Archives
AY 2019-2020
AY 2020-2021

CSCU Biochemistry Transfer Pathway
2021-2022

Contents:

Transfer Pathway and Degree Requirements:

Remaining Credits:

5/26/21 No substantive changes

AY 2021-2022

Program Outcomes:

Students completing the CSCU Biochemistry Pathway and earning an Associate's Degree will be able to:

1. Understand and apply a chemical knowledge base to biological phenomena, including theories of chemical bonding and reactivity.

2. Communicate scientific knowledge in written and verbal formats.

3. Demonstrate technical competencies in the application of laboratory skills and safety.

4. Interpret, use and apply scientific literature in the context of biochemical problems.

PROPOSED PATHWAY
CSCU Pathway Transfer A.A. Degree: Biochemistry Studies

1	**FRAMEWORK30**		
2	*Section A: Common Designated Competencies*		
3	Written Communication I	ENG 101 Composition	3 credits
4	Written Communication II	General Education Elective	3 credits
5	Scientific Reasoning	CHE 121 General Chemistry I	4 credits
6	Scientific Knowledge & Understanding	CHE 122 General Chemistry II	4 credits
7	Quantitative Reasoning	MAT 186 Pre-Calculus	4 credits
8	Historical Knowledge & Understanding	General Education Elective	3 credits
9	Social Phenomena	General Education Elective	3 credits
10	Aesthetic Dimensions	General Education Elective	3 credits
11	*Section B: Campus Designated Competencies*		
12	Competency 1	General Education Elective	3 credits
13	Competency 2	General Education Elective	3 credits
14	**Framework30 Total**		**33 credits**

15	**PATHWAY30**		
16	*Major Program Requirements*		
17	BIO 121	General Biology I	4 credits
18	BIO 235	Microbiology	4 credits
19	CHE 211	Organic Chemistry I	4 credits
20	CHE 212	Organic Chemistry II	4 credits
21	MAT 254	Calculus I	4 credits
22	PHY 221	Calculus-Based Physics I	4 credits
23			
24	*Unrestricted Electives*		3 credits
25	BIO 122 General Biology II OR PHY 222 Calculus-Based Physics II recommended for this open elective with the following considerations: PHY II is required at CCSU, ECSU, WCSU BIO II is required at WCSU If the student completes both sequences at the community college and transfers		

AY 2021-2022

	to WCSU, both sequences will be accepted at WCSU and the student will have 4 fewer credits to complete at WCSU after transfer. Students who know they are transferring to SCSU may decide not to use this open elective for PHY II or BIO II. Students should consider beginning or completing work on foreign language requirements not already met in high school for CCSU, ECSU and WCSU or beginning work on minor requirements of some CSUs. They may also complete other General Education requirements.		
26	**Pathway30 Total**		27 credits

27	**[Discipline Name] Pathway Total**		**60 credits***

Students who are required to complete developmental coursework or who place below the required entry level of math for their program may not be able to complete their pathway degree in 60 credits/contact hours.

AY 2021-2022

Transfer Pathway and Degree Program

Template 1

Central Connecticut State University

Complete four-year degree with articulation of community college degree to four-year degree

Biochemistry, B.S. – General Track

There is no minor required for this program.

AY 2021-2022

1	Community Colleges*:			CCSU	
2			Credits		Credits
3	**Framework30****				
4	**General Education Requirements**				
5	**Competency:**				
6	**Section A**				
7	Written I	English 101	3	English 110	3
8	Written II	Gen Ed	3	Skill Area I – Communication	3
9	Scientific Reasoning	CHE 121 General Chemistry I	4	CHEM 161/162 General Chemistry	4
10	Scientific Knowledge	CHE 122 General Chemistry II	4	CHEM 200/201 Foundations of Analytical Chemistry	4
11	Quantitative	MAT 186 Pre-Calculus	4	MATH 119 Pre-Calculus with Trigonometry	4
12	Historical Knowledge	Gen Ed*	3	Study Area II – History	3
13	Social Phenomena	Gen Ed	3	Study Area II – Social Science	3
14	Aesthetic Dimensions	Gen Ed	3	Study Area I – Arts and Humanities	3
15	**Section B**				
16	Competency:	Gen Ed	3	Skill Area IV – University Requirement	3
17	Competency:	Gen Ed	3	Study Area III – Behavioral Sciences	3
18	**Framework30 Credits (30-31):**				**33**
19	**Pathway30**				
20	**Additional General Education Courses**				
21				Study Area I – Literature	3
22				Study Area I – Arts and Humanities	3
23				Study Area II – Social Sciences	3
24				Study Area III – Behavioral Sciences	3
25	MAT 254 Calculus I			Skill Area II – Math/Stat/ Comp Sci	4

26			Skill Area III – Foreign Language Proficiency: See requirements here. If the requirement has been met in whole or in part, general education and open elective credits will adjust accordingly.	6
27	**General Education Credits:**			**55**
28	**Major Program Courses**			
29			BMS 102/103 Introduction to Biomolecular Science	4
30			BMS 201 Principles of Cell and Molecular Biology	4
31			BMS 190 and 290 Introduction to Research I & II	1
32	BIO 235 Microbiology	4	BMS 316 Microbiology	4
33			BMS 390 or CHEM 238 Independent Research	1
34			BMS 491 or CHEM 438 Advanced Independent Research	1
35	CHE 211 Organic Chemistry I	4	CHEM 210/211 Organic Chemistry I	4
36	CHE 212 Organic Chemistry II	4	CHEM 212/213 Organic Chemistry II	4
37			CHEM 260 Foundations of Inorganic Chemistry	3
38			CHEM 316 Spectrometric identification of Organic Compounds	3
39			CHEM 320 Biophysical Chemistry	3
40			CHEM 332 Chemical Literature	1
41			CHEM 432 Chemistry Seminar	1
42			Select 6-8 credits from the following: BMS 306 Genetics (3) BMS 307 Genomics (4) BMS 311 Cell Biology (4) BMS 415 Advanced Exploration in Cell, Molecular, and Physiological Biology (3) BMS 490 Topics in Biomolecular Sciences (1-4) BMS 495 Capstone in Molecular Biology (4) BMS 562 Advanced Developmental Biology (3) BMS 570 Advanced Genetics (3)	6-8

AY 2021-2022

			CHEM 456 Toxicology (3)	
43			Select one of the following: BMS 496 Capstone in Cellular Metabolism and Energetics CHEM 354 Foundations of Biochemistry	3
44			CHEM 455 Biochemistry Lab	1
45			CHEM 458 Advanced Biochemistry	3
46	PHY 221 Calculus-Based Physics	4	PHYS 125 University Physics I	4
			Select one of the following: PHYS 122 General Physics II PHYS 126 University Physics II	4
47	**Program Course Credits:**	**16**		**55-57**
48	**Minor Course Credits:**			
49	**Open Electives**			
50	**Students who have fulfilled foreign language requirements in high school or who use open elective credits at the community college to fulfill foreign language and/or minor requirements will end up with more open elective credits at the CCSU.**			
51	**Open Elective credits:**	**3**		**4-6**
52	BIO 121 General Biology I	4	BIO 121 General Biology I	4
53				
54	**Total Credits at the Community College**	**60**	**Total Credits for the 4-Year Degree**	**120**

AY 2021-2022

Transfer Pathway and Degree Program

Template 1

Central Connecticut State University

Complete four-year degree with articulation of community college degree to four-year degree

Biochemistry, B.S. – American Chemical Society Certified Track

There is no minor required for this program.

1	Community Colleges*:			CCSU	
2			Credits		Credits
3	**Framework30****				
4	**General Education Requirements**				
5	**Competency:**				
6	**Section A**				
7	Written I	English 101	3	English 110	3
8	Written II	Gen Ed	3	Skill Area I – Communication	3
9	Scientific Reasoning	CHE 121 General Chemistry I	4	CHEM 161/162 General Chemistry	4
10	Scientific Knowledge	CHE 122 General Chemistry II	4	CHEM 200/201 Foundations of Analytical Chemistry	4
11	Quantitative	MAT 186 Pre-Calculus	4	MATH 119 Pre-Calculus with Trigonometry	4
12	Historical Knowledge	Gen Ed*	3	Study Area II – History	3
13	Social Phenomena	Gen Ed	3	Study Area II – Social Science	3
14	Aesthetic Dimensions	Gen Ed	3	Study Area I – Arts and Humanities	3
15	**Section B**				
16	Competency:	Gen Ed	3	Skill Area IV – University Requirement	3
17	Competency:	Gen Ed	3	Study Area III – Behavioral Sciences	3
18	**Framework30 Credits (30-31):**				**33**
19	**Pathway30**				
20	**Additional General Education Courses**				
21				Study Area I – Literature	3
22				Study Area I – Arts and Humanities	3
23				Study Area II – Social Sciences	3
24				Study Area III – Behavioral Sciences	3
25	MAT 254 Calculus I			Skill Area II – Math/Stat/ Comp Sci	4

AY 2021-2022

26			Skill Area III – Foreign Language Proficiency: See requirements here. If the requirement has been met in whole or in part, general education and open elective credits will adjust accordingly.	6
27	**General Education Credits:**			**55**
28	**Major Program Courses**			
29			BMS 102/103 Introduction to Biomolecular Science	4
30			BMS 201 Principles of Cell and Molecular Biology	4
31			BMS 190 and 290 Introduction to Research I & II	1
32	BIO 235 Microbiology	4	BMS 316 Microbiology	4
33			BMS 390 or CHEM 238 Independent Research	1
34			BMS 491 or CHEM 438 Advanced Independent Research	1
35	CHE 211 Organic Chemistry I	4	CHEM 210/211 Organic Chemistry I	4
36	CHE 212 Organic Chemistry II	4	CHEM 212/213 Organic Chemistry II	4
37			CHEM 260 Foundations of Inorganic Chemistry	3
38			CHEM 316 Spectrometric identification of Organic Compounds	3
39			CHEM 320 Biophysical Chemistry	3
40			CHEM 322 Quantum Chemistry	3
41			CHEM 323 Physical Chemistry Lab	1
42			CHEM 332 Chemical Literature	1
43			CHEM 402 Instrumental Analysis	4
44			CHEM 354 Foundations of Biochemistry	3
45			CHEM 432 Chemistry Seminar	1
46			CHEM 455 Biochemistry Lab	1
47			CHEM 458 Advanced Biochemistry	3
48	PHY 221 Calculus-Based Physics	4	PHYS 125 University Physics I	4
49			PHYS 126 University Physics II	4
50				
51	**Program Course Credits:**	**16**		**57**
52	**Minor Course Credits:** a minor is not required for this program.			
53	**Open Electives**			

AY 2021-2022

54	**Students who have fulfilled foreign language requirements in high school or who use open elective credits at the community college to fulfill foreign language and/or minor requirements will end up with more open elective credits at the CCSU.**			
55	**Open Elective credits:**	**3**		4
56	BIO 121 General Biology I	4	BIO 121 General Biology I	4
57				
58	**Total Credits at the Community College**	**60**	**Total Credits for the 4-Year Degree**	**120**

AY 2021-2022

Transfer Pathway and Degree Program

Template 1

Eastern Connecticut State University

Complete four-year degree with articulation of community college degree to four-year degree

Biochemistry, B.S.

There are no additional requirements for admission to this program.

1	Community Colleges*:			ECSU	
2			Credits		Credits
3	**Framework30****				
4	**General Education Requirements**				
5	**Competency:**				
6	**Section A**				
7	Written I	English 101	3	T1 College Writing, Literature and Thought	3
8	Written II	Gen Ed	3	T1 College Writing, Literature and Thought	3
9	Scientific Reasoning	CHE 121 General Chemistry I	4	CHE 210/212 General Chemistry I with Lab	4
10	Scientific Knowledge	CHE 122 General Chemistry II	4	CHE 211/213 General Chemistry II with Lab	4
11	Quantitative	MAT 186 Pre-Calculus	4	MAT 130 Pre-Calculus Mathematics	4
12	Historical Knowledge	Gen Ed*	3	T1 Historical Perspectives	3
13	Social Phenomena	Gen Ed	3	T1 Social Sciences	3
14	Aesthetic Dimensions	Gen Ed	3	T1 Arts in Context	3
15	**Section B**				
16	Competency:	Gen Ed	3	T1 FYI 100	3
17	Competency:	Gen Ed	3	T1 Health and Wellness	3
18	**Framework30 Credits (30-31):**				**33**
19	**Pathway30**				
20	**Additional General Education Courses**				
21				T2 Cultural Perspectives	3
22				T2 Individuals and Societies	3
23				T2 Creative Expressions	3
24				T2 Applied Information Technologies	3
25				Tier 3 Capstone (Must be taken at ECSU)	3

AY 2021-2022

26			Foreign Language Proficiency: See requirements here. If the requirement has been met in whole or in part, general education and open elective credits will adjust accordingly.	6
27	**General Education Credits:**			**54**
28	**Major Program Courses**			
29	BIO 121 General Biology I	4	BIO 120 Organismal Biology with Lab	4
30			BIO 220 Cell Biology with Lab	4
31			BIO 230 General Genetics with Lab	4
32	CHE 211 Organic Chemistry I	4	CHE 216 Organic Chemistry I with Lab	4
33	CHE 212 Organic Chemistry II	4	CHE 217 Organic Chemistry II with Lab	4
34			CHE 316/317 Biochemistry I with Lab	4
35			CHE 318/319 Biochemistry II with Lab	4
36			CHE 323 Physical Biochemistry	3
37			CHE 425 Physical Biochemistry Techniques	3
38			CHE 425 Chemical Instrumentation with Lab	4
39			MAT 244 Calculus II with Technology	4
40	PHY 221 Calculus-Based Physics	4	PHY 208 Physics with Calculus I with Lab	4
41			PHY 205 Physics II with Lab	4
43	**Program Course Credits:**	**16**		**50**
44	**Open Electives**			
45	BIO 235 Microbiology	4	BIO 334 General Microbiology with Lab	4
46	MAT 254 Calculus I	4	MAT 243 Calculus I	4
47	**Students who have fulfilled foreign language requirements in high school or who use open elective credits at the community college to fulfill foreign language requirements will end up with up to three open elective credits at ECSU.**			
48	**Open Elective credits:**	**3**		**8**
49	**Total Credits at the Community College**	**60**	**Total Credits for the 4-Year Degree**	**120**

AY 2021-2022

Transfer Pathway and Degree Program

Template 1

Southern Connecticut State University

Complete four-year degree with articulation of community college degree to four-year degree

Chemistry, B.S. – Concentration: Biochemistry

Students must complete 2 "W" courses at SCSU.

AY 2021-2022

1	Community Colleges*:			SCSU	
2			Credits		Credits
3	**Framework30****				
4	**General Education Requirements**				
5	**Competency:**				
6	**Section A**				
7	Written I	English 101	3	FYE	3
8	Written II	Gen Ed	3	Written Communication	3
9	Scientific Reasoning	CHE 121 General Chemistry I	4	Natural World 1 – Physical Realm: CHE 120 General Chemistry I	4
10	Scientific Knowledge	CHE 122 General Chemistry II	4	Natural World II – Life and Environment: CHE 121 General Chemistry II	4
11	Quantitative	MAT 186 Pre-Calculus	4	Quantitative Reasoning: MAT 122 Pre-Calculus	4
12	Historical Knowledge	Gen Ed*	3	Time and Place	3
13	Social Phenomena	Gen Ed	3	Social structure, Conflict, Consensus	3
14	Aesthetic Dimensions	Gen Ed	3	Cultural Expressions	3
15	**Section B**				
16	Competency:	Gen Ed	3	Critical Thinking	3
17	Competency:	Gen Ed	3	Tech Fluency	3
18	**Framework30 Credits (30-31):**				**33**
19	**Pathway30**				
20	**Additional General Education Courses**				
21				*Select three of the following four:*	9
22				American Experience	(3)
23				Creative Drive	(3)
24				Global Awareness	(3)
25				Mind and Body	(3)
26				**Must be taken at SCSU:**	

27			Tier 3 Connections Capstone CHE 301 The Preparation of Scientific Documents for Chemistry CHE 445 Chemical Hazards and Laboratory Safety CHE 496 Chemistry Seminar (See lines 33, 36 and 40)	0
28	**General Education Credits:**			**42**
29	**Major Program Courses**			
30			CHE 240 Analytical Chemistry	4
31	CHE 211 Organic Chemistry I	4	CHE 260 Organic Chemistry I	4
32	CHE 212 Organic Chemistry II	4	CHE 260 Organic Chemistry II	4
33			CHE 301 The Preparation of Scientific Documents for Chemistry	1
34			CHE 370 Physical Chemistry I	3
35			CHE 435 Inorganic Chemistry I	3
36			CHE 445 Chemical Hazards and Laboratory Safety	1
37			CHE 450 Biochemistry I	4
38			CHE 451 Biochemistry II	4
39			Select one of the following: CHE 456 Medicinal Chemistry CHE 458 Drug Discovery	3
40			CHE 496 Chemistry Seminar	1
41			Select one additional CHE course at 300-level or above	3-4
42	BIO 121 General Biology I	4	BIO 102 Biology I	4
43			BIO 103 Biology II	4
44	BIO 235 Microbiology	4	Select three BIO courses at 200-level or above	10-12
45	MAT 254 Calculus I	4	MAT 150 Calculus I	4
46	PHY 221 Calculus0Based Physics	4	PHY 230 Physics for Scientists and Engineers	4
47	**Program Course Credits:**	**24**		**61-64**
48	**Open Electives**			
49	**Open Elective credits:**	**3**		**14-17**
50	**Total Credits at the Community College**	**60**	**Total Credits for the 4-Year Degree**	**120**

AY 2021-2022

Transfer Pathway and Degree Program

Template 1

Western Connecticut State University

Complete four-year degree with articulation of community college degree to four-year degree

Chemistry, Biochemistry Option B.S. Non-ACS approved

There are no additional requirements for admission to this program.

AY 2021-2022

1	Community Colleges*:			WCSU	
2			Credits		Credits
3	**Framework30****				
4	**General Education Requirements**				
5	**Competency:**				
6	**Section A**				
7	Written I	English 101	3	Writing Intensive I	3
8	Written II	Gen Ed	3	Writing Intensive II	3
9	Scientific Reasoning	CHE 121 General Chemistry I	4	Scientific Inquiry: CHE 110 General Chemistry I	4
10	Scientific Knowledge	CHE 122 General Chemistry II	4	General Education Elective / Second Exposure to Scientific Inquiry: CHE 111 General Chemistry II	4
11	Quantitative	MAT 186 Pre-Calculus	4	Quantitative Reasoning: MAT 133 Pre-Calculus (one credit goes to Open Electives: see line 49)	3
12	Historical Knowledge	Gen Ed*	3	Critical Thinking	3
13	Social Phenomena	Gen Ed	3	Information Literacy	3
14	Aesthetic Dimensions	Gen Ed	3	Creative Process	3
15	**Section B**				
16	Competency:	Gen Ed	3	Oral Communication	3
17	Competency:	Gen Ed	3	General Education Elective	3
18	**Framework30 Credits (30-31):**				**32**
19	**Pathway30**				
20	**Additional General Education Courses**				
	Students complete a two-part general education curriculum: Part I (Foundations) addresses life-long learning in and through 10 competencies. Part II (Explorations) requires students to complete a minimum of 40 credits outside their major. Students must also repeat three different competencies, excluding writing and first-year navigation.				

	In the Framework30 portion of the transfer degree, students who complete a TAP degree will receive credit for having met 9 competencies in Foundations, including at least one repeat (Scientific Inquiry), and 30 of the 40 credits of Explorations. *In this pathway, students will have completed two repeats, one in Scientific Inquiry and one in Quantitative Reasoning, and will have met 38 of the Explorations 40 credits.*			
21	MAT 254 Calculus I	4	General Education Elective / Second Exposure to Quantitative Reasoning: MAT 181 Calculus I	4
22	BIO 121 General Biology I	4	General Education Elective: BIO 103 General Biology I	4
23			Intercultural Competence	3
24			Health and Wellness	3
25			A foreign language is required for this major. Follow this link and click on the program sheet for requirements. Three credits of foreign language may count as fulfilling Intercultural Competence	3 (If 6 credits are needed at WCSU, 3 credits will count as Inter cultural Com petence
26			**Must be taken at WCSU:**	
27			General Education Elective / Second Exposure	3
28			Writing Intensive III – embedded in a major course	0
29			Culminating Gen Ed Experience – may be satisfied by a major capstone	0
30	**General Education Credits:**	**41**		**52**
31	**Major Program Courses**			
32			CHE 205 Analytical Chemistry Lecture	3
33			CHE 206 Analytical Chemistry Lab	2
34	CHE 211 Organic Chemistry I	4	CHE 210 Organic Chemistry I	4
35	CHE 212 Organic Chemistry II	4	CHE 211 Organic Chemistry II	4
36			CHE 300 Physical Chemistry I	4
37			CHE 301 Physical Chemistry II	4
38			CHE 421 Biochemistry Lecture I	3
39			CHE 422 Biochemistry Lecture II	3

AY 2021-2022

40			CHE 431 Biochemistry Lab	2
41			CHE 250 Chemistry Seminar (.5 credits each; 1 credits is required, and additional 1 credit is optional)	1
42			Select one of the following options: CHE 297 Cooperative Education Research (12 credits) **OR** CHE 430 Senior Research **AND** one advanced elective from: CHE 311 Inorganic Chemistry CHE 400 Instrumental Analysis Lecture CHE 415 Medicinal Chemistry CHE 420 Advanced Topics in Organic Chemistry CHE 438 Molecular Biochemistry of Nucleic Acids BIO 300 Cell Biology BIO 312 Genetics	7-12
43			BIO 104 General Biology II	4
44			MAT 182 Calculus II	4
45	PHY 221 Calculus-Based Physics I	4	PHY 110 General Physics I	4
46			PHY 111 General Physics II	4
47	**Program Course Credits:**	**12**		**53-58**
48	**Open Electives**			
49	From line 11: One credit of MAT 186 received at WCSU as an open elective credit			1
50	BIO 235 Microbiology	4		4
51	**Students who have fulfilled foreign language requirements in high school or who use open elective credits at the community college to fulfill foreign language requirements will end up with more open elective credits at WCSU.**			
52	**Open Elective credits:**	**3**		**10-15**
53	**Total Credits at the Community College**	**60-61**	**Total Credits for the 4-Year Degree**	**120**

AY 2021-2022

Transfer Pathway and Degree Program

Template 1

Western Connecticut State University

Complete four-year degree with articulation of community college degree to four-year degree

Chemistry, Biochemistry Option, B.S. ACS approved

There are no additional requirements for admission to this program.

1	Community Colleges*:			WCSU	
2			Credits		Credits
3	**Framework30****				
4	**General Education Requirements**				
5	**Competency:**				
6	**Section A**				
7	Written I	English 101	3	Writing Intensive I	3
8	Written II	Gen Ed	3	Writing Intensive II	3
9	Scientific Reasoning	CHE 121 General Chemistry I	4	Scientific Inquiry: CHE 110 General Chemistry I	4
10	Scientific Knowledge	CHE 122 General Chemistry II	4	General Education Elective / Second Exposure to Scientific Inquiry: CHE 111 General Chemistry II	4
11	Quantitative	MAT 186 Pre-Calculus	4	Quantitative Reasoning: MAT 133 Pre-Calculus (one credit goes to Open Electives: see line 50)	3
12	Historical Knowledge	Gen Ed*	3	Critical Thinking	3
13	Social Phenomena	Gen Ed	3	Information Literacy	3
14	Aesthetic Dimensions	Gen Ed	3	Creative Process	3
15	**Section B**				
16	Competency:	Gen Ed	3	Oral Communication	3
17	Competency:	Gen Ed	3	General Education Elective	3
18	**Framework30 Credits (30-31):**				**32**
19	**Pathway30**				
20	**Additional General Education Courses**				
	Students complete a two-part general education curriculum: Part I (Foundations) addresses life-long learning in and through 10 competencies. Part II (Explorations) requires students to complete a minimum of 40 credits outside their major. Students must also repeat three different competencies, excluding writing and first-year navigation.				

AY 2021-2022

	In the Framework30 portion of the transfer degree, students who complete a TAP degree will receive credit for having met 9 competencies in Foundations, including at least one repeat (Scientific Inquiry), and 30 of the 40 credits of Explorations. *In this pathway, student will have completed two repeats, one in Scientific Inquiry and one in Quantitative Reasoning, and will have met 38 of the Explorations 40 credits.*			
21	MAT 254 Calculus I	4	General Education Elective: MAT 181 Calculus I	4
22	BIO 121 General Biology I	4	General Education Elective: BIO 103 General Biology I	4
23			Intercultural Competence	3
24			Health and Wellness	3
25			A foreign language is required for this major. Follow this link and click on the program sheet for requirements. Three credits of foreign language may count as fulfilling Intercultural Competence	3 (If 6 credits are needed at WCSU, 3 credits will count as Inter cultural Com petence
26			**Must be taken at WCSU:**	
27			General Education Elective / Second Exposure	3
28			Writing Intensive III – embedded in a major course	0
29			Culminating Gen Ed Experience – may be satisfied by a major capstone	0
30	**General Education Credits:**			**52**
31	**Major Program Courses**			
32			CHE 205 Analytical Chemistry Lecture	3
33			CHE 206 Analytical Chemistry Lab	2
34	CHE 211 Organic Chemistry I	4	CHE 210 Organic Chemistry I	4
35	CHE 212 Organic Chemistry II	4	CHE 211 Organic Chemistry II	4
36			CHE 300 Physical Chemistry I	4
37			CHE 301 Physical Chemistry II	4
38			CHE 421 Biochemistry Lecture I	3
39			CHE 422 Biochemistry Lecture II	3
40			CHE 431 Biochemistry Lab	2

AY 2021-2022

41			CHE 311 Inorganic Chemistry	4
42			CHE 250 Chemistry Seminar (.5 credits each; 1 credits is required, and additional 1 credit is optional)	1
43			CHE 430 Senior Research	4
44			BIO 104 General Biology II	4
45			MAT 182 Calculus II	4
46	PHY 221 Calculus-Based Physics I	4	PHY 110 General Physics I	4
47			PHY 111 General Physics II	4
48	**Program Course Credits:**	**12**		**54**
49	**Open Electives**			
50	From line 11: One credits of MAT 186 received at WCSU as an open elective credit			1
51	BIO 235 Microbiology	4		4
52	**Students who have fulfilled foreign language requirements in high school or who use open elective credits at the community college to fulfill foreign language requirements will end up with more open elective credits at WCSU.**			
53	**Open Elective credits:**	**3**		**14**
54	**Total Credits at the Community College**	**60**	**Total Credits for the 4-Year Degree**	**120**

AY 2021-2022

Transfer Pathway and Degree Program

Template 2

Credits remaining in the four-year degree

Biochemistry, B.S. – General Track

1	**Central Connecticut State University**	
2	**Remaining General Education Courses**	
3	**Course**	**Credits**
4	Study Area I – Literature	0-3
5	Study Area I – Arts and Humanities	0-3
6	Study Area II – Social Sciences	0-3
7	Study Area III – Behavioral Sciences	0-3
8	Skill Area II – Math/Stat/ Comp Sci	0-3
9	Skill Area III – Foreign Language Proficiency. See requirements here. If the requirement has been met in whole or in part, general education and open elective credits will adjust accordingly.	6
10	**General Education Credits**	**15**
11	**Remaining Major Program Requirements**	
12	**Course**	**Credits**
13	BMS 102/103 Introduction to Biomolecular Science	4
14	BMS 201 Principles of Cell and Molecular Biology	4
15	BMS 190 and 290 Introduction to Research I & II	1
16	BMS 390 or CHEM 238 Independent Research	1
17	BMS 491 or CHEM 438 Advanced Independent Research	1
18	CHEM 260 Foundations of Inorganic Chemistry	3
19	CHEM 316 Spectrometric identification of Organic Compounds	3
20	CHEM 320 Biophysical Chemistry	3
21	CHEM 332 Chemical Literature	1
22	CHEM 432 Chemistry Seminar	1
23	Select 6-8 credits from the following: BMS 306 Genetics (3) BMS 307 Genomics (4) BMS 311 Cell Biology (4) BMS 415 Advanced Exploration in Cell, Molecular, and Physiological Biology (3) BMS 490 Topics in Biomolecular Sciences (1-4) BMS 495 Capstone in Molecular Biology (4) BMS 562 Advanced Developmental Biology (3) BMS 570 Advanced Genetics (3) CHEM 456 Toxicology (3)	6-8
24	Select one of the following: BMS 496 Capstone in Cellular Metabolism and Energetics CHEM 354 Foundations of Biochemistry	3

AY 2021-2022

25	CHEM 455 Biochemistry Lab	1
26	CHEM 458 Advanced Biochemistry	3
27	Select one of the following: PHYS 122 General Physics II PHYS 126 University Physics II	4
28		
29		
30	**Program Course Credits**	**39-41**
31	**Minor** – A minor is not required for this program.	**0**
32	**Remaining Open Electives**	
33	**Courses**	**Credits**
34	**Open Elective credits**	**4-6**
35	**Students who have fulfilled the foreign language requirement in high school or who use open elective credits at the community college to fulfill foreign language and/or minor requirements will end up with more open elective credits at the CCSU.**	
36	**Total Credits Remaining for the 4-Year Degree**	**60**

AY 2021-2022

Transfer Pathway and Degree Program

Template 2

Credits remaining in the four-year degree

Biochemistry, B.S. – American Chemical Society Certified Track

1	**Central Connecticut State University**	
2	**Remaining General Education Courses**	
3	**Course**	**Credits**
4	Study Area I – Literature	0-3
5	Study Area I – Arts and Humanities	0-3
6	Study Area II – Social Sciences	0-3
7	Study Area III – Behavioral Sciences	0-3
8	Skill Area II – Math/Stat/ Comp Sci	0-3
9	Skill Area III – Foreign Language Proficiency. See requirements here. If the requirement has been met in whole or in part, general education and open elective credits will adjust accordingly.	6
10	**General Education Credits**	**15**
11	**Remaining Major Program Requirements**	
12	**Course**	**Credits**
13	BMS 102/103 Introduction to Biomolecular Science	4
14	BMS 201 Principles of Cell and Molecular Biology	4
15	BMS 190 and 290 Introduction to Research I & II	1
16	BMS 390 or CHEM 238 Independent Research	1
17	BMS 491 or CHEM 438 Advanced Independent Research	1
18	CHEM 260 Foundations of Inorganic Chemistry	3
19	CHEM 316 Spectrometric identification of Organic Compounds	3
20	CHEM 320 Biophysical Chemistry	3
21	CHEM 322 Quantum Chemistry	3
22	CHEM 323 Physical Chemistry Lab	1
23	CHEM 332 Chemical Literature	1
24	CHEM 402 Instrumental Analysis	4
25	CHEM 354 Foundations of Biochemistry	3
26	CHEM 432 Chemistry Seminar	1
27	CHEM 455 Biochemistry Lab	1
28	CHEM 458 Advanced Biochemistry	3
29	PHYS 126 University Physics II	4
30	**Program Course Credits**	
31	**Minor** – A minor is not required for this program.	**41**
32	**Remaining Open Electives**	
33	**Courses**	**Credits**
34	**Open Elective credits**	**4**

AY 2021-2022

35	**Students who have fulfilled the foreign language requirement in high school or who use open elective credits at the community college to fulfill foreign language and/or minor requirements will end up with more open elective credits at CCSU.**	
36	**Total Credits Remaining for the 4-Year Degree**	**60**

AY 2021-2022

Transfer Pathway and Degree Program

Template 2

Credits remaining in the four-year degree

Biochemistry, B.S.

1	**Eastern Connecticut State University**	
2	**Remaining General Education Courses**	
3	**Course**	**Credits**
4	*Two of the first four below must be completed at ECSU.*	
5	T2 Cultural Perspectives	3
6	T2 Individuals and Societies	3
7	T2 Creative Expressions	3
8	T2 Applied Information Technologies	3
9	T3 Capstone	3
10	Foreign Language Proficiency: See requirements here. If the requirement has been met in whole or in part, general education and open elective credits will adjust accordingly.	6
11	**General Education Credits**	**21**
12	**Remaining Major Program Requirements**	
13	**Course**	**Credits**
14	BIO 220 Cell Biology with Lab	4
15	BIO 230 General Genetics with Lab	4
16	CHE 316/317 Biochemistry I with Lab	4
17	CHE 318/319 Biochemistry II with Lab	4
18	CHE 323 Physical Biochemistry	3
19	CHE 425 Physical Biochemistry Techniques	3
20	CHE 425 Chemical Instrumentation with Lab	4
21	MAT 244 Calculus II with Technology	4
22	PHY 205 Physics II with Lab	4
23	**Program Course Credits**	**34**
24	**Remaining Open Electives**	
25	**Courses**	**Credits**
26	**Open Elective credits**	**5**
27	**Students who have fulfilled foreign language requirements in high school or who use open elective credits at the community college to fulfill foreign language requirements will end up with more open elective credits at ECSU.**	
28	**Total Credits Remaining for the 4-Year Degree**	**60**

AY 2021-2022

Transfer Pathway and Degree Program

Template 2

Credits remaining in the four-year degree

Chemistry, B.S. – Concentration: Biochemistry

Students must complete 2 "W" courses at SCSU.

1	**Southern Connecticut State University**	
2	**Remaining General Education Courses**	
3	**Course**	**Credits**
4	*Select three of the following four:*	9
5	American Experience	0-3
6	Creative Drive	0-3
7	Global Awareness	0-3
8	Mind and Body	0-3
9	Tier 3 Connections Capstone: CHE 301 The Preparation of Scientific Documents for Chemistry CHE 445 Chemical Hazards and Laboratory Safety CHE 496 Chemistry Seminar (See lines 14, 17, and 21)	0
10	**General Education Credits**	**9**
11	**Remaining Major Program Requirements**	
12	**Course**	**Credits**
13	CHE 240 Analytical Chemistry	4
14	CHE 301 The Preparation of Scientific Documents for Chemistry	1
15	CHE 370 Physical Chemistry I	3
16	CHE 435 Inorganic Chemistry I	3
17	CHE 445 Chemical Hazards and Laboratory Safety	1
18	CHE 450 Biochemistry I	4
19	CHE 451 Biochemistry II	4
20	Select one of the following: CHE 456 Medicinal Chemistry CHE 458 Drug Discovery	3
21	CHE 496 Chemistry Seminar	1
22	Select one additional CHE course at 300-level or above	3-4
23	Select two BIO courses at 200-level or above	6-8
31	**Program Course Credits**	**33**
32	**Remaining Open Electives**	
33	**Courses**	**Credits**
34	**Open Elective credits**	**18**
35	**Total Credits Remaining for the 4-Year Degree**	**60**

AY 2021-2022

Transfer Pathway and Degree Program

Template 2

Credits remaining in the four-year degree

Chemistry, Biochemistry Option, B.S. Non-ACS approved

1	**Western Connecticut State University**	
2	**Remaining General Education Courses**	
3	**Course**	**Credits**
	If not already met, students must complete enough additional credits to add up to a total of 40 credits outside the major to meet the Explorations requirement. The Framework30 portion of the community college degree meets 30 of the 40 credits. Students must also repeat three different competencies, excluding writing and first-year navigation. *In this pathway, students will have completed two repeats, one in Scientific Inquiry and one in Quantitative Reasoning, and will have met 38 of the Explorations 40 credits.*	
4	Intercultural Competence	3
5	Health and Wellness	3
6	General Education Elective / Second Exposure	3
7	A foreign language is required for this major. Follow this link and click on the program sheet for requirements. Three credits of foreign language may count as fulfilling Intercultural Competence	3 (If 6 credits are needed at WCSU, 3 credits will count as Inter cultural Com-petence)
8	**Must be taken at WCSU:**	
9	Writing Intensive III – embedded in a major course	0
10	Culminating Gen Ed Experience – may be satisfied by a major capstone	0
11	**General Education Credits**	**12**
12	**Remaining Major Program Requirements**	
13	**Course**	**Credits**
14	CHE 205 Analytical Chemistry Lecture	3
15	CHE 206 Analytical Chemistry Lab	2
16	CHE 250 Chemistry Seminar (.5 credits each; 1 credits is required, and additional 1 credit is optional)	1
17	CHE 300 Physical Chemistry I	4
18	CHE 301 Physical Chemistry II	4
19	CHE 421 Biochemistry Lecture I	3
20	CHE 422 Biochemistry Lecture II	3

AY 2021-2022

21	CHE 431 Biochemistry Lab	2
22	Select one of the following options: CHE 297 Cooperative Education Research (12 credits) **OR** CHE 430 Senior Research and choice of one advanced elective from CHE 311 Inorganic Chemistry CHE 400 Instrumental Analysis Lecture CHE 415 Medicinal Chemistry CHE 420 Advanced Topics in Organic Chemistry CHE 438 Molecular Biochemistry of Nucleic Acids BIO 300 Cell Biology BIO 312 Genetics	7-12
23	BIO 104 General Biology II	4
24	MAT 182 Calculus II	4
26	PHY 111 General Physics II	4
27	**Program Course Credits**	**41-46**
28	**Remaining Open Electives**	
29	**Courses**	**Credits**
30	**Open Elective credits**	**5-10**
31	**Students who have fulfilled foreign language requirements in high school or who use open elective credits at the community college to fulfill foreign language requirements will end up with more open elective credits at WCSU.**	
32	**Total Credits Remaining for the 4-Year Degree**	**60**

AY 2021-2022

Transfer Pathway and Degree Program

Template 2

Credits remaining in the four-year degree

Chemistry, Biochemistry Option, B.S. ACS approved

1	**Western Connecticut State University**	
2	**Remaining General Education Courses**	
3	**Course**	**Credits**
	If not already met, students must complete enough additional credits to add up to a total of 40 credits outside the major to meet the Explorations requirement. The Framework30 portion of the community college degree meets 30 of the 40 credits. Students must also repeat three different competencies, excluding writing and first-year navigation. *In this pathway, students will have completed two repeats, one in Scientific Inquiry and one in Quantitative Reasoning, and will have met 38 of the Explorations 40 credits.*	
4	Intercultural Competence	3
5	Health and Wellness	3
6	General Education Elective / Second Exposure	3
7	A foreign language is required for this major. Follow this link and click on the program sheet for requirements. Three credits of foreign language may count as fulfilling Intercultural Competence	3 (If 6 credits are needed at WCSU, 3 credits will count as Inter cultural Com-petence)
8	**Must be taken at WCSU:**	
9	Writing Intensive III – embedded in a major course	0
10	Culminating Gen Ed Experience – may be satisfied by a major capstone	0
11	**General Education Credits**	**12**
12	**Remaining Major Program Requirements**	
13	**Course**	**Credits**
14	CHE 205 Analytical Chemistry Lecture	3
15	CHE 206 Analytical Chemistry Lab	2
16	CHE 250 Chemistry Seminar (.5 credits each; 1 credit is required, and additional 1 credit is optional)	1
17	CHE 300 Physical Chemistry I	4
18	CHE 301 Physical Chemistry II	4
19	CHE 311 Inorganic Chemistry	4
20	CHE 421 Biochemistry Lecture I	3

AY 2021-2022

21	CHE 422 Biochemistry Lecture II	3
22	CHE 430 Senior Research	4
23	CHE 431 Biochemistry Lab	2
24	BIO 104 General Biology II	4
25	MAT 182 Calculus II	4
26	PHY 111 General Physics II	4
27	**Program Course Credits**	**42**
28	**Remaining Open Electives**	
29	**Courses**	**Credits**
30	**Open Elective credits**	**6**
31	*Remove this language if the program does not require a foreign language:* **Students who have fulfilled foreign language requirements in high school or who use open elective credits at the community college to fulfill foreign language requirements will end up with more open elective credits at WCSU.**	
32	**Total Credits Remaining for the 4-Year Degree**	**60**

AY 2021-2022