

Assessment Plan for BS in Cannabis Biology and Chemistry (CBC)

Prepared as an initial document for the submission of the CBC program to the CAPB Board

David Lehmpuhl, Dean, College of Science and Mathematics

Mission and Goals:

Cannabis Biology and Chemistry is an interdisciplinary program residing in the department of Chemistry. The departmental mission is to provide intellectual and professional training for students in the field of chemistry and in support of the American Chemical Society charter “to encourage in the broadest and most liberal manner the advancement of chemistry in all its branches; the promotion of research in chemical science and industry, the improvement of the qualifications and usefulness of chemists through high standards of education to promote scientific interests and inquiry. This fits into the school’s mission of offering “a broad array of baccalaureate programs with a strong professional focus and firm grounding in the liberal arts and sciences.” The extensive use of the standards developed by the American Chemical Society and by which our program is certified ensure we have a strong professional focus while promoting high standards of education along with research in chemical science.

This particular program also has significant coursework and overlap with the Biology Program. The Biology Program provides the biological component of the liberal arts education. We promote student understanding of biological concepts relevant to the individual and society, and foster an appreciation of scientific inquiry. Biology is an integral subject for other majors’ requirements and the Biology department is committed to fulfilling these service courses and general education for other departments.

The Cannabis Biology and Chemistry program at CSU-Pueblo allows students to pursue one of two emphasis areas, the natural products emphasis which is more biology based, or the analytical emphasis which is more chemistry based. Both emphases provide a solid foundation in chemistry and biology, in fact, students in both emphases will earn a chemistry minor while students in the natural products emphasis will also earn a biology minor with a biology minor also easily attainable in the analytical emphasis.

The Cannabis Biology and Chemistry program goals are:

- To supply students with the necessary coursework to serve as leaders in an emerging cannabis field, providing a non-biased, science-based approach to problem solving and data collection and analysis.
- To prepare students upon graduation to enter field positions in government or private industry.

- To provide students with the necessary background to successfully pursue graduate study towards a professional career in natural products, plant chemistry or plant biology.

These program goals are aligned with the College of Science and Mathematics goals:

CSM offers quality, competitive Bachelor's and Master's degree programs that prepare graduates for success in professional and graduate programs, and for careers in the biological and physical sciences and mathematics. The College also supports a strong general education program by providing core curricula in science and mathematics for students pursuing careers in the health and environmental sciences, engineering, technology and teacher education. The CSM provides advanced learning opportunities for students via faculty mentored research projects and internships that promote the discovery of new information and the application of new knowledge. The CSM supports the community, region and related professions through outreach including initiatives that enhance economic development, scientific literacy, and K-12 education.

Expected Student Outcomes:

1. Students will understand basic chemical and biological principles applied in these fields and how those principles can be applied to the emerging field of cannabis science.
2. Students will understand cannabis physiology and growth, the pharmacological implications, and the practical applications for the industry.
3. Students will use contemporary instruments and techniques for studying plant biological and chemical processes.
4. Students will develop communication and interpersonal skills to enhance their working relations with co-workers, other professionals, the public and non-governmental organizations.
5. Students will develop skills in reading and interpreting the scientific literature and in presenting a synthesis of it accurately in oral and written form.
6. Students will demonstrate critical thinking and problem solving skills using experimental design and the scientific process.

Assessment Procedures:

Because this is an interdisciplinary major with currently no full-time faculty in the program, assessment activities will be strictly tied to assessment activities undertaken in the chemistry and biology programs. The department chairs working together with faculty members of the chemistry and biology programs, the dean of the college and the assistant provost for assessment will develop specific assessments related to the SLOs above for the cannabis biology and chemistry majors.