



Date: February 21, 2020

To: John Stalvey, Interim Provost

From: John Petraitis, Interim Dean, College of Arts and Sciences

Cc: Colin McGill, Associate Professor; Chair, Department of Chemistry  
Pat Tomco, Assistant Professor

Re: AY20 Expedited Program Review Findings

**Program/s in this review:** Chemistry BS

**Specialized accrediting agency (if applicable):** None

**Campuses where the program is delivered:** Anchorage

**Members of the program review committee:**

Colin McGill, Associate Professor and Department Chair  
Pat Tomco, Assistant Professor

### **Centrality of Program Mission and Supporting Role**

UAA's mission is to discover and disseminate knowledge through teaching, research, engagement and creative expression. UAA is committed to serving the higher education needs of the state, its communities and its diverse peoples. It is also committed to instruction at multiple academic levels, success of all students regardless of their higher education goals, and service to the diverse peoples and communities of the state. UAA's core themes are (1) Teaching and Learning, (2) Research, Scholarship and Creative Activity, (3) Student Success, (4) UAA Community, and (5) Public Square. UAA values international and intercultural education, diversity of experiences and perspectives, and the diversity of our unique location in Southcentral Alaska that comes from the Alaska Native peoples of this area.

The College of Arts and Sciences CAS contributes to UAA's mission with a suite of programs that provide, among other things,

1. general education courses for undergraduates in CAS and other Colleges,
2. opportunities for undergraduates to pursue majors in the humanities, social sciences, natural sciences, and the arts, and

3. opportunities for faculty and students to pursue research and creative activities in CAS's academic disciplines,
4. graduate programs for advanced studies.

Given decreased enrollments across UAA and significant budget cuts to CAS, the challenge is to serve UAA's and CAS's missions with only 75% of the funds it had in 2018-2019. CAS's shrinking budget is especially challenging for programs that rely on state financial appropriations through CAS because the programs have a gap between (a) the total costs of everything the program does and needs, and (b) the tuition CAS receives to cover those costs. This describes most programs in CAS: most rely on state appropriations and CAS has 30% less than it had two years ago.

CAS's Department of Chemistry contributes to CAS's and UAA's mission by providing four courses with labs that apply to the natural sciences component of the general education requirements, offering opportunities for Chemistry BS majors to pursue further students in this field, and allowing students to be mentored by research-active faculty who are conducting important work in applied chemistry. Please remember that the Chemistry BS was temporarily suspended in 2014 and admitted no new majors until 2017. As such, some metrics in the data for Institutional Research reflect this fact.

### **Program Demand (including service to other programs), Efficiency, and Productivity**

One measure of the program's demand is the number of incoming high-school students who select Chemistry as their initial major. In 2019, 11 incoming students selected the Chemistry BS as their major, and with 2020 admissions just underway, 16 more high-school seniors already selected this degree. Therefore, demand for the degree appears to be growing and is higher than the median demand of 10 incoming students per CAS baccalaureate degree. Another measure of demand is how many students (regardless of their major) enroll in Chemistry courses. In 2019, demand was quite high: the faculty produced nearly 6,500 student credit hours, putting the department among the top 25% of credit-producing baccalaureate programs in CAS. In terms of efficiency, the tuition CAS receives from Chemistry courses easily covers the instructional costs for those classes. In fact, when considering all costs for everything the faculty do (namely, teaching, research, and service), and need (e.g., lab assistance, lab materials, etc.), the Chemistry Department is one of the select few departments in CAS that covers all of its costs and relies on no state appropriations through CAS. Finally, as to productivity, the number of awards is rapidly rebounding after the suspension to admissions was lifted in 2017: 23 students were majors in 2017 and 2018, and now 49 are majors in 2019. In fact, BANNER suggests that as of January 2020, there were 60 majors. The number of degrees awarded remained low through 2019 as the newly admitted majors work their way through the program.

### **Program Quality, Improvement and Student Success**

Chemistry is a difficult topic and class pass rates reflect that. When the program was restarted in 2017, it did not just restart the old program but instead overhauled it. Recently, the Department has worked to improve the pass rates by changing course pre-requisites, changing the assessment methods in classes, and experimenting with the use of peer learning assistants. Faculty in this program are disproportionately engaged in student success initiatives. It experimented with online courses and learned where online courses could and could not work in this discipline.

### **Program Duplication / Distinctiveness**

UAF also offers a BS in Chemistry, and although there are some similarities, UAA's program focuses more on bio-chemistry, something that fits the health-related mission of UAA. Moreover, even if UAF's program and UAA's programs were identical, duplication would be very appropriate because instruction in chemistry requires lab work that is inherently risky and requires onsite supervision by trained faculty.

### **Commendations and Recommendations**

The faculty are commended for revitalizing a program that had been suspended, and turning it into a major that now attracts more students than most other CAS programs. It is also commended for doing so while covering all of its costs. The faculty should also be commended for the hard work they put into their expedited program review submission.

**Decision**

Continuation. It is conceivable that when UAA's and CAS's budget improve, this program could be enhanced.