

# CHEMISTRY, B.S. (SCIENCE)

**Begin Campus:** Any Penn State Campus

**End Campus:** University Park

## Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2021-22 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition (*Note: the archive only contain suggested academic plans beginning with the 2018-19 edition of the Undergraduate Bulletin*).

### Analytical Concentration Option: Chemistry, B.S. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

#### First Year

Fall	Credits Spring	Credits
PSU 16	1 CHEM 112H or 112**	3
CHEM 110H or 110**	3 CHEM 113**	1
CHEM 111**	1 MATH 141B or 141**††	4
MATH 140B or 140**††	4 General Education Course	3
ENGL 15, 30H, or ESL 15†	3 PHYS 211†	4
General Education Course	3	
	<b>15</b>	<b>15</b>

#### Second Year

Fall	Credits Spring	Credits
CHEM 210H or 210**	3-4 CHEM 212H or 212*	3
CHEM 227*	4 CHEM 213W or 213M*	2
MATH 231	2 CHEM 310*	3
PHYS 212†	4 PHYS 213 & PHYS 214†	4
General Education Course	3 CHEM 400	1
	CHEM 430	3
	<b>16-17</b>	<b>16</b>

#### Third Year

Fall	Credits Spring	Credits
CHEM 316	1 CHEM 452*	3
CHEM 450*	3 CHEM 457*	2
CHEM 400 Level Selection (consult with an academic adviser for options)	3 General Elective Course	3
ENGL 202C, 202A, 202B, or 202D†	3 CAS 100A, 100B, or 100C	3
General Education Course	3 STAT 401 or MATH 250	3

Supporting course (consult with an academic adviser for options)	3 General Education Course (GHW)	1.5
General Education Course (GHW)	1.5	
	<b>17.5</b>	<b>15.5</b>

#### Fourth Year

Fall	Credits Spring	Credits
CHEM 425W (or CHEM 400 level selection - consult with an academic adviser for options)	4 CHEM 423W*	4
CHEM 400 Level Elective Selection (consult with an academic adviser for options)	4 CHEM 400 Level Elective (consult with an academic adviser for options)	3
General Education Course	3 General Education Course	3
Supporting course (consult with an academic adviser for options)	3 Supporting course (consult with an academic adviser for options)	3
Supporting course (consult with an academic adviser for options)	3 Supporting course (consult with an academic adviser for options)	3
	<b>17</b>	<b>16</b>

#### Total Credits 128-129

- \* Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

#### University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy University Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

GWS, GQ, GHW, GN, GA, GH, and GS are abbreviations used to identify General Education program courses. General Education includes Foundations (GWS and GQ) and Knowledge Domains (GHW, GN, GA, GH, GS, and Integrative Studies). Foundations courses (GWS and GQ) require a grade of 'C' or better.

Integrative Studies courses are required for the General Education program. N is the suffix at the end of a course number used to designate an Inter-Domain course and Z is the suffix at the end of a course number used to designate a Linked course.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and replace both ENGL 30H and CAS 100. Each course is 3 credits.

## Physical Concentration Option: Chemistry, B.S. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

### First Year

Fall	Credits Spring	Credits
PSU 16	1 CHEM 112H or 112 <sup>*#</sup>	3
CHEM 110H or 110	3 CHEM 113 <sup>*#</sup>	1
CHEM 111 <sup>*#</sup>	1 MATH 141B or 141 <sup>*†#†</sup>	4
MATH 140B or 140 <sup>*†#†</sup>	4 General Education Course	3
ENGL 15, 30H, or ESL 15 <sup>†</sup>	3 PHYS 211 <sup>†</sup>	4
General Education Course	3	
	<b>15</b>	<b>15</b>

### Second Year

Fall	Credits Spring	Credits
CHEM 210H or 210 <sup>*#</sup>	3 CHEM 212H <sup>*</sup>	3
CHEM 227 <sup>*</sup>	4 CHEM 213 <sup>*</sup>	2
MATH 231	2 CHEM 310 <sup>*</sup>	3
PHYS 212 <sup>†</sup>	4 PHYS 213 <sup>†</sup>	2
General Education Course (GHW)	1.5 PHYS 214 <sup>†</sup>	2
CHEM 400	1 General Education Course	3
	<b>15.5</b>	<b>15</b>

### Third Year

Fall	Credits Spring	Credits
CHEM 316	1 CHEM 457 <sup>*</sup>	2
CHEM 450 <sup>*</sup>	3 CHEM 464	3
CHEM 452	3 MATH 405	3
MATH 251	4 ENGL 202C, 202A, 202B, or 202D <sup>†</sup>	3
CAS 100A, 100B, or 100C	3 General Education Course	3
General Education Course	3 General Education Course (GHW)	1.5
	<b>17</b>	<b>15.5</b>

### Fourth Year

Fall	Credits Spring	Credits
CHEM 400 Level Elective Selection (consult with an academic adviser for options)	3 CHEM 459W <sup>*</sup>	4
CHEM 400 Level Elective Selection (consult with an academic adviser for options)	3 CHEM 400 Level Elective Selection (consult with an academic adviser for options)	3
CHEM 400 Level Elective Selection (consult with an academic adviser for options)	3 Supporting course (consult with an academic adviser for options)	3

General Education Course	3 Supporting course (consult with an academic adviser for options)	3
Supporting course (consult with an academic adviser for options)	3 Supporting course (consult with an academic adviser for options)	3
General Education Course (GHW)	1.5	
	<b>16.5</b>	<b>16</b>

### Total Credits 125.5

- \* Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
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Integrative Studies courses are required for the General Education program. N is the suffix at the end of a course number used to designate an Inter-Domain course and Z is the suffix at the end of a course number used to designate a Linked course.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and replace both ENGL 30H and CAS 100. Each course is 3 credits.

## Synthetic/Biological Concentration Option: Chemistry, B.S. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

### First Year

Fall	Credits Spring	Credits
PSU 16	1 CHEM 112H or 112 <sup>*#</sup>	3
CHEM 110H or 110 <sup>*#</sup>	3 CHEM 113 <sup>*#</sup>	1
CHEM 111 <sup>*#</sup>	1 MATH 141B or 141 <sup>*†#†</sup>	4
MATH 140B or 140 <sup>*†#†</sup>	4 General Education Course	3
ENGL 15, 30H, or ESL 15 <sup>†</sup>	3 PHYS 211 <sup>†</sup>	4
General Education Course	3	
	<b>15</b>	<b>15</b>

### Second Year

Fall	Credits Spring	Credits
CHEM 210H or 210 <sup>*#</sup>	3-4 CHEM 212H or 212 <sup>*</sup>	3
CHEM 227 <sup>*</sup>	4 CHEM 213W or 213M <sup>*</sup>	2
MATH 231	2 CHEM 310 <sup>*</sup>	3
PHYS 212 <sup>†</sup>	4 CHEM 400	1
General Education Course	3 CHEM 430	3
	General Education Course	3
	<b>16-17</b>	<b>15</b>

### Third Year

Fall	Credits Spring	Credits
CHEM 316	1 CHEM 452 <sup>*</sup>	3
CHEM 431W <sup>*</sup>	4 CHEM 457 <sup>*</sup>	2
CHEM 450 <sup>*</sup>	3 PHYS 213 <sup>†</sup>	2
ENGL 202C, 202A, 202B, or 202D <sup>†</sup>	3 PHYS 214 <sup>†</sup>	2
Supporting course (consult with an academic adviser for options)	3 CAS 100A, 100B, or 100C <sup>†</sup>	3
General Education Course (GHW)	1.5 General Education Course	3
	<b>15.5</b>	<b>15</b>

### Fourth Year

Fall	Credits Spring	Credits
CHEM 425W <sup>*</sup>	4 CHEM 400 Level Elective Selection (consult with an academic adviser for options)	3
CHEM 432	3 CHEM 400 Level Elective Selection (consult with an academic adviser for options)	3
CHEM 476	3 General Education Course	4
STAT 401	3 Supporting course (consult with an academic adviser for options)	3

General Education Course	3 Supporting course (consult with an academic adviser for options)	3
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General Education Course (GHW)	1.5	
	<b>17.5</b>	<b>16</b>

### Total Credits 125-126

- \* Course requires a grade of C or better for the major
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- # Course is an Entrance to Major requirement
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### University Requirements and General Education Notes:

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Integrative Studies courses are required for the General Education program. N is the suffix at the end of a course number used to designate an Inter-Domain course and Z is the suffix at the end of a course number used to designate a Linked course.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and replace both ENGL 30H and CAS 100. Each course is 3 credits.

## 2 + 2 Option: Chemistry, B.S. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

### First Year

Fall	Credits Spring	Credits
PSU 16	1 CHEM 112H or 112 <sup>*#</sup>	3
CHEM 110H or 110 <sup>*#</sup>	3 CHEM 113 <sup>*#</sup>	1
CHEM 111 <sup>*#</sup>	1 MATH 141 <sup>*†#†</sup>	4
MATH 140 <sup>*†#†</sup>	4 General Education Course	3
ENGL 15, 30H, or ESL 15 <sup>†</sup>	3 PHYS 211 <sup>†</sup>	4
General Education Course	3 General Education Course (GHW)	1.5
	<b>15</b>	<b>16.5</b>

### Second Year

Fall	Credits Spring	Credits
CHEM 210H or 210 <sup>*#</sup>	3 CHEM 212H or 212 <sup>*</sup>	3
MATH 231	2 CHEM 213W or 213M <sup>*</sup>	2
PHYS 212 <sup>†</sup>	4 ENGL 202C, 202A, 202B, or 202D	3
CAS 100A, 100B, or 100C	3 PHYS 213 <sup>†</sup>	2
General Education Course	3 PHYS 214 <sup>†</sup>	2
Supporting course (consult with an academic adviser for options)	3 General Education Course	3
	<b>18</b>	<b>15</b>

### Third Year

Fall	Credits Spring	Credits
CHEM 227 <sup>*</sup>	4 CHEM 310 <sup>*</sup>	3
CHEM 316	1 CHEM 400	1
CHEM 450	3 CHEM 430	3
MATH 250	3 CHEM 452 <sup>*</sup>	3
General Education Course	3 CHEM 457 <sup>*</sup>	2
General Education Course (GHW)	1.5 General Education Course	3
	Supporting course (consult with an academic adviser for options)	3
	<b>15.5</b>	<b>18</b>

### Fourth Year

Fall	Credits Spring	Credits
CHEM 431W or 425W <sup>*</sup>	4 CHEM 423W or 459W <sup>*</sup>	4
CHEM 459W <sup>*</sup>	4 CHEM 400 Level Selection (consult with and academic adviser for options)	3
CHEM 400 Level Elective Selection (consult with an academic adviser for options)	3 CHEM 400 Level Selection (consult with and academic adviser for options)	3

Supporting course (consult with an academic adviser for options)	3 Supporting course (consult with an academic adviser for options)	3
Supporting course (consult with an academic adviser for options)	3 Supporting course (consult with an academic adviser for options)	3
	<b>17</b>	<b>16</b>

### Total Credits 131

- \* Course requires a grade of C or better for the major
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