

# CANNABIS BIOLOGY & CHEMISTRY 3+2 PLAN, JOINT BACHELOR OF SCIENCE/ MASTER OF SCIENCE

The 3+2 Plan is available to the highest performing students who desire to complete a graduate degree in conjunction with their undergraduate degree. The 3+2 Plan allows students to satisfy some of the Bachelor of Science requirements with graduate level coursework. This allows students to complete the two degrees in shorter time than doing the degrees consecutively. Please see the CBC-BS and the CBC-MS programs in the catalog for SLOs specific to the degrees.

## Specific Admission Requirements

Students in the 3+2 program are expected to successfully complete the requirements for both the BS and MS degree in five academic years. This is shorter than the typical six years that are necessary to complete BS and MS programs independently. Students must apply to the 3+2 program during the Spring semester of their junior year or the Fall semester of their senior year and meet the course requirements listed below. Students applying to the 3+2 program must have a minimum 3.0 overall GPA and a minimum 3.25 GPA in their chemistry, biology, and CBC courses.

The application file for admission to the CBC MS 3+2 plan must include:

1. A completed Cannabis Biology and Chemistry MS application form;
2. A letter of intent explaining your expectations and purpose for obtaining the MS in CBC;
3. A CSU Pueblo transcript documenting an undergraduate GPA of 3.000 or higher;
4. Three letters of recommendation addressing the student's qualifications and aptitude to succeed in the program; and
5. An interview with graduate faculty of the Chemistry Department and Biology Department, and the Chemistry / Biochemistry / CBC MS Program Director.

## Specific Program Requirements

Students in the 3+2 BS-CBC/MS-CBC program must complete:

- The requirements for a BS in Cannabis Biology & Chemistry including specific concentration courses.
- The requirements for the MS in Chemistry including thesis or non-thesis options.

It is expected that students take any 400/500 level courses at the 500 level once they are enrolled in the 3+2 program plan.

The 3+2 degree plan has the following requirements:

Course	Title	Credits
	General Education	24
	BS Cannabis Biology & Chemistry Core	46
	CBC Concentration	38-53
	MS Cannabis Biology & Chemistry Core	21

MS General Electives	9
<b>Total Credits</b>	<b>138-153</b>

## Undergraduate Requirements

Specific Core Requirements

Course	Title	Credits
BIOL 181	College Biology I/Organismal Bio (GT-SC2)	3
BIOL 181L	College Biology I/Organismal Bio Lab (GT-SC1)	1
BIOL 182	College Biology II/Cellular Biology (GT-SC2)	3
BIOL 182L	College Biology II/Cellular Bio Lab (GT-SC1)	1
BIOL 201	Botany (GT-SC2)	2
BIOL 201L	Botany Laboratory (GT-SC1)	2
BIOL 465	Environmental Toxicology	3
CHEM 121	General Chemistry I (GT-SC2)	4
CHEM 121L	General Chemistry Lab I (GT-SC1)	1
CHEM 122	General Chemistry II (GT-SC2)	4
CHEM 122L	General Chemistry Lab II (GT-SC1)	1
CHEM 301	Organic Chemistry I	3
CHEM 301L	Organic Chemistry Lab I	2
CHEM 302	Organic Chemistry II	3
CHEM 302L	Organic Chemistry Lab II	2
CHEM 311	Biochemistry Survey	3
CBC 413	Cannabis Physiology & Growth	3
CBC 413L	Cannabis Physiology & Growth Lab	1
CBC 463	Medicinal Chemistry & Pharmacology	3
CBC 493	Seminar	1
<b>Total Credits</b>		<b>46</b>

All other requirements for CBC Concentrations are the same as for the regular undergraduate degrees. For more information, consult the programs listed:

- Cannabis Biology & Chemistry: Analytical Concentration, Bachelor of Science (<https://catalog.csupueblo.edu/college-of-science-technology-engineering-and-mathematics/chemistry/cannabis-biology-and-chemistry-bs-analytical-concentration/>)
- Cannabis Biology & Chemistry: Natural Products Concentration, Bachelor of Science (<https://catalog.csupueblo.edu/college-of-science-technology-engineering-and-mathematics/chemistry/cannabis-biology-and-chemistry-bs-natural-products-concentration/>)

## Graduate Requirements

### Specific Core Requirements

Course	Title	Credits
CBC 510	Foundations in Graduate Studies	3
CBC 589	Thesis Defense	1
CBC 593	Seminar	1
CBC 599	Thesis Research	6

### Additional Core Requirements

Students must complete 10 credit hours of the following:

Course	Title	Credits
CBC 501	Medicinal Plant Biochemistry	3
CBC 513	Cannabis Physiology & Growth	3

CBC 513L	Cannabis Physiology & Growth Lab	1
CBC 522	Natural Products Extraction & Analysis	3
CBC 522L	Natural Products Extraction & Analysis Lab	1
CBC 563	Medicinal Chemistry & Pharmacology	3

### Additional Program Requirements

In addition to the core courses for the graduate program and those specific to the concentration, students must also take graduate elective credits that are approved by the student's thesis committee. The number of elective credits depends on the concentration. For the Analytical concentration, a minimum of six graduate elective credits must be completed; for the Natural Products concentration, a minimum of nine graduate elective credits must be completed.

Course	Title	Credits
BIOL 540	Advanced Biotechniques	2
BIOL 540L	Advanced Biotechniques Lab	2
BIOL 548	Biological Statistics	3
BIOL 585	Plant Taxonomy	2
BIOL 585L	Plant Taxonomy Lab	2
CHEM 512	Biochemistry II	3
CHEM 512L	Biochemistry II Lab	2
CHEM 513	Molecular Basis of Disease	3
CHEM 519	Instrumental Analysis	3
CHEM 519L	Instrumental Analysis Lab	2
CHEM 525	Environmental Chemistry	3
CHEM 525L	Environmental Chemistry Lab	2
CHEM 529	Advanced Analytical Chemistry	3
CHEM 591	Special Topics	1-4

### Planning Sheet

Disclaimer: The Planning Sheet is designed as a guide for student's planning their course selections. The information on this page provides only a suggested schedule. Actual course selections should be made with the advice and consent of an academic advisor. While accurately portraying the information contained in the college catalog, this form is not considered a legal substitute for that document. Students should become familiar with the catalog in effect at the time in which they entered the institution.

Enrollment in CHEM 121 requires successful placement exam score or completion of CHEM 111 with a grade of C or better, and completion of MATH 120 with a grade of C or better, or mathematics placement above MATH 120. The placement exam is administered through the Testing Center - contact them to make arrangements.

Course	Title	Credits
<b>Year 1</b>		
<b>Fall</b>		
CHEM 121	General Chemistry I (GT-SC2)	4
CHEM 121L	General Chemistry Lab I (GT-SC1)	1
BIOL 171	First Year Seminar	1
MATH 221 or MATH 126	Applied Calc: An Intuitive Approach (GT-MA1) or Calculus & Analytic Geometry I (GT-MA1)	4-5
ENG 101	Rhetoric & Writing I (GT-CO1)	3
General Education	recommended to select a Humanities course	3
<b>Credits</b>		<b>16-17</b>
<b>Spring</b>		
CHEM 122	General Chemistry II (GT-SC2)	4

CHEM 122L	General Chemistry Lab II (GT-SC1)	1
PHYS 202 or PHYS 222	Principles Of Physics II (GT-SC2) or General Physics II	3-4
ENG 117	Intro. Scientific/Medical Writing (GT-CO2)	3
General Education	recommended to select a Social Science course	3
<b>Credits</b>		<b>14-15</b>

<b>Year 2</b>		
<b>Fall</b>		
CHEM 301	Organic Chemistry I	3
CHEM 301L	Organic Chemistry Lab I	2
BIOL 181	College Biology I/Organismal Bio (GT-SC2)	3
BIOL 181L	College Biology I/Organismal Bio Lab (GT-SC1)	1
PHYS 202 or PHYS 222	Principles Of Physics II (GT-SC2) or General Physics II	3
General Education	recommended to select a Humanities course	3
<b>Credits</b>		<b>15</b>

<b>Spring</b>		
CHEM 302	Organic Chemistry II	3
CHEM 302L	Organic Chemistry Lab II	2
BIOL 182	College Biology II/Cellular Biology (GT-SC2)	3
BIOL 182L	College Biology II/Cellular Bio Lab (GT-SC1)	1
CBC 292	Research	1-3
General Education	recommended to select a Social Science course	3
<b>Credits</b>		<b>13-15</b>

<b>Year 3</b>		
<b>Fall</b>		
BIOL 351	Molecular Biology & Genetics	3
BIOL 351L	Molecular Biology & Genetics Laboratory	2
CBC 492	Research	1-3
General Education	recommended to select a Humanities course	3
Approved Elective		3
Elective		4
<b>Credits</b>		<b>13-15</b>

<b>Spring</b>		
BIOL 422	Neurobiology	3
CBC 501	Medicinal Plant Biochemistry	3
CHEM 599	Thesis Research	2
Approved Elective		3
Elective		3
<b>Credits</b>		<b>14</b>

<b>Year 4</b>		
<b>Fall</b>		
CBC 510	Foundations in Graduate Studies	3
CBC 491	Special Topics	1-5
CBC 563	Medicinal Chemistry & Pharmacology	3
CHEM 599	Thesis Research	2
Approved Elective		3
<b>Credits</b>		<b>12-16</b>

<b>Spring</b>		
BIOL 422	Neurobiology	3
CBC 501	Medicinal Plant Biochemistry	3
CHEM 599	Thesis Research	2
Approved Elective		3
Elective		3
<b>Credits</b>		<b>14</b>
<b>Total Credits</b>		<b>111-121</b>

### Year 5

Course	Title	Credits
<b>Senior</b>		
<b>Fall</b>		
CBC 513	Cannabis Physiology & Growth	3

CBC 513L	Cannabis Physiology & Growth Lab	1
CBC 522	Natural Products Extraction & Analysis	3
CBC 522L	Natural Products Extraction & Analysis Lab	1
CBC 593	Seminar	1
BIOL 565	Environmental Toxicology	3
CHEM 599	Thesis Research	2
	<b>Credits</b>	<b>14</b>
<b>Spring</b>		
CHEM 589	Thesis Defense	1
Elective		11
	<b>Credits</b>	<b>12</b>
	<b>Total Credits</b>	<b>26</b>