

Name _____
Clarion ID _____
Entrance Date _____
Program Entry Date _____
Advisor _____

Transfer:* _____
** _____
CUP: _____

GENERAL EDUCATION REQUIREMENTS - 48 CREDITS
Consult the Gen. Ed. Requirements for your Catalog Year for more specifics.

- I. LIBERAL EDUCATION SKILLS - 15 CREDITS CR. GR.
- A. English Composition (3 credits)
Eng 111: Writing II _____
- B. Mathematics Requirement (3 credits)

- C. Freshman Inquiry Seminar (3 credits)
INQ _____
- C. Credits to total 12 in Category I, selected from at least two of the following: Academic Enrichment, MMAJ 140 or 340, Computer Information Science, CSD 465, Elementary Foreign Language, English Composition, Hon 128, Logic, Mathematics, & CMST

- II. LIBERAL KNOWLEDGE - 27 CREDITS
- A. **Physical & Biological Science** (9 credits) selected from at least two of the following: Biology, Chemistry, Earth Sci., ENVR275, GS411, HON230, Mathematics, Phys. Sci. & Physics.

- B. **Social & Behavioral Science** (9 credits) selected from at least two of the following: Anthropology, CSD125, CSD 257, Economics, Geography, GS 140, History, HON240, NURS320, Pol. Sci., Psychology, Social Work, Sociology & Women & Gender Studies.

- C. **Arts & Humanities** (9 credits) selected from at least two of the following: English Language and Literature, HON 130, Humanities, Intermediate Foreign Language and Cultures, Music, Philosophy, Speech and Theater.

- III. HEALTH AND PERSONAL PERFORMANCE - 3 CREDITS
- A. Health and Wellness (2 credits)
_____ 2 _____
- B. Personal Performance (1 course and 1 credit)

- IV. GEN. ED. ELECTIVES - CREDITS TO TOTAL 48 FROM GEN. ED.
Up to 1 credit from III.B.

V. REQUIREMENTS IN MAJOR: 56-57 CREDITS CR. GR.

- A. **Required in Chemistry (41-42 credits)**
- CHEM 151: Chemical Principles I 3 _____
- CHEM 161: Chemical Principles I (Lab) 1 _____
- CHEM 152: Chemical Principles II 3 _____
- CHEM 162: Chemical Principles II (Lab) 1 _____
- CHEM 251: Organic Chemistry I 3 _____
- CHEM 261: Organic Chemistry I (Lab) 1 _____
- CHEM 252: Organic Chemistry II 3 _____
- CHEM 262: Organic Chemistry II (Lab) 1 _____
- CHEM 353: Analytical Chemistry I 3 _____
- CHEM 363: Analytical Chemistry I (Lab) 1 _____
- CHEM 358: Analytical Chemistry II 3 _____
- CHEM 368: Analytical Chemistry II (Lab) 1 _____
- CHEM 354: Physical Chemistry I 3 _____
- CHEM 364: Physical Chemistry I (Lab) 1 _____
- BCHM 453: Biochemistry I 3 _____
- BCHM 463: Biochemistry I (Lab) 1 _____
- BCHM 454: Biochemistry II 3 _____
- CHEM 470: Chemistry Seminar 3 _____

Select one of the following choices

CHEM 265: Inorganic Chemistry I	<u>3</u>	_____
CHEM 266: Inorganic Chemistry I (Lab)	<u>1</u>	_____
or		
Additional upper level Biochemistry (BCHM)	<u>3</u>	_____

B. **Required Credits in Biology (15 credits)**

- BIOL 155: Principles of Biology I 3 _____
- BIOL 165: Principles of Biology I (Lab) 1 _____

Select one of the following choices

BIOL 201: Genetics	<u>3</u>	_____
or		
BIOL 203: Cell Biology	<u>3</u>	_____
BIOL 341: General Microbiology	<u>4</u>	_____
BIOL 483: Molecular Biology	<u>4</u>	_____

VI. FREE ELECTIVES (to bring total to ≥ 120 credits)

FLAGS - Record below: (e.g. <http://www.clarion.edu/30879.pdf>)

_____ 1st Year Values (V) _____ 2nd Year Values (S)
_____ Quant. Reas. (Q) _____ Info. Lit. (I)
_____ Writing Int. (W) _____ Writing Int. (W)

PROGRAM NOTES:

- 1) Chemistry majors with a Biochemistry concentration are required to take MATH 270, 271, and Physics 251, 252, and may elect to place these courses under I. Liberal Education Skills or II. Liberal Knowledge.

No Changes since Fall 2018

SUGGESTED SCHEDULE OF COURSES and COURSE PLANNING GUIDE

DEGREE PROGRAM: B.S. CHEMISTRY: Biochemistry Concentration

FRESHMAN YEAR

<i>Fall Semester</i>	<i>Spring Semester</i>
CHEM 151 Chemical Prin. I (Lec); 3 CR	CHEM 152 Chemical Prin. II (Lec); 3 CR
CHEM 161 Chemical Prin. I Lab; 1 CR	CHEM 162 Chemical Prin. II Lab; 1 CR
MATH 171 Precalculus; 4 CR	MATH 270 Calculus I; 4 CR
BIOL 155 Prin. Bio. I (Lec); 3 CR	
BIOL 165 Prin. Bio. I Lab; 1 CR	

Other courses/electives to consider for your Freshman year: **(1)** ENG 111- Writing II; **(2)** First Year Values Flag Course [See Registrar/ Student Resources/ General Education Flags: <http://www.clarion.edu/academics/registrars-office/documents-and-forms/General-education-flags.pdf>] If you're considering pharmacy school, select prerequisite courses (PSYC or SOC, ECON, ENG, and MATH 221); **(3)** Health and/or Personal Performance; **(4)** If you're considering pursuing a health-related career, consider BIOL 156/166 in the spring.

SOPHOMORE YEAR

<i>Fall Semester</i>	<i>Spring Semester</i>
CHEM 251 Organic Chemistry I (Lec); 3 CR	CHEM 252 Organic Chemistry II (Lec); 3 CR
CHEM 261 Organic Chemistry I Lab; 1 CR	CHEM 262 Organic Chemistry II Lab; 1 CR
MATH 271 Calculus II; 4 CR	BIOL 203 Cell Bio; 3 CR OR BIOL 201 Genetics; 3 CR
PH 251 General Physics I; 4 CR	PH 252 General Physics II; 4 CR

In addition to completing your Physics and Math requirements, other courses/electives to consider for your Sophomore year: **(1)** Liberal Knowledge Gen. Ed. requirements: If you're considering pharmacy school, select prerequisite courses (PSYC or SOC, ECON, ENG, and MATH 221); **(2)** Second Values Flag Course [See Registrar/ Student Resources/ General Education Flags: <http://www.clarion.edu/academics/registrars-office/documents-and-forms/General-education-flags.pdf>]; **(3)** Health and/or Personal Performance.

JUNIOR YEAR

<i>Fall Semester</i>	<i>Spring Semester</i>
CHEM 353 Analytical Chemistry I (Lec); 3 CR	CHEM 358 Analytical Chemistry II (Lec); 3 CR
CHEM 363 Analytical Chemistry I Lab; 1 CR	CHEM 368 Analytical Chemistry II Lab; 1 CR
BCHM 453 Biochemistry I (Lec); 3 CR	BCHM 454 Biochemistry II (Lec); 3 CR
BCHM 463 Biochemistry Lab; 1 CR	BIOL 341 Gen. Microbiology; 4 CR <i>[Prereq for BIOL 483 Fall or Spring]</i>

Other courses/electives to consider for your Junior year: **(1)** Liberal Knowledge Gen. Ed. requirements; **(2)** Second Values Flag Course [See Registrar/ Student Resources/ General Education Flags: <http://www.clarion.edu/academics/registrars-office/documents-and-forms/General-education-flags.pdf>]; **(3)** If relevant, look at pre-requisites for graduate/ professional school; **(4)** Offered alternate spring semesters: CHEM 359 Advanced Organic Chem. (Lec); 3 CR.

SENIOR YEAR

<i>Fall Semester</i>	<i>Spring Semester</i>
CHEM 354 Physical Chemistry I (Lec); 3 CR	CHEM 470 Chemistry Seminar; 3 CR
CHEM 364 Physical Chemistry I Lab; 1 CR	CHEM 265 Inorganic Chemistry I (Lec); 3 CR
BIOL 483 Molecular Biology; 4 CR [Fall only]	CHEM 266 Inorganic Chemistry I Lab; 1 CR

Other courses/electives to consider for your Senior year: **(1)** Complete Gen. Eds; **(2)** Complete ≥120 credits; **(3)** Offered alternate spring semesters: CHEM 359 Advanced Organic Chem. (Lec); 3 CR; **(4)** CHEM 465/466 Chemical Research.