**ASC Proposal Guidelines**

1. Required Information

Name: Advanced Chemistry Knowledge for Educators. Type 3A (Stand-Alone) and 3B (Embedded) Certificate.

Delivery: Combination of synchronous and asynchronous online courses.

Proposed implementation: Initial cohort begins summer 2020.

Academic units responsible for certificate administration: Department of Chemistry and Biochemistry, College of Arts and Sciences.

Description: The type 3A (Stand-Alone) and 3B (Embedded) certificate “Advanced Chemistry Knowledge for Educators” consists of a total of 18 credit hours distributed across four online courses. The certificate is designed to enhance the skills of high teachers, or those interested in becoming high school teachers, and provide accreditation to teach College Credit Plus chemistry courses. The proposed curriculum will begin in summer 2020. We anticipate an initial cohort of 8-10 students during the first year. Our goal is to award 30 certificates in the first three years of the program.

2. Rationale

Under the 2014 state law known as the “College Credit Plus Program,” minimum credentials have been established for instruction in College Credit Plus (CCP) courses. High school teachers who wish to be the instructors of record for survey-level college courses need one of the following: a Master’s degree in the content area, or a Master’s degree in a different area plus 18 graduate credits in the content area. The Department of Chemistry and Biochemistry has developed an 18-credit certificate to meet the needs of high school teachers who already possess a Master’s degree and who seek to be credentialed to teach College Credit Plus courses in Chemistry. This certificate provides evidence that a teacher possesses the minimum academic qualifications to teach CCP courses.

In the state of Ohio, total College Credit Plus enrollment was nearly 70,000 students in the 2016-2107 academic school year. The most common delivery method for these courses is by a credentialed high school instructor. Science is a subject taken by a significant number of students, trailing only English and Social Sciences. However, many high school science teachers lack the appropriate credentials to teach CCP Chemistry courses, and there are limited opportunities to earn these credentials in Ohio. This certificate program will address this need.

Student demand for the proposed certificate include 1) experienced teachers in Ohio currently teaching high school Chemistry course but are not eligible to teach CCP courses, 2) individuals completing a Masters of Education (MEd) program and who plan to teach CCP courses, 3) educators outside of Ohio seeking graduate credits in Chemistry in order to teach CCP-equivalent courses in their own states.

Upon completion of the academic certificate in the Advanced Chemistry Knowledge for Educators program, learners will be better prepared to 1) design a General Chemistry CCP course comparable to undergraduate courses in the Ohio, 2) deliver the course with an understanding of advanced, foundational content knowledge, 3) evaluate student achievement in the course.

3. Relationship to Other Programs

This certificate does not overlap with other programs or departments within the university.

This certificate has not been previously submitted for approval.

The University of Toledo currently offers an online program leading to the credentialing of CCP teachers in Chemistry as part of its Masters of Science and Education program.

4. Student Enrollment

We anticipate an initial cohort of 8-10 students during the first year. Our goal is to award 30 certificates in the first three years of the program. Efforts will be made to recruit teachers, both in Ohio and nationwide, using networks such as the American Modeling Teachers Association and regional National Science Teachers Association (NSTA) conferences.  These efforts will include seeking to enroll underrepresented participants in STEM.  STEM students who have completed the OSU Masters of Education program will also be targeted.

5. Curricular Requirements

A minimum of 18 credits is required for completion of the certificate. The curriculum is a four-course sequence. Courses are intended to be taken in order, although this is not a requirement.

* Summer: Online course (5 credit)
* Fall: Online course (4 credit)
* Spring: Online course (4 credit)
* Summer: Online course (5 credit)

The time to completion is a maximum of four years. The recommended curriculum is four semesters (summer, autumn, spring, summer).

Certificate Completion Sheet

Department of Chemistry and Biochemistry, The Ohio State University

Advanced Chemistry Knowledge for Educators, Type 3A (Stand-Alone) and 3B (Embedded) Certificate

**Student Name:**

**Student OSU Email:**

**Certificate Advisor Name:**

**Coursework**

|  |  |  |
| --- | --- | --- |
| Course (hours) | Course Grade | Term Completed |
| Chemistry 6086, Advanced Chemistry Knowledge for Educators: Atomic Structure and Quantum Mechanics (5 credits).  |  |  |
| Chemistry 6087, Advanced Chemistry Knowledge for Educators: Bonding Models and States of Matter (4 credits). |  |  |
| Chemistry 6088, Advanced Chemistry Knowledge for Educators: Kinetics, Thermodynamics, and Equilibrium (4 credits) |  |  |
| Chemistry 6089, Advanced Chemistry Knowledge for Educators: Modern Applications and Instrumental Analysis (5 credits) |  |  |

**Substitutions Approved:**

**Certificate Advisor Signature:**

**Date:**