

Program-Level Assessment: Annual Report

Program Name (no acronyms): Cannabis Science and Department:

Operations

Degree or Certificate Level: Undergraduate Certificate College/School: School for Professional Studies

Date (Month/Year): May/2021 Primary Assessment Contact:

In what year was the data upon which this report is based collected? Academic Year 2020-2021

In what year was the program's assessment plan most recently reviewed/updated?

1. Student Learning Outcomes

Which of the program's student learning outcomes were assessed in this annual assessment cycle? (Please list the actual learning outcome statements and not just numbers, e.g., Outcomes 1 and 2.)

- 1. Students will be able to apply knowledge of plant science, soil nutrients, and cultivation practices to the growing of cannabis (CSO 1).
- 2. Explain the engineering principles behind and processes employed, in the manufacturing of cannabis products (CSO 2).
- 3. Explain the known pharmacological principles of cannabis (CSO 3).
- 4. Explain the roles, responsibilities and legal requirement used to operate and sustain a cannabis dispensary (CSO 4).
- 5. Describe how cannabis products impact society (history, community, society, economic) (CSO 5).

2. Assessment Methods: Artifacts of Student Learning

Which artifacts of student learning were used to determine if students achieved the outcome(s)? Please identify the course(s) in which these artifacts were collected. Clarify if any such courses were offered a) online, b) at the Madrid campus, or c) at any other off-campus location.

All courses were offered online.

Course Name & Artifact Used

CSO 1000: Cannabis Fundamentals: Growing, Manufacturing and Dispensing – Growth Journal and Cloning Project

CSO 1500: Cannabis Plant Science and Cultivation – Presentation: Cultivation Plan

CSO 1600: Cannabis Extraction and Product Production – Presentation: Create Your Own Product

CSO 1700: Cannabis Compliance and Dispensing – Create a Dispensary Plan or Create a Patient Consultation with an 8 Week Patient Journal

3. Assessment Methods: Evaluation Process

What process was used to evaluate the artifacts of student learning, and by whom? Please identify the tools(s) (e.g., a rubric) used in the process and include them in/with this report.

Instructors have outcomes set up and added to their artifact rubric via Canvas outcomes. At the end of their courses, a Canvas Outcomes report was run to collect data about student performance and artifacts used to assess learning outcomes. Data was used to analyze and make changes as needed to assessments of learning outcomes.

4. Data/Results

What were the results of the assessment of the learning outcome(s)? Please be specific. Does achievement differ by teaching modality (e.g., online vs. face-to-face) or on-ground location (e.g., STL campus, Madrid campus, other off-campus site)?

CSO 1-80.10% of students "Meets Standard - student can apply knowledge of growing cannabis in ALL the following areas: plant science, nutrients, and cultivation practices" as discussed in this course.

CSO 2 – 66.67% of students "Meets Standard – student can explain the engineering principles behind and processes employed, in the manufacturing of cannabis products.

CSO 3 – 90% of students "Meets Standard – student can explain the known pharmacological principles of cannabis.

CSO 4 – 77.55% of students "Meets Standard – student can explain the roles, responsibilities and legal requirement used to operate and sustain a cannabis dispensary.

CSO 5 - 91.60% of students "Meets Standard – student can describe how cannabis products impact society (history, community, society, economic).

5. Findings: Interpretations & Conclusions

What have you learned from these results? What does the data tell you?

An average of 81.18% of students have met the standard of learning outcomes. We have analyzed preliminary data and will continue to monitor as the program continues.

6. Closing the Loop: Dissemination and Use of Current Assessment Findings

A. When and how did your program faculty share and discuss these results and findings from this cycle of assessment?

After each term, course instructors review grades and determine if the course artifact was impactful to the learning outcomes.

In Fall 2, **CSO 1500** – Cannabis Plant Science and Cultivation course made the decision to remove the tomato plant grow journal that originated in CSO 1000 – Cannabis Fundamentals: Growing, Manufacturing and Dispensing. Bringing the journal into the CSO 1500 course took time away from students focusing on the cultivation plan that they build each week which culminates in providing the instructor with an "ideal" cultivation plan comprised of a method, environment, harvest cycle, IPM plan etc.

CSO 1700 – Cannabis Compliance and Dispensing originally offered the choice of building a dispensary business plan or a patient consultation project. The decision was made to remove the dispensary business plan and keep the patient consultation project because in this course students will accumulate knowledge that they will apply within the context of a patient consultation in a dispensary. Medical cannabis patient consultation is the process wherein an individual guides another through self-reflection about cannabis product use and effectiveness. In a dispensary setting, this responsibility is typically handled by a budtender, staff pharmacist or nurse, or another employee.

B. How specifically have you decided to use these findings to improve teaching and learning in your program? For example, perhaps you've initiated one or more of the following:

Changes to the Curriculum or Pedagogies

- Course content
- Teaching techniques
- Improvements in technology
- Prerequisites

- Course sequence
- New courses
- Deletion of courses
- Changes in frequency or scheduling of course offerings

Changes to the Assessment Plan

- Student learning outcomes
- Artifacts of student learning
- Evaluation process
- Evaluation tools (e.g., rubrics)
- Data collection methods
- Frequency of data collection

Please describe the actions you are taking as a result of these findings.

AS a result of our findings, the course instructors in conjunction with the Program Director, analyzed the student evaluations and course comments. Removing the growth journal from CSO 1500 was the best decision

to ensure that students were able to focus on building their project (on a weekly basis). This action would result in the student presenting a robust, "ideal" cultivation plan for CSO 1500.

AS a result of our findings, the course instructors in conjunction with the Program Director, analyzed the student evaluations and course comments. In CSO 1700, removing the option of choosing to draft a dispensary business plan was the best case so that students could focus on the knowledge they would gain by taking a deeper dive into patient consultations. More than 50% of the graduating student population have expressed that they desire to work as a budtender in a medical cannabis facility. In order to set the students up for success post-graduation, teaching students the responsibility of patient consultation and guiding customers through the various strains of medical cannabis along with uses and side effects is very important.

If no changes are being made, please explain why.

Changes were not made to the CSO 1000, CSO 1600, CSO 2000 curriculum as the weekly assignments/projects and final project are correctly assessing the students' knowledge of the topics presented in those courses.

7. Closing the Loop: Review of Previous Assessment Findings and Changes

- A. What is at least one change your program has implemented in recent years as a result of assessment data?

 This program commenced in August 2020. There is no prior year's data that has been changed.
- **B.** How has this change/have these changes been assessed?

N/A

C. What were the findings of the assessment?

N/A

D. How do you plan to (continue to) use this information moving forward?

N/A

IMPORTANT: Please submit any assessment tools (e.g., rubrics) with this report.

Final Project (CSO 1000)

Final Project (CSO 1000)

Criteria			Ratings			Pts
This criterion is linked to a Learning Outcome Completeness	10 pts Outstanding Writing or Video: Fully answers all questions. Through responses shows understanding and respect for the growing process.	superficially Some answe	ovement Video: Answers a few questions I, or with a simple, short response. It demonstrate understanding and owing process.	Writing answer Respon	Expectations g or Video: Does not few or any questions. ases are limited and/or no se at all.	10 pts
This criterion is linked to a Learning Outcome Depth	10 pts Outstanding Writing or Video: All answers to all que demonstrate thoughtful self-reflection o growing tomato plants. Responses reflect understanding the growing process and process entails. Answers demonstrate th has learned their own role and responsible growing a tomato plant.	f action in ct weeks of what the e individual	5 pts Needs Improvement Writing or Video: Answers few q demonstrating some thoughtful se reflection of action in growing tor plants. Responses somewhat refle weeks of growing tomato plants. are short and superficial.	elf- nato ct on the	0 pts Below Expectations Writing or Video: Does not answer few or any questions. Responses are limited and/or no response at all.	10 pts

Final Project	(CSO 1000)
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Criteria			Ratings			Pts
This criterion is linked to a Learning Outcome Readability	10 pts Outstanding Writing or Video: Opinions, thoughts and ideas are clearly stated. No errors with writing style or mechanics (punctuation, spelling, and grammar). 0-3 errors.	Writing and idea writing	improvement or Video: Opinions, thoughts as are stated. Some errors with style or mechanics (punctuation, , and grammar). 3-5 errors.	0 pts Below Expectations Writing or Video: Difficontions, thoughts and interiors with writing style (punctuation, spelling, a errors.	deas stated. Many or mechanics	10 pts
This criterion is linked to a Learning Outcome Plant Photo and Selfie	10 pts Outstanding Clear photo(s) or video of tomato plants Picture shows all plants. Separately a cle photo(s) or video of student with tomato provided. Individual follows all direction final growth journal.	ar plants	5 pts Needs Improvement Photo(s) or video provided but to be clearly seen. Separately a ph but the student with tomato plan seen. Individual did not clearly final growth journal.	oto(s) or video provided nts cannot be clearly	0 pts Below Expectations No photo or video provided.	10 pts

Final Project (CSO 1000)

Criteria		Ratings		Pts
This criterion is linked to a Learning Outcome Application	10 pts Outstanding Student can apply knowledge and experience gained of growing tomatoes in ALL the following areas: plant science, nutrients, and cultivation practices – as discussed in this course.	5 pts Needs Improvement Student can apply some knowledge of plant science, soil, nutrients and cultivation practices to the growing of tomatoes, but not all - as discussed in this course.	0 pts Below Expectations Student cannot or did not demonstrate being able to apply knowledge or experience of plant science, soil, nutrients and cultivation practices of growing tomatoes – as discussed in this course.	10 pt
This criterion is linked to a Learning Outcome CSO 1 Apply knowledge of plant science, soil, nutrients and cultivation practices to the growing of cannabis. threshold: 3.0 pts	5 pts Meets Standard - Student can apply knowledge of growing cannabis in ALL the following areas: plant science, nutrients, and cultivation practices – as discussed in this course.	3 pts Approaches Standard - Student can apply some knowledge of plant science, soil, nutrients and cultivation practices to the growing of cannabis, but not all - as discussed in this course.	0 pts Does Not Meet Standard - Student cannot apply knowledge of plant science, soil, nutrients and cultivation practices to the growing of cannabis— as discussed in this course.	

CSO 1500 Final Project

CSO 1500 Final Project

Criteria		Rati	ngs		Pts
This criterion is linked to a Learning Outcome Completeness & Depth	20 pts Excellent Fully accounts for all details: cultivation sys media/fertilizer; enviro lights; training method mother/propagation/v plan; genetics; breedi IPM plan	stem; onment; ds; eg/flower	12 pts Needs Improvement Answers mo questions, be only on a superficial level.	st Minimal or	20 pts
This criterion is linked to a Learning Outcome Presentation	20 pts Excellent Visual presentation: Presentation was easy to follow; audience can follow flow of ideas. The reader isn't distracted by any problems with grammar, spelling, and/or punctuation in presentation.	Presenta but the construction between difficult to not define	o follow or ed. g problems nmar, and/or on on tion or usage of	O pts Below Expectation Recurring problems with ideas, flow or descriptions. Difficult to follow thought process or reasoning.	20 pts

	CSO 1	500 Final Project		
Criteria		Pts		
This criterion is linked to a Learning Outcome Organization	20 pts Excellent The presentation is structured in a way that flows easily and naturally; the organization of the presentation is clear and logical; presentation is clearly structured in a manner consistent with the assignment.	12 pts Needs Improvement There may be some organizational issues; there may be several instances of poor transition from one idea to another; still contains all required elements.	O pts Below Expectation Major organizational issues exist; presentation may lack several elements required by the assignment; there appears to be little flow among ideas.	20 pts
This criterion is linked to a Learning Outcome Cultivation System Overview Video	20 pts Excellent Presentation clearly describes your ideal system, why you chose the combination of variables and reflection on the benefits of the system you chose.	12 pts Needs Improvement Video presentation outlines your ideal system but does not include reflection or description of reasoning behind choices or how they could impact each other.	0 pts Needs Improvement No presentation or presentation does not address project.	20 pts

	cso	1500 Final Project		
Criteria		Ratings		Pts
This criterion is linked to a Learning Outcome Presentation Materials	20 pts Excellent Presentation is thoughtful, organized and clear.	12 pts Needs improvement Presentation, data and ideas are included but difficult to follow or poorly organized.	0 pts Below Expectation Presentation is missing or incomplete.	20 pts
This criterion is linked to a Learning Outcome CSO 1 Apply knowledge of plant science, soil, nutrients and cultivation practices to the growing of cannabis. threshold: 3.0 pts	5 pts Meets Standard - Student can apply knowledge of growing cannabis in ALL the following areas: plant science, nutrients, and cultivation practices – as discussed in this course.	3 pts Approaches Standard - Student can apply some knowledge of plant science, soil, nutrients and cultivation practices to the growing of cannabis, but not all - as discussed in this course.	0 pts Does Not Meet Standard - Student cannot apply knowledge of plant science, soil, nutrients and cultivation practices to the growing of cannabis— as discussed in this course.	

Criteria		Ratings		
		Ratings		Pts
This criterion is linked to a Learning Outcome CSO 5 Describe how cannabis products impact society (history, community, economic and ethical). threshold: 3.0 pts	5 pts Meets Standard - Student can describe how cannabis products impact society in all the following areas: history, community, economic and ethical – as discussed in this course.	3 pts Approaches Standard - Student can describe how cannabis products impact society in one of the following areas: history, community, economic and ethical, but not all – as discussed in this course.	0 pts Does Not Meet Standard - Student cannot describe how cannabis products impact society (history, community, economic and ethical) – as discussed in this course.	

CSO1600 Final Project Rubric

Criteria		Ratings		Pts
This criterion is linked to a Learning OutcomeRecipe	10 to >9.0 pts Excellent Fully answers all questions with sufficient depth and clarity.	9 to >4.0 pts Needs Improvement Most questions are addressed, but answers lack depth and/or clarity.	4 to >0 pts Below Expectations Recipe section is minimally addressed.	10 pt
This criterion is linked to a Learning OutcomeExtract	10 to >9.0 pts Excellent Fully answers all questions with sufficient depth and clarity.	9 to >4.0 pts Needs Improvement Most questions are addressed, but answers lack depth and/or clarity.	4 to >0 pts Below Expectations Extract section is minimally addressed.	10 pt
This criterion is linked to a Learning OutcomePotency	10 to >9.0 pts Excellent Fully answers all questions with sufficient depth and clarity.	9 to >4.0 pts Needs Improvement Most questions are addressed, but answers lack depth and/or clarity.	4 to >0 pts Below Expectations Potency section is minimally addressed.	10 pt

Criteria		Ratings			Pts
This criterion is linked to a Learning OutcomeMath	5 to >4.0 pts Excellent Math calculations are accurate and complete.	4 to >2.0 pts Needs Improvement Math calculations contain minor errors.		ots xpectations Iculations contain multiple	5 pts
This criterion is linked to a Learning OutcomeSOP	15 to >14.0 pts Excellent Fully answers all questions with sufficient depth and clarity.	14 to >9.0 pts Needs Improvement Most questions are addressed, but an depth and/or clarity.	swers lack	9 to >0 pts Below Expectations SOP section is minimally addressed.	15 pts
This criterion is linked to a Learning OutcomeSourcing	10 to >9.0 pts Excellent Fully answers all questions with sufficient depth and clarity.	9 to >4.0 pts Needs Improvement Most questions are addressed, but ans lack depth and/or clarity.	wers	4 to >0 pts Below Expectations Sourcing section is minimally addressed.	10 pt:
This criterion is linked to a Learning OutcomeShelf Life	10 to >9.0 pts Excellent Fully answers all questions with sufficient depth and clarity.	9 to >4.0 pts Needs Improvement Most questions are addressed, but ans lack depth and/or clarity.	wers	4 to >0 pts Below Expectations Shelf Life section is minimally addressed.	10 pts

Criteria	Ratings				
This criterion is linked to a Learning OutcomePackaging	10 to >9.0 pts Excellent Fully answers all questions with sufficient depth and clarity.	9 to >4.0 pts Needs Improvement Most questions are addressed, but answer lack depth and/or clarity.	ers Packaging	s pectations section is addressed.	10 pt
This criterion is linked to a Learning OutcomeEarly Bird Bonus	5 pts Full Marks Project submitted by 11:59 PM Central Time on Friday of Week 8.				
This criterion is linked to a Learning OutcomeCSO 5 Describe how cannabis products impact society (history, community, economic and ethical). threshold: 3.0 pts	5 pts Meets Standard - Student can describe how cannabis products impact society in all the following areas: history, community, economic and ethical – as discussed in this course.	3 pts Approaches Standard - Student can describe how cannabis products impact society in one of the following areas: history, community, economic and ethical, but not all – as discussed in this course.	cannot describe	society (history, nomic and ethical)	

This criterion is linked to a Learning OutcomeCSO 2 Explain the engineering principles behind and processes employed in the employed in the employed in the employed in the to a Learning OutcomeCSO 2 5 pts 3 pts Approaches Standard - Student can explain some of the engineering principles and processes used in explain some of the engineering principles and processes used in employed in the emp	Criteria	Ratings			
manufacturing of cannabis products. — as discussed in this course. but not all discussed in this course. discussed in this course.	to a Learning OutcomeCSO 2 Explain the engineering principles behind and processes employed in the manufacturing of	Meets Standard - Student can explain all the engineering principles and processes used in manufacturing of cannabis products	Approaches Standard - Student can explain some of the engineering principles and processes used in manufacturing of cannabis products,	Does Not Meet Standard - Student cannot explain the engineering principles and processes used in manufacturing of cannabis products	

Total Points: 85

CSO1700 Final Project PC (Patient Consultation) Rubric

CSO1700 Final Project PC Rubric

Criteria	20 pts Excellent Complete 8-week journal submitted. Partings 10 pts Needs Improvement Needs Improvement Most of the journal is submitted. Needs Improvement Insufficient journal submitted.			Pts
This criterion is linked to a Learning OutcomeJournal				20 pts
This criterion is linked to a Learning OutcomeReadability	20 pts Excellent Opinions and ideas clearly stated. No errors with writing style or mechanics.	10 pts Needs Improvement Ideas are clearly stated, but grammar, spelling, and/or punctuation errors are distracting.		20 pts
This criterion is linked to a Learning OutcomeDispensary Policy	20 pts Excellent Provides substantive response to dispen policy question.	10 pts Needs Improvement Sary Dispensary policy response laction full details.	0 pts Below Expectations cks Insufficient details for dispensary policy question.	20 pts
This criterion is linked to a Learning OutcomeEthical Responsibilities	20 pts Excellent Provides substantive response to ethical responsibilities question.	10 pts Needs Improvement Ethical responsibilities respons lacks full details.	0 pts Below Expectations se Insufficient details for ethical responsibilities question.	20 pts

	CSO1	700 Final Project PC Rubric		
Criteria	Ratings			Pts
This criterion is linked to a Learning OutcomeKey Takeaways	20 pts Excellent Provides substantive response to key takeaways question.	10 pts Needs Improvement Key takeaways response lacks full details. O pts Below Expectations Insufficient details for key takeaways question.		20 pts
This criterion is linked to a Learning OutcomeCSO 3 Explain the known pharmacological principles of cannabis. threshold: 3.0 pts	5 pts Meets Standard - Student can explain all the known pharmacological principles of cannabis, as discussed in this course.	3 pts Approaches Standard - Student can explain some of the known pharmacological principles of cannabis, but not all discussed in this course.	0 pts Does Not Meet Standard - Student cannot explain the known pharmacological principles of cannabis discussed in this course.	
This criterion is linked to a Learning OutcomeCSO 4 Explain the roles, responsibilities and legal requirements used to operate and sustain a cannabis dispensary. threshold: 3.0 pts	5 pts Meets Standard - Student can explain all the roles, responsibilities and legal requirements used to operate and sustain a cannabis dispensary – as discussed in this course.	3 pts Approaches Standard - Student can explain some of the roles, responsibilities and legal requirements used to operate and sustain a cannabis dispensary, but not all—as discussed in this course.	0 pts Does Not Meet Standard - Student cannot explain the roles, responsibilities and legal requirements used to operate and sustain a cannabis dispensary – as discussed in this course.	

	CSO17	700 Final Project PC Rubric		
Criteria	Ratings			Pts
This criterion is linked to a Learning OutcomeCSO 5 Describe how cannabis products impact society (history, community, economic and ethical). threshold: 3.0 pts	5 pts Meets Standard - Student can describe how cannabis products impact society in all the following areas: history, community, economic and ethical – as discussed in this course.	3 pts Approaches Standard - Student can describe how cannabis products impact society in one of the following areas: history, community, economic and ethical, but not all – as discussed in this course.	0 pts Does Not Meet Standard - Student cannot describe how cannabis products impact society (history, community, economic and ethical) – as discussed in this course.	

CSO1700 Final Project DBP Rubric (Dispensary Business Plan)

CSO1700 Final Project DBP Rubric

Criteria	Ratings			Pts	
This criterion is linked to a Learning OutcomeCompleteness & Depth	20 pts Excellent Fully answers all questions, demonstrating thoughtful self- reflection.	10 pts Good Most questions are answered with depth.	5 pts Needs Improvement All questions are answere only on a superficial leve		20 pts
This criterion is linked to a Learning OutcomeReadability	20 pts Excellent Opinions and ideas clearly stated. No errors with writing style or mechanics.	10 pts Needs Improvement I deas are clearly stated, but grammar, spelling, and/or punctuation errors are distracting. 0 pts Below Expectations Difficult to understand due to grammar, spelling, and/or writing style.		20 pts	
This criterion is linked to a Learning OutcomeSOP	20 pts Excellent Provides fully outlined standard operat procedure for 2 business processes.		rovement lly outlined standard operation or 1 business processes.	0 pts Below Expectations Insufficient SOP provided.	20 pts

	CSO1	700 Final Project DBP Rubric		
Criteria	Ratings			Pts
This criterion is linked to a Learning OutcomeLayout	20 pts Excellent Provides detailed design layout.	10 pts Needs Improvement Design layout lacks full details.	0 pts Below Expectations Insufficient details for design layout.	20 pts
This criterion is linked to a Learning OutcomeStaffing & Inventory Plan	20 pts Excellent Provides detailed staffing and inventory plan.	10 pts Needs Improvement Staffing and inventory plan lacks full details.	0 pts Below Expectations Insufficient details for staffing and inventory plan.	20 pts
This criterion is linked to a Learning OutcomeCSO 3 Explain the known pharmacological principles of cannabis. threshold: 3.0 pts	5 pts Meets Standard - Student can explain all the known pharmacological principles of cannabis, as discussed in this course.	3 pts Approaches Standard - Student can explain some of the known pharmacological principles of cannabis, but not all discussed in this course.	0 pts Does Not Meet Standard - Student cannot explain the known pharmacological principles of cannabis discussed in this course.	

CSO1700 Final Project DBP Rubric

Criteria	Ratings			Pts
This criterion is linked to a Learning OutcomeCSO 4 Explain the roles, responsibilities and legal requirements used to operate and sustain a cannabis dispensary. threshold: 3.0 pts	5 pts Meets Standard - Student can explain all the roles, responsibilities and legal requirements used to operate and sustain a cannabis dispensary – as discussed in this course.	3 pts Approaches Standard - Student can explain some of the roles, responsibilities and legal requirements used to operate and sustain a cannabis dispensary, but not all—as discussed in this course.	oles, cannot explain the roles, responsibilities and legal requirements used to operate and	
This criterion is linked to a Learning OutcomeCSO 5 Describe how cannabis products impact society (history, community, economic and ethical). threshold: 3.0 pts	5 pts Meets Standard - Student can describe how cannabis products impact society in all the following areas: history, community, economic and ethical – as discussed in this course.	3 pts Approaches Standard - Student can describe how cannabis products impact society in one of the following areas: history, community, economic and ethical, but not all – as discussed in this course.	0 pts Does Not Meet Standard - Student cannot describe how cannabis products impact society (history, community, economic and ethical) – as discussed in this course.	