

# Build Your Schedule

## Freshman Year

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

## Concentration: Biochemistry

## Sophomore Year

Fall	Spring	Summer
Course		
<b>CHEM 2400 (3)</b> Organic Chemistry I	<b>CHEM 2410 (3)</b> Organic Chemistry II	
<b>CHEM 2100 (2)</b> Interm. Organic Chemistry I Lab	<b>CHEM 3110 (2)</b> Interm. Organic Chemistry II Lab	
<b>MATH 2202 or 2212 (4)</b> Calculus for Life Sciences II <u>or</u> Calculus of One Variable II	<b>PHYS 1111K or 2211K (4)</b> Introductory Physics I <u>or</u> Principles of Physics I	
<b>BIOL 2108 (4)</b> Principles of Biology II	<b>BIOL 3800 (3)</b> Molecular Cell Biology	
CHEM Hours: 13	CHEM Hours: 12	

## Junior Year

Fall	Spring	Summer
Course		
<b>CHEM 4600 (5)</b> Biochemistry I	<b>CHEM 4000 (3) CTW</b> Fund of Chemical Analysis	
<b>PHYS 1112K or 2212K (4)</b> Introductory Physics II <u>or</u> Principles of Physics II	<b>Choose Elective</b> *See Below*	
<b>CHEM 3400 (3)</b> Intermediate Org. Lec.	<b>BIOL 3880 or 3900 (3)</b> Microbiology or Genetics	
	<b>BIOL 3810 (3) CTW</b> Molecular Cell Bio Lab	
CHEM Hours: 12	CHEM Hours: 12	

## Senior Year

Fall	Spring	Summer
Course		
<b>Choose Elective</b> *See Below*	<b>CHEM 4010 (3)</b> Chromatography	
<b>CHEM 4150 or 4110 (3)</b> Biophysical Chemistry <u>or</u> Physical Chemistry I		
<b>CHEM 4160 (3) CTW</b> Chemistry Laboratory IVA	<b>*BIOL 3890 or 3910 (1)*</b> [Microbiology or Genetics lab]	
CHEM Hours: 6+	CHEM Hours: 3+	

**Choose your chemistry elective:** **4610 (3):** Biochemistry II (Suggested Elective) (SP), **4330 (3):** Advanced Synthesis (FA), **4630 (3):** Enzymology (SP), **4670 (3):** Practice and Techniques of Biochemistry (FA), **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), **4120 (3):** Physical Chemistry II (SP, SU), **4210 (3):** Inorganic Chemistry (SP), **4240 (3):** Chemical Biology (SP)

# 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)
- Psyc 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)

- Physics 2211K- Principles of Physics I (4)
- Physics 2212K- Principles of Physics II (4)
- or**
- Physics 1111K - Introductory Physics I (4)
- Physics 1112K - Introductory Physics II (4)
- Chem 2400- Organic Chemistry I (3)
- Math 2212- Calculus of One Variable II (4)
- or**
- Math 2202- Calculus of One Variable II (4)

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

- Chem 2100- Organic Chemistry I Lab (2)
- Chem 3110- Organic Chemistry II Lab (2)
- Chem 2410- Organic Chemistry II (3)
- Chem 3400 - Intermediate Organic Chemistry (3)
- 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 2107/2108- Principles of Biology I & II (8)
- 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 (with grade of C or higher)	Offered
CHEM 1211K (4)	PRINCIPLES OF CHEMISTRY	MATH 1111 (PRE-OR CO/REQUISITE)	FALL, SPRING, SUMMER
CHEM 1212K (4)	PRINCIPLES OF CHEMISTRY II	CHEM 1211K, MATH 1113 (PRE-OR CO/REQUISITE)	FALL, SPRING, SUMMER
CHEM 2400 (3)	ORGANIC CHEMISTRY I	CHEM 1212K	FALL, SPRING, SUMMER
CHEM 2100 (2)	INTERMEDIATE ORGANIC CHEMISTRY I LAB	CHEM 2400 (CO-REQUISITE)	FALL, SPRING, SUMMER
CHEM 2950 (2)	CHEMICAL RESEARCH (SEMINAR)	PRIOR APPROVAL	FALL, SPRING, SUMMER
CHEM 3110 (2)	INTERMEDIATE ORGANIC CHEMISTRY II LAB	CHEM 2100	FALL, SPRING, SUMMER
CHEM 2410 (3)	ORGANIC CHEMISTRY II	CHEM 2400	FALL, SPRING, SUMMER
CHEM 3400 (3)	INTERMEDIATE ORGANIC CHEMISTRY	CHEM 2410	FALL, SPRING, SUMMER
CHEM 4000 (3)	FUND OF CHEMICAL ANALYSIS	CHEM 2410, 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	FALL, SPRING
CHEM 4160 (3)	CHEMISTRY LABORATORY IVA	CHEM 4000, CHEM 4110, CHEM 4330, CHEM 4600	FALL, SPRING, SUMMER
CHEM 4170 (4)*	CHEMISTRY LABORATORY IVB	CHEM 4000, CHEM 4110	FALL, SPRING, SUMMER
CHEM 4190 (3)	SPECTROSCOPY	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 4240 (3)	CHEMICAL BIOLOGY	CHEM 2410, CHEM 4600	SPRING
CHEM 4330 (3)*	ADVANCED SYNTHESIS	ORG CHEM (2410) WITH LAB (3110)	FALL
CHEM 4410 (3)	BIO ORGANIC CHEMISTRY	CHEM 2410 WITH LAB 3110	SPRING (Writing intensive)
CHEM 4450 (3)	MOLECULAR MODELING METHODS	CHEM 2410, CHEM 4110	SPRING
CHEM 4600 (5)	BIOCHEMISTRY I	CHEM 2410	FALL, SPRING, SUMMER
CHEM 4610 (3)	BIOCHEMISTRY II	CHEM 4600	SPRING
CHEM 4630 (3)	ENZYMOLGY	CHEM 2410, CHEM 4600	SPRING
CHEM 4650 (3)	NUCLEIC ACID SYNTH/DRUG DESIGN	CHEM 2410	FALL
CHEM 4670 (3)	P & T OF BIOCHEMISTRY	CHEM 4600	FALL
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.

### 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 2212K.
- **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>