

Build Your Schedule

Freshman Year		
Fall	Spring	Summer
Course		
CHEM 1211K (4) Principles of Chemistry I	CHEM 1212K (4) Principles of Chemistry II	
MATH 1113 (3) Pre-Calculus	MATH 2201 or 2211 (4) Calculus for Life Sciences I <u>or</u> Calculus of One Variable I	
	BIOL 2107 (4) Principles of Biology I	
CHEM Hours: 7	CHEM Hours: 12	

Junior Year		
Fall	Spring	Summer
Course		
CHEM 4600 (5) Biochemistry I	Choose Elective *See Below*	
PHYS 2212 (4) Principles of Physics II	CHEM 4150 or 4110 (3) Biophysical Chemistry <u>or</u> Physical Chemistry I	
BIOL 3810 (3) CTW Molecular Cell Bio Lab *Not required for Pre-med	BIOL 3880 or 3900 (3) Microbiology or Genetics	
CHEM 2010 (2) or Approved Substitute Quant Analysis lab		
CHEM Hours: 14	CHEM Hours: 9	

Choose your chemistry elective: **4610 (3):** Biochemistry II (Suggested Elective) (SP), **4330 (3):** Advanced Synthesis (FA), **4630 (3):** Enzymology (SP), **4230 (5):** Metals in Biology and Medicine (SP), **4650 (3):** Nucleic Acid Synth/Drug Design (FA), **4850 (3):** Bio-Analytical Chemistry I (FA), **4450 (3):** Molecular Modeling Methods (SP), or **4050 (2):** Intro Fourier-Transform NMR Spectroscopy (SU), **4410 (3):** Bioorganic Chemistry (SP 2014), **4120 (3):** Physical Chemistry II (SP, SU), **4210 (3):** Inorganic Chemistry (SP), **4190 (3):** Spectroscopy (FA, SU)

Concentration: Biochemistry

Sophomore Year		
Fall	Spring	Summer
Course		
CHEM 2400 (4) Organic Chemistry I	CHEM 3410 (4) Organic Chemistry II	
CHEM 3100 (2) Organic Chemistry I Lab	CHEM 3110 (2) Organic Chemistry II Lab	
MATH 2202 or 2212 (4) Calculus for Life Sciences II <u>or</u> Calculus of One Variable II	PHYS 2211 (4) Principles of Physics I	
BIOL 2108 (4) Principles of Biology II	BIOL 3800 (3) Molecular Cell Biology	
CHEM Hours: 14	CHEM Hours: 13	

Senior Year		
Fall	Spring	Summer
Course		
Choose Elective *See Below*	CHEM 4010 (3) Chromatography	
CHEM 4000 (3) CTW Fund of Chemical Analysis		
CHEM 4160 (3) CTW Chemistry Laboratory IVA	*BIOL 3890 or 3910 (1)* [Microbiology or Genetics lab] [*required for Pre-med and/or ACS certification only]	
CHEM Hours: 6+	CHEM Hours: 3+	

University Required Core-Curriculum Units

Area A1: Written Communication (6 Semesters Hours)

- English 1101- English Composition I (3)
- English 1102- English Composition II (3)

Area A2: Mathematics (3-4 Semester Hours)

- Math 1113- Precalculus
- Math 2211- Calculus of One Variable I (4)
- Math 2201- Calculus for Life Sciences I (4)
- Math 2212- Calculus of One Variable II (4)
- Math 2202- Calculus of Life Sciences II (4)
- Math 2215 Multivariate Calculus (4)
- *Three of the following Math courses above are required for the chemistry major. (**Refer to Area D**)

Area B: Institutional Foundations (4 Semester Hours) Select two courses from the list below

- Phil 1010- Critical Thinking (2)
- Spch 1000- Human Communication (2)
- Pers 2001- Perspectives on Comparative Culture (2)
- Pers 2002- Scientific Perspectives on Global Problems (2)

Area C: Group 1 (Humanities)

Select two courses from groups 1, 2, or 3.
Two courses may not come from same group.

- Engl 2110- World Literature (3)
- Engl 2120 - British Literature (3)
- Engl 2130- American Literature (3)
- Phil 2010- Introduction to Philosophy (3)
- Rels 2001- Introduction to World Religions (3)
- Spch 2050- Media, Culture, and Society (3)

Area C: Group 2 (Fine Arts)

Select two courses from groups 1, 2, or 3.
Two courses may not come from same group.

- AH 1700- Survey of Art I (3)
- AH 1750- Survey of Art II (3)
- AH 1850- Survey of Art III (3)
- Film 2700- History of the Motion Picture (3)
- MuA1500- Jazz: It's Origin, Styles, and Influence
- MuA1900- Dramatic Music from the Renaissance through the Twentieth Century (3)
- Thea 2040- Introduction to Theatre (3)

Area C: Group 3 (Foreign Language)

Select two courses from groups 1, 2, or 3.
Two courses may not come from same group.

- The University offers a variety of foreign language courses. Please review the course catalog for ALL foreign language offerings.

University Required Curriculum Units

Area D: Science & Mathematics (11 Semester Hours)

- Chem 1211K- Principles of Chemistry I (4) **and**
- Chem 1212K- Principles of Chemistry II (4)
-
- Math 2201- Calculus for Life Sciences I (4)
- Math 2211- Calculus of One Variable I (4)
- or**
- Math 2212- Calculus of Life Sciences II (4)
- Math 2202- Calculus of One Variable II (4)

Area E: Social Sciences (12 Semester Hours) US Politics & History

- Hist 2110- Survey of United States History (3)
- Pols 1101- American Government (3)

•***Both courses listed are mandatory**

Area E: Social Sciences (3 Semester Hours) Select one course

- Econ 2100- The Global Economy (3)
- Hist 1111- Survey of World History to 1500 (3)
- Hist 1112- Survey of World History since 1500 (3)
- Pols 2401- Global Issues (3)

Area E: Social Science (3 Semester Hours) Select one course

- AAS 2010- Intro to African American Studies (3)
- Anth 1102- Introduction to Anthropology (3)
- CrJu 2200- Social Science and the American Crime Problem (3)
- Econ 2105- Principles of Macroeconomics (3)
- Econ 2106- Principles of Microeconomics (3)
- Geog 1101- Intro to Human Geography (3)
- AAS/Hist 1140- African and African Amer Hist (3)
- Psys 1101- Introduction to Sociology (3)
- Soci 1160- Introduction to Social Problems (3)
- WSt 2010- Introduction to Women's Studies (3)

Area F: Lower Division Chemistry Major (18 Semester Hours-Mandatory Requirements)

- Chem 1211K-Principles of Chemistry I (4)
- Chem 1212K-Principles of Chemistry II (4)
- Physics 2211K- Principles of Physics I (4)
- Physics 2212K- Principles of Physics II (4)
- Chem 2010- Quantitative Analysis (2)
- Chem 2400- Organic Chemistry I (4)
- Chem 2212- Calculus of One Variable II (4)

Area G: Chemistry Major Courses 31 Semester Hours-Mandatory Courses

- Chem 3100- Organic Chemistry I Lab (2)
- Chem 3110- Organic Chemistry II Lab (2)
- Chem 3410- Organic Chemistry II (4)
- Chem 4000- Fund of Chemical Analysis-CTW (3)
- Chem 4010- Instr Meth I: Chromotography (3)
- Chem 4150 or 4110-Biophysical or Physical Chem (3)
- Chem 4160-Chemistry Laboratory IVA-CTW
- Chem 4600-Biochemistry I

Required Biology Courses

- Biol 3800- Molecular Cell Biology (3)
- Biol 3810- Molecular Cell Biology Lab (3)
- Biol 3880 or 3900- Microbiology or Genetics (3)
- Pre Med's must take Biol 3890 or Biol 3910 Labs (1)*

Biochemistry Schedule of Courses

Course Number	Course Name	Pre-Requisite	Offered
CHEM 1211K (4)	PRINCIPLES OF CHEMISTRY	MATH 1113 (PRE-OR CO/REQUISITE)	FALL, SPRING, SUMMER
CHEM 1212K (4)	PRINCIPLES OF CHEMISTRY II	CHEM 1211K	FALL, SPRING, SUMMER
CHEM 2400 (4)	ORGANIC CHEMISTRY I	CHEM 1212K	FALL, SPRING, SUMMER
CHEM 3100 (2)	ORGANIC CHEMISTRY I LAB	CHEM 1212K	FALL, SPRING, SUMMER
CHEM 3110 (2)	ORGANIC CHEMISTRY II LAB	CHEM 2400	FALL, SPRING, SUMMER
CHEM 3410 (4)	ORGANIC CHEMISTRY II	CHEM 2400	FALL, SPRING, SUMMER
CHEM 4000 (3)	FUND OF CHEMICAL ANALYSIS	CHEM 3410, MATH 2212, 2.2 GPA	FALL, SPRING
CHEM 4010 (3)	INSTR METH I: CHROMATOGRAPHY	CHEM 4000	FALL, SPRING
CHEM 4050 (2)	INTRO FOUR-TRANS NMR SPECTROSC	DEMONSTRATED RESEARCH NEED	SUMMER
CHEM 4110 (3)	PHYSICAL CHEMISTRY I	CHEM 1212K, PHYS 2212K, MATH 2212	FALL, SPRING
CHEM 4120 (3)*	PHYSICAL CHEMISTRY II	CHEM 4110	SPRING, SUMMER
CHEM 4150 (3)	INTRO TO BIOPHYSICAL CHEMISTRY	MATH 2212	SPRING
CHEM 4160 (3)	CHEMISTRY LABORATORY IVA	CHEM 4000, CHEM 4110	FALL, SPRING, SUMMER
CHEM 4170 (4)*	CHEMISTRY LABORATORY IVB	CHEM 4000	FALL, SPRING, SUMMER
CHEM 4190 (3)	SPECROSCOPY	CHEM 4000, CHEM 4120	FALL, SUMMER
CHEM 4210 (3)*	INORGANIC CHEMISTRY	CHEM 4120	SPRING
CHEM 4230 (5)	METALS IN BIOLOGY AND MEDICINE	CHEM 4600	SPRING
CHEM 4330 (3)*	ADVANCED SYNTHESIS	ORG CHEM (3410) WITH LAB (3110)	FALL
CHEM 4410 (3)	BIO ORGANIC CHEMISTRY	CHEM 3410 WITH LAB 3110	SPRING 2014 (Writing intensive)
CHEM 4450 (3)	MOLECULAR MODELING METHODS	CHEM 3410, CHEM 4110	SPRING
CHEM 4600 (5)	BIOCHEMISTRY I	CHEM 3410	FALL, SPRING, SUMMER
CHEM 4610 (3)	BIOCHEMISTRY II	CHEM 4600	SPRING
CHEM 4630 (3)	ENZYMOLGY	CHEM 3410, CHEM 4600	SPRING
CHEM 4650 (3)	NUCLEIC ACID SYNTH/DRUG DESIGN	CHEM 3410	FALL 2013
CHEM 4850 (3)	BIOANALYTICAL CHEMISTRY I	CHEM 4000, CHEM 4190	FALL
CHEM 4950 (1-5)	CHEMICAL RESEARCH	PRIOR APPROVAL	FALL, SPRING, SUMMER

Quick Notes:

You must complete the mandatory biology courses if you choose to pursue a Bachelor's degree in Chemistry with a biochemistry concentration. Students with the biochemistry concentration must have at least one 3000/4000 level laboratory course A Grade of C- does not count toward your major and will not be used as a pre-requisite. You must take 39 semester hours of 3000/4000 level credit to meet your GSU residency requirement. Biochemistry also requires 5 hours in elective credit. You must also have a total of 120 semester hours of college course work to earn a degree from the chemistry department; this excludes 1000/2000 physical education problems courses/tutorials, or military science courses. The department recommends that majors take computers and/or foreign language courses.

Quick Notes Continued:

Genetics is recommended prior to taking the MCATS

Students planning to attend graduate school in biochemistry are strongly suggested to take Phys 2211K and 2211K

CHEM 2010 can be replaced by CHEM 2950 (Research), Math 1070 (Elementary Statistics), or BIOL 2300 (Microbiology & Public Health)

Only students interested in medical school are required to take the Genetics or Microbiology lab (3910 or 3890)

If you plan to take the GRE subject Chemistry Exam, move CHEM 4210 to your junior year, and discuss options with an advisor

If any of the information printed here is different from the university catalog, the catalog is correct

Register as early as possible because classes fill quickly!

Interested in ACS Certification (American Chemical Society Certification)?

(Important if interested in pursuing a national job search)

*Courses Required in addition to the Major Course. (Courses are also identified with an * on the chart above):*

CHEM 4330 Advanced Synthesis (3), CHEM 4210 Advanced Inorganic (3), CHEM 4120 Physical Chemistry II (3), CHEM 4170 Chemistry Laboratory IVB (4)

Visit: <http://chemistry.gsu.edu>