

## B.S. in Chemistry Graduation Checklist

Student's Name: \_\_\_\_\_ Anticipated Graduation Year: \_\_\_\_\_

ACS-Certified: \_\_\_\_\_ Area of Emphasis: \_\_\_\_\_

### Introductory Course

CHE 120 \_\_\_\_\_  
(Chemical Principles of Organic Molecules)

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### Foundational Courses

ACS-certified majors must complete **all** of the foundational courses listed below. Non-ACS certified majors must complete all of the starred (\*) courses below with the exception of CHE 305 and CHE 306 where only **one** of the two is required.

\*CHE 140 \_\_\_\_\_ \*CHE 220 \_\_\_\_\_ \*CHE 240 \_\_\_\_\_  
(Reactions of Organic Molecules) (Quantitative Chemical Analysis) (Chemistry of the Elements)

\*CHE 305 \_\_\_\_\_ \*CHE 306 \_\_\_\_\_  
(Chemical Thermodynamics and Kinetics) (Quantum Chemistry and Spectroscopy)  
Non-ACS certified majors can take CHE 305 or 306. Non-ACS certified majors can take CHE 305 or 306.

CHE 303 or CHE 309 \_\_\_\_\_ \*CHE 340 \_\_\_\_\_  
(Chemistry of Biological Compounds or Biochemistry) (Organic Mechanisms and Synthesis)  
Premedical students must take CHE 309.  
BIO 111 is a prerequisite for CHE 309.

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### Elective Courses

ACS-certified and Non-ACS certified majors must take a minimum of **three** upper level chemistry electives (see approved list below).

Elective #1 \_\_\_\_\_ Elective #2 \_\_\_\_\_

Elective #3 \_\_\_\_\_

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### Additional Required Courses

CHE 392 \_\_\_\_\_ CHE 492 \_\_\_\_\_  
(Junior Seminar) (Senior Seminar)

CHE SCE \_\_\_\_\_

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### Ancillary Courses

ACS-certified major must take PHY 111 and PHY 112.

MAT 201 \_\_\_\_\_ MAT 202 \_\_\_\_\_  
(Differential Calculus) (Integral Calculus)

PHY 111 or PHY 101 \_\_\_\_\_ PHY 112 or PHY 102 \_\_\_\_\_  
(General Physics I or College Physics I) (General Physics II or College Physics II)

## Chemistry Area of Emphasis Checklist

\*\*\*Note: a student may only declare one area of emphasis.

### **Organic and Medicinal Chemistry**

A student must complete **three** of the following courses, in addition to an SCE specialization in Organic or Medicinal Chemistry.

CHE 320 \_\_\_\_\_  
(Introduction to Medicinal Chemistry)

CHE 403 \_\_\_\_\_  
(Advanced Organic Chemistry)

CHE 303 or CHE 309 \_\_\_\_\_  
(CBC or Biochemistry)

CHE 394/494 or CHE 395/495/396/496 \_\_\_\_\_  
(Approved Special Topics Course or Research Experience)

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### **Greener Materials Science**

A student must complete **three** of the following courses, in addition to an SCE specialization in Greener Materials Science.

CHE 294 \_\_\_\_\_  
(Art in the Anthropocene)

CHE 310 \_\_\_\_\_  
(Greener and Sustainable Chemistry)

CHE 314 \_\_\_\_\_  
(Instrumental Methods of Analysis)

CHE 410 \_\_\_\_\_  
(Materials Science)

CHE 394/494 or CHE 395/495/396/496 \_\_\_\_\_  
(Approved Special Topics Course or Research Experience)

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### **Physical and Instrumental Chemistry**

A student must complete **three** of the following courses, in addition to an SCE specialization in Physical and Instrumental Chemistry.

CHE 305 & 306 \_\_\_\_\_  
(Chemical Thermodynamics and Kinetics **and**  
Quantum Chemistry and Spectroscopy)

CHE 314 \_\_\_\_\_  
(Instrumental Methods of Analysis)

CHE 405 \_\_\_\_\_  
(Biophysical Methods)

Physics Elective \_\_\_\_\_  
(Approved Physics elective at the 200-level or above)

MAT 203 or MAT 345 \_\_\_\_\_  
(Multivariable Calculus **or** Differential Equations)

CHE 394/494 or CHE 395/495/396/496 \_\_\_\_\_  
(Approved Special Topics Course or Research Experience)

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### **Biophysics and Biological Chemistry**

A student must complete **three** of the following courses, in addition to an SCE specialization in Biophysics or Biological Chemistry.

CHE 303 \_\_\_\_\_  
(CBC)

CHE 309 \_\_\_\_\_  
(Biochemistry)

CHE 320 \_\_\_\_\_  
(Introduction to Medicinal Chemistry)

CHE 405 \_\_\_\_\_  
(Biophysical Methods)

CHE 305 & 306 \_\_\_\_\_  
(Chemical Thermodynamics and Kinetics **and**  
Quantum Chemistry and Spectroscopy)

CHE 394/494 or CHE 395/495/396/496 \_\_\_\_\_  
(Approved Special Topics Course or Research Experience)

Biology Elective \_\_\_\_\_  
(Approved Biology elective at the 200-level or above)

**Approved In-Depth Chemistry Electives for an ACS-Certified Chemistry Major**

CHE 210 Environmental Chemistry  
CHE 310 Greener and Sustainable Chemistry  
CHE 314 Instrumental Methods of Analysis  
CHE 320 Introduction to Medicinal Chemistry  
CHE 403 Advanced Organic Chemistry  
CHE 405 Biophysical Methods  
CHE 410 Materials Science  
Approved Special Topics Course  
Approved Research Experience

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**Approved Chemistry Electives for a Non-ACS Certified Chemistry Major**

CHE 210 Environmental Chemistry  
CHE 305 Chemical Thermodynamics and Kinetics (if not taken to complete chemistry requirements)  
CHE 306 Quantum Chemistry and Spectroscopy (if not taken to complete chemistry requirements)  
CHE 303 Chemistry of Biological Compounds  
CHE 309 Biochemistry  
CHE 310 Greener and Sustainable Chemistry  
CHE 314 Instrumental Methods of Analysis  
CHE 320 Introduction to Medicinal Chemistry  
CHE 403 Advanced Organic Chemistry  
CHE 405 Biophysical Methods  
CHE 410 Materials Science  
One Approved Special Topics Course  
One Approved Research Experience  
One Approved Biology, Psychology, Physics, or Environmental Science Course

**Approved Biology Electives for the Non-ACS Certified Chemistry Major:**

BIO 203 Microbiology  
BIO 205 Cell Biology  
BIO 207 Biotech and Molecular Biology  
BIO 302 Developmental Biology  
BIO 305 Genetics  
BIO 310 Microbial Ecology  
BIO 350 Toxicology  
BIO 404 Immunology  
BIO 409 Biochemistry  
Cell Signaling  
Endocrinology

**Approved Psychology Electives for the Non-ACS Certified Chemistry Major:**

PSY 210 Biopsychology  
PSY 205 Drugs and behavior  
PSY 305 Psychopharmacology  
PSY 410 Neuroscience Research Methods

**Approved Physics Electives for the Non-ACS Certified Chemistry Major:**

PHY 321 Classical Mechanics  
PHY 322 Quantum Mechanics  
PHY 323 Thermodynamics and Statistical Mechanics  
PHY 324 Electricity and Magnetism  
PHY 352 Electronics  
PHY 394 Optics  
PHY 451 Advanced Physics Lab

**Approved Environmental Science Electives for the Non-ACS Chemistry Certified Major:**

ENV 311 Watershed Biogeochemistry