⁵ *California State Polytechnic University Catalog, 1977-1979*, 197-198.

⁶ *California State Polytechnic University Catalog, 1977-1979*, 260.

vestige of when Cal Poly was a far more technical school. Its original addition to the two chemistry majors was likely due, both, to a general lack of classes, as well as Cal Poly's focus on more vocational areas. The loss of Laboratory Glass Blowing indicates, by 1977, the overall growth of the Chemistry department and the school's lessening focus on vocational and technical preparations.

In the years between 1967 and 1977, several significant changes were made to the classes that were offered within the Chemistry department. New classes came into existence, some old ones withered away, but, the majority of classes were either retooled slightly or expanded/contracted into a different form. An interesting note is that most of the Chemistry major specific courses were left unchanged; it was the courses related to the Biochemistry major that changed the most. The most significant alteration to the Biochemistry major was the change in the General Biochemistry series. In the 1967–1968 catalogs there are a total of 3 dedicated biochemistry classes: Agricultural Biochemistry (CHEM 328), Biochemistry (CHEM 329), and Advanced Biochemistry (CHEM 434). Both CHEM 328 and CHEM 329 make heavy reference to their agricultural value—they each make special reference to the manufacture of animal feed and other agricultural products.⁷ The description of Advanced Biochemistry contains, "...and their relation to agricultural production."⁸ These descriptions imply that, in 1967, Biochemistry was a far more agriculturally based major, made to prepare the student in the field agricultural vocations. By 1977, several new biochemistry classes are present and required for the major—a total of 5, specifically, biochemistry classes. The classes required for the major were Biophysical chemistry (CHEM 301,302) and the General Biochemistry series (CHEM 371,372,373).⁹ There were several more electives as well. Most significantly, of the required courses, none of them mention anything relating to agricultural techniques or production. Of the remaining optional biochemical classes only Food Analysis (CHEM 435), Agricultural Chemicals (CHEM 436), and Biochemistry (CHEM 328) make any reference to agricultural techniques.¹⁰ Of those three CHEM 328 is the most significant and its mention of agriculture (near identically to the description of CHEM 329 in 1967) implies even more of a separation from the schools founding colleges. By examining

⁷ *California State Polytechnic College Catalog, 1967-1968*, 261-263.

⁸ *Ibid.*, 262.

⁹ *California State Polytechnic University Catalog, 1977-1979*, 260-264.

¹⁰ *Ibid.*, 260-263.

the pre-requisites of the course, and the wording of its description, it becomes apparent that the once primary class for Biochemistry majors had drifted into being a survey of biochemistry for non-Biochemistry/Chemistry majors. That the once primary class for the major had drifted into the place of the non-major class indicates just how much the Chemistry and Biochemistry department had expanded in those 10 years. The presence of this class' change reveals without a doubt that by 1977, Biochemistry was no longer "agricultural chemistry," but was rather considered a distinct field in its own right.

This shift of Biochemistry, and the whole Chemistry department, away from agriculture indicates a lessening focus of the school on agriculture; furthermore the great growth of specifically biochemistry classes indicates that the Chemistry department had grown greatly. If the Chemistry department had grown so much, it is not a difficult step to take to say that the whole College of Science and Mathematics had grown by similar magnitudes. The overall large growth of the colleges other than Agriculture and Engineering in the 1970s reveals that Cal Poly was taking its new title as University seriously.

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