

BS Chemistry - Biochemistry concentration (Effective Fall 2023)

REQUIRED CHEM COURSES

Course #	Name of the course	Cr.	Pre-Requisites***	Pre/Co-Requisites
CHEM 113.4	Gen Chem 1	4	Math 115 or equiv.	Chem 113.1
CHEM 113.1	Intro to Chemical Techniques (Lab)	1		Chem 113.4
CHEM 114.4	Gen Chem 2	4	Math 122 or equiv. Chem 113.4 & .1	Chem 114.1
CHEM 114.1	Quant and Qual. Analysis (Lab)	1		Chem 114.4
CHEM 211	Thermodynamics & Kinetics	4	Chem 114.4 & .1 Math 152 or 143	Phys 145.4 ^a & .1 ^a
CHEM 251.4	Organic Chem 1	4	Chem 114.4 & .1	Chem 251.1
CHEM 251.1	Organic Chem Lab 1	1		Chem 251.4
CHEM 252.4	Organic Chem 2	4	Chem 251.4 & .1	Chem 252.1
CHEM 252.1	Organic Chem Lab 2	1		Chem 252.4
CHEM 331.3	Adv. Inorg. Chem	3	Chem 252.4 & .1 Math 151 or 142	Chem 331.1W
CHEM 331.1W	Physical Inorg. Lab	1		Chem 331.3
CHEM 341.3	Instrumental Methods	3	Chem 211, 252.4, 252.1 Phys 145.4 ^a & .1 ^a	Chem 341.1 Phys 146.4 ^b & .1 ^b
CHEM 341.1	Instr. Methods Lab	1		Chem 341.3
CHEM 371	Biochemistry	4	Chem 252.4 & .1 Biol 105 or Permission	
CHEM 395W	Senior thesis	3	Chem 211, 212, 251.4 & .1, 252.4 & .1	
Chem 372	Biochemistry II	4	Chem 371	
Chem 376	Biochemistry Lab	2	Chem 371	

Chem 378	Physical Biochemistry	4	Chem 211 Phys 145.4 ^a & .1 ^a	Chem 371 Phys 146.4 ^b & .1 ^b
ELECTIVE 1	Two additional credits from Chem 291, 388W, 391.1 to .3, HMNS 291.1 to .3, 391.1 to 3	2	See below	See below
	TOTAL	51		

*** A grade of 'C' or better is required in all pre-requisite 100 and 200 level courses & 'C-' or better in all higher level pre-requisite courses.

^a: Phys 121.4 & 121.1 can be accepted for Phys 145.4 & 145.1 on student's request. ^b: Phys

122.4 & 122.1 can be accepted for Phys 146.4 & 146.1 on student's request.

Chem 331.1W and 395W are writing intensive. Chem 395W is mandatory for BS degree.

Elective Courses Information

Course #	Name of the course	Cr.	Pre-Requisites***	Pre/Co-Requisites
Chem 291	Intro to Chem Research	1	Chem 113.4 & .1 Permission	Chem 114.4 & .1
Chem 388W	Phys. & Biphys. Lab	2	Chem 211 & permission	Chem 212 or 378
Chem 391.1-3	Research	1-3	Chem 252.4 & .1 OR chem 211 & 212. Permission	
HMNS 291.1-3	Intermediate Science Honors Research	1-3	HMNS 102 & Permission of Dir.	
HMNS 391.1-3	Advanced Science Honors Research	1-3	3 credits of HMNS 291 & permission of Dir.	

Required Cognate Courses

Note that the Chem major has pre-requisites from Math, Bio, and Phys courses as shown in the table.

BIOL 105 (4 Cr) – General Biology: Physiology and Cell Biology

Phys 121.4 & .1 OR **Phys 145.4 & .1** (5 Cr) - Principles of Physics I

Phys 122.4 & .1 OR **Phys 146.4 & .1** (5 Cr) - Principles of Physics II

Math 122 (4 Cr) – Pre-Calculus (possible to be waived by Math Dept through placement exam)

Math 151 & Math 152 – 4 Credits each OR **Math 141, 142, & 143** – 3 credits each – Calculus

Total Cognate Course credits: 22 to 27