Pharmaceutical Sciences BS

Overview

The **Bachelor of Science in Pharmaceutical Sciences** is offered by the Department of Pharmaceutical Sciences at Temple University School of Pharmacy. It is designed to prepare graduates for entry-level positions within the pharmaceutical and biotechnology industries. This program also serves as a pathway to graduate study in pharmaceutical sciences and regulatory affairs or professional programs in pharmacy, medicine, dentistry, and other fields. It provides a solid science foundation and broad liberal arts education while preparing students for careers in the areas of research/laboratory work, quality control, and administration in pharmaceutics, biotechnology, and healthcare industries. The first two years of study are primarily based in Temple University's Main campus, with the remaining curriculum taught in the School of Pharmacy on the Health Sciences Campus.

This major is open to incoming first-year students. Current Temple students can declare this major if they have been admitted to Temple University and have completed, or are in the process of completing, the undergraduate major requirements.

The BS in Pharmaceutical Sciences is a 4-year, non-licensure, undergraduate bachelor's degree program, and does not qualify the student for state board examination to become a registered pharmacist.

Concentrations

Students in the BS in Pharmaceutical Sciences must select one of the following concentrations:

- Manufacturing and Manufacturing Compliance
- Marketing and Sales
- Research
- Pre-Pharmacy (PharmD)

The **Concentration in Manufacturing and Manufacturing Compliance** focuses on the production, quality control and regulatory adherence of pharmaceutical products. It covers Good Manufacturing Practices (GMP), process validation, quality assurance and regulatory requirements to ensure drug safety and efficacy. Students gain expertise in optimizing production processes while meeting strict industry standards and regulations.

The **Concentration in Marketing and Sales** focuses on strategies for promoting and distributing pharmaceutical products while ensuring compliance with industry regulations. Students learn about market analysis, branding, sales techniques and regulatory frameworks governing pharmaceutical advertising. This concentration prepares graduates for careers in pharmaceutical marketing, sales and product management.

The **Concentration in Research** provides a foundation in drug discovery, development and evaluation through scientific investigation. Students study pharmacology, pharmaceutics, medicinal chemistry and laboratory techniques to innovate and improve pharmaceutical products. This concentration prepares graduates for careers in biomedical research, drug formulation and pharmaceutical development.

The **Pre-Pharmacy Concentration** is a pathway for high school graduates pursuing the profession of pharmacy to complete the PharmD prerequisites and, at the end of their second year, enter the PharmD program in the School of Pharmacy at Temple, as part of the Early Assurance Program. Students interested in this path complete undergraduate coursework requirements in two years and receive conditional acceptance based on the completion of these requirements. If admitted, students move to the PharmD program after two years of undergraduate coursework in the School of Pharmacy. Students in the Pre-Pharmacy Concentration do not earn a bachelor's degree and instead work toward the PharmD. Learn more about PharmD and the School of Pharmacy at Temple.

Campus Locations: Main, Health Sciences

Program Code: PH-PS-BS

Contact Information

Craig B. Whitman, PharmD Assistant Dean of Academic Affairs and Clinical Professor of Pharmacy Temple University School of Pharmacy 3307 North Broad Street Philadelphia, PA 19140 215-707-6821 craig.whitman@temple.edu

Christina Rose, PharmD Assistant Dean of Admissions and Clinical Professor in Pharmacy Practice Temple University School of Pharmacy 215-707-8057 christina.rose@temple.edu

Neal Conley, Director, Academic Advising Mitten Hall, Suite 110 215-204-2500 dus@temple.edu https://undergradstudies.temple.edu/arc

Office of Pre-Professional Health Advising Mitten Hall, Suite 110 215-204-2513 healthadvising@temple.edu

These requirements are for students who matriculated in academic year 2025-2026. Students who matriculated prior to fall 2025 should refer to the Archives to view the requirements for their Bulletin year.

Summary of Requirements for the Degree

- 1. University Requirements (120-127 total s.h.)
 - Students must complete all University requirements including those listed below.
 - All undergraduate students must complete at least two writing-intensive courses for a total of at least six credits at Temple as part of their major. The specific writing-intensive course options for this major are:

Code	Title	Credit
		Hours
SCTC 2396	Writing for Science and Technology (WI)	3
PS 3896	(Introduction to Medical Writing)	3

• Students must complete the General Education (GenEd) requirements.

• See the General Education section of the Undergraduate Bulletin for the GenEd curriculum.

- Students will satisfy the Quantitative Literacy (GQ) and Science and Technology (ST) requirements with required Math (Calculus) and Science (Biology and Chemistry) coursework.
- Students must satisfy general Temple University residency requirements.
- 2. School Requirements

All Pharmacy courses (PP and PS) must be completed at Temple.

Math and Science Requirements

Code	Title	Credit Hours
Chemistry		
Select one of the following:		4
CHEM 1031 & CHEM 1033	General Chemistry I and General Chemistry Laboratory I	
CHEM 1951 & CHEM 1953	Honors General Chemical Science I and Honors Chemical Science Laboratory I (F)	
Select one of the following:		4
CHEM 1032 & CHEM 1034	General Chemistry II and General Chemistry Laboratory II	
CHEM 1952 & CHEM 1954	Honors General Chemical Science II and Honors Chemical Science Laboratory II (S)	
Select one of the following:		4
CHEM 2201 & CHEM 2203	Organic Chemistry I and Organic Chemistry Laboratory I	
CHEM 2921 & CHEM 2923	Organic Chemistry for Honors I and Organic Honors Laboratory I (F)	
Select one of the following:		4
CHEM 2202 & CHEM 2204	Organic Chemistry II and Organic Chemistry Laboratory II	
CHEM 2922 & CHEM 2924	Organic Chemistry for Honors II and Organic Honors Laboratory II (S)	

Biology		
BIOL 1111	Introduction to Organismal Biology	4
or BIOL 1911	Honors Introduction to Organismal Biology	
Select one of the following:		4
BIOL 1112	Introduction to Biomolecules, Cells and Genomes	
or BIOL 1912	Honors Introduction to Biomolecules, Cells and Genomes	
BIOL 2112	Introduction to Cellular and Molecular Biology	
or BIOL 2912	Honors Introduction to Cellular and Molecular Biology	
Mathematics		
Select one of the following:		4
MATH 1031	Differential and Integral Calculus	
MATH 1041	Calculus I	
or MATH 1941	Honors Calculus I	
Physics		
Select one of the following:		4
PHYS 1021	Introduction to General Physics I	
PHYS 1061	Elementary Classical Physics I	
or PHYS 1961	Honors Elementary Classical Physics I	
PHYS 2021	General Physics I	
or PHYS 2921	Honors General Physics I	
Anatomy and Physiology		
Select one of the following:		3-4
KINS 1221	Principles of Anatomy and Physiology I	
KINS 1223	Human Anatomy and Physiology I	
Select one of the following:		3-4
KINS 1222	Principles of Anatomy and Physiology II	
KINS 1224	Human Anatomy and Physiology II	
Science and Technology		
SCTC 2396	Writing for Science and Technology (WI)	3
Total Credit Hours		41-43
Code	Title	Credit Hours
(F) - Fall only course		

(S) - Spring only course

Pharmacy Requirements

Code	Title	Credit Hours
PS 3011	Introduction to Pharmaceutical Sciences I	1
PS 3012	Introduction to Pharmaceutical Sciences II	1
PS 3145	Immunology/Biotechnology	3
PS 3151	Medicinal Chemistry I	4
PS 3161	Pharmaceutics I	3
PS 3162	Pharmaceutics II	3
PS 3164	Pharmacology I	4
PS 3265	Pharmacology II	3
PS 3318	Clinical Drug Development	3
PS 3896	(Introduction to Medical Writing)	3
PP 4254	(Biostatistics and Medical Literature Evaluation)	2
Total Credit Hours		30

Required Concentrations in Manufacturing and Manufacturing Compliance, Marketing and Sales, and Research

Select one of the following concentrations (24-28 credits):

Manufacturing and Manufacturing Compliance Concentration

Code	Title	Credit Hours
PS 3476	Toxicology and Good Laboratory Practices in Drug Development	3
PS 3477	Current Good Manufacturing Practices	3
PS 4261	Concepts in Pharmacogenomics	3
PS 4469	(Quality Systems and Operations)	3
PS 4512	(Microbiological Concepts in Pharmaceutical Manufacturing)	3
PS 4474	(Process Validation)	3
Concentration Electives		
Select two of the following:		6
PS 4003	(Preformulation - Small Molecules)	
PS 4004	(Solid Dosage Forms: Small Molecules)	
PS 4128	(Drug Discovery)	
PS 4262	Pharmacokinetics	
PS 4578	(High Purity Water Systems)	
PS 4622	(Unit Operations)	
PS 4629	(Process Monitoring)	
PS 4471	(Biotechnology: Bioprocess Basics)	
Total Credit Hours		24

Marketing and Sales Concentration

0		
Code	Title	Credit Hours
PS 3472	(Pharmaceutical Marketing)	3
PS 3529	(Food and Drug Law)	3
PS 3532	(Global Labeling Regulations: Principles and Practices)	3
PS 3533	(Requirements for Product Labeling and Advertising)	3
PS 3611	(Regulation of Advertising and Promotions)	3
PP 4352	(Economics of Pharmacy Practice)	3
Concentration Electives		
Select two of the following:		6
PS 3408	(Pharmacoeconomics)	
PS 4003	(Preformulation - Small Molecules)	
PS 4004	(Solid Dosage Forms: Small Molecules)	
PS 4128	(Drug Discovery)	
PS 4261	Concepts in Pharmacogenomics	
PS 4262	Pharmacokinetics	
PS 4512	(Microbiological Concepts in Pharmaceutical Manufacturing)	
Tatal One dit Harma		

Total Credit Hours

Research Concentration

Code	Title	Credit Hours
PS 3002	(Pharmaceutical Analysis)	3
PS 4007	(Biopharmaceutics)	3
PS 4128	(Drug Discovery)	3
PS 4129	(Introduction to Research and Research Ethics)	2
PS 4201	(Pharmaceutical Sciences Department Seminar Series I)	1

24

(Preformulation - Small Molecules) (Solid Dosage Forms: Small Molecules)	
(Preformulation - Small Molecules)	
Medicinal Chemistry II	
	3-4
(Microbiological Concepts in Pharmaceutical Manufacturing)	3
(Research)	2
Pharmacokinetics	3
Concepts in Pharmacogenomics	3
(Pharmaceutical Sciences Department Seminar Series II)	1
	Concepts in Pharmacogenomics Pharmacokinetics (Research)

...

Suggested Academic Plan

Bachelor of Science in Pharmaceutical Sciences

Suggested Plan for New Students Starting in the 2025-2026 Academic Year

Years 1-2: All Concentrations

Year 1		
Fall		Credit Hours
Select one of the following:		4
CHEM 1031 & CHEM 1033	General Chemistry I and General Chemistry Laboratory I	
CHEM 1951 & CHEM 1953	Honors General Chemical Science I and Honors Chemical Science Laboratory I (F)	
Select one of the following:		4
MATH 1031	Differential and Integral Calculus	
MATH 1041 or MATH 1941	Calculus I or Honors Calculus I	
ENG 0802 or ENG 0902	Analytical Reading and Writing [GW] or Honors Analytical Reading and Writing [GW]	4
GenEd Breadth Course		3
	Credit Hours	15
Spring		
BIOL 1111 or BIOL 1911	Introduction to Organismal Biology or Honors Introduction to Organismal Biology	4
Select one of the following:		4
CHEM 1032 & CHEM 1034	General Chemistry II and General Chemistry Laboratory II	
CHEM 1952 & CHEM 1954	Honors General Chemical Science II and Honors Chemical Science Laboratory II (S)	
IH 0851 or IH 0951	Intellectual Heritage I: The Good Life [GY] or Honors Intellectual Heritage I: The Good Life [GY]	3
GenEd Breadth Course (GA)		3-4
	Credit Hours	14-15
Year 2		
Fall		
Select one of the following:		4
BIOL 1112 or BIOL 1912	Introduction to Biomolecules, Cells and Genomes or Honors Introduction to Biomolecules, Cells and Genomes	
BIOL 2112 or BIOL 2912	Introduction to Cellular and Molecular Biology or Honors Introduction to Cellular and Molecular Biology	
Select one of the following:		4
CHEM 2201 & CHEM 2203	Organic Chemistry I and Organic Chemistry Laboratory I	

Code (F) - Fall only course	Title	Credit Hours
	Total Credit Hours	60-63
	Credit Hours	14-15
GenEd Breadth Course		3
KINS 1224	Human Anatomy and Physiology II	
KINS 1222	Principles of Anatomy and Physiology II	
Select one of the following:		3-4
PHYS 2021 or PHYS 2921	General Physics I or Honors General Physics I	
PHYS 1061 or PHYS 1961	Elementary Classical Physics I or Honors Elementary Classical Physics I	
PHYS 1021	Introduction to General Physics I	
Select one of the following:		4
CHEM 2922 & CHEM 2924	Organic Chemistry for Honors II and Organic Honors Laboratory II (S)	
CHEM 2202 & CHEM 2204	Organic Chemistry II and Organic Chemistry Laboratory II	
Select one of the following:		4
Spring		
	Credit Hours	17-18
IH 0852 or IH 0952	Intellectual Heritage II: The Common Good [GZ] or Honors Intellectual Heritage II: The Common Good [GZ]	3
SCTC 2396	Writing for Science and Technology [WI]	3
KINS 1223	Human Anatomy and Physiology I	
KINS 1221	Principles of Anatomy and Physiology I	
Select one of the following:		3-4
CHEM 2921 & CHEM 2923	Organic Chemistry for Honors I and Organic Honors Laboratory I (F)	

(F) - Fall only course

(S) - Spring only course

Years 3-4: Manufacturing and Manufacturing Compliance Concentration

Year 3		
Fall		Credit Hours
PS 3011	Introduction to Pharmaceutical Sciences I	1
PS 3145	Immunology/Biotechnology	3
PS 3151	Medicinal Chemistry I	4
PS 3161	Pharmaceutics I	3
PS 3318	Clinical Drug Development	3
GenEd Breadth Course		3
	Credit Hours	17
Spring		
PS 3012	Introduction to Pharmaceutical Sciences II	1
PS 3162	Pharmaceutics II	3
PS 3164	Pharmacology I	4
PS 3476	Toxicology and Good Laboratory Practices in Drug Development	3
PS 3477	Current Good Manufacturing Practices	3
	Credit Hours	14
Year 4		
Fall		
PS 3265	Pharmacology II	3
PS 4261	Concepts in Pharmacogenomics	3

PS 4474	Process Validation	3
Concentration Elective		3
GenEd Breadth Course		3
	Credit Hours	15
Spring		
PS 3896	Introduction to Medical Writing	3
PP 4254	Biostatistics and Medical Literature Evaluation	2
PS 4469	Quality Systems and Operations	3
PS 4512	Microbiological Concepts in Pharmaceutical Manufacturing	3
Concentration Elective		3
	Credit Hours	14
	Total Credit Hours	60

Years 3-4: Marketing and Sales Concentration

Year 3		
Fall		Credit Hours
PS 3011	Introduction to Pharmaceutical Sciences I	1
PS 3145	Immunology/Biotechnology	3
PS 3151	Medicinal Chemistry I	4
PS 3161	Pharmaceutics I	3
PS 3318	Clinical Drug Development	3
GenEd Breadth Course		3
	Credit Hours	17
Spring		
PS 3012	Introduction to Pharmaceutical Sciences II	1
PS 3162	Pharmaceutics II	3
PS 3164	Pharmacology I	4
PS 3532	Global Labeling Regulations: Principles and Practices	3
GenEd Breadth Course		3
	Credit Hours	14
Year 4		
Fall		
PS 3265	Pharmacology II	3
PS 3529	Food and Drug Law	3
PS 3611	Regulation of Advertising and Promotions	3
PP 4352	Economics of Pharmacy Practice	3
Concentration Elective		3
	Credit Hours	15
Spring		
PS 3472	Pharmaceutical Marketing	3
PS 3533	Requirements for Product Labeling and Advertising	3
PS 3896	Introduction to Medical Writing	3
PP 4254	Biostatistics and Medical Literature Evaluation	2
Concentration Elective		3
	Credit Hours	14
	Total Credit Hours	60

Years 3-4: Research Concentration

Year 3		
Fall		Credit Hours
PS 3011	Introduction to Pharmaceutical Sciences I	1
PS 3145	Immunology/Biotechnology	3

	Total Credit Hours	63-64
	Credit Hours	17-18
Concentration Elective		3-4
PS 4512	Microbiological Concepts in Pharmaceutical Manufacturing	3
PS 4391	Research	2
PS 4262	Pharmacokinetics	3
PP 4254	Biostatistics and Medical Literature Evaluation	2
PS 4202	Pharmaceutical Sciences Department Seminar Series II	1
PS 3896	Introduction to Medical Writing	3
Spring		
	Credit Hours	15
PS 4261	Concepts in Pharmacogenomics	3
PS 4201	Pharmaceutical Sciences Department Seminar Series I	1
PS 4129	Introduction to Research and Research Ethics	2
PS 4128	Drug Discovery	3
PS 4007	Biopharmaceutics	3
PS 3265	Pharmacology II	3
Fall		
Year 4	ordat nours	
	Credit Hours	14
GenEd Breadth Course	Thamacology T	3
PS 3164	Pharmacology I	4
PS 3162	Pharmaceutics II	3
PS 3002	Introduction to Pharmaceutical Sciences II	3
Spring PS 3002	Pharmaceutical Analysis	2
•	Credit Hours	17
GenEd Breadth Course		3
PS 3318	Clinical Drug Development	3
PS 3161	Pharmaceutics I	3
PS 3151	Medicinal Chemistry I	4

Pre-Pharmacy Program

The Pre-Pharmacy concentration provides a clear pathway for students interested in the PharmD to complete the prerequisite courses as Temple undergraduate students followed by the professional curriculum in as little as 6 years. This is part of the PharmD Early Assurance Program (EAP). A minimum of 60 credit hours of prerequisites are required to enter the PharmD program.

These requirements are for students who matriculated in academic year 2025-2026. Students who matriculated prior to fall 2025 should refer to the Archives to view the requirements for their Bulletin year.

Summary of Requirements

The Doctor of Pharmacy (PharmD) degree may be conferred upon a student by recommendation of the faculty upon completion of the 140 credit hours of professional courses. To enter the PharmD program, students must complete a minimum of 60 credit hours of prerequisite courses. Overall GPA and science GPA must be at least 2.7 (on a 4.0 scale). All prerequisite courses must be completed with a minimum grade of C- on the first attempt. General Education requirements, with the exception of ENG 0802, are waived. However, students must complete a minimum of 18 credit hours of electives, which may consist of General Education courses, and include courses in Intellectual Heritage, Anthropology, Criminal Justice, Geography, History, Political Science, Psychology, Religion, Sociology, Literature/Classics, Architecture, Fine Arts/Performing Arts, Languages, Literature, Philosophy, Communication/Public Speaking, and/or Statistics. Please confer with the advising staff and review your DARS for further information.

Prerequisite Requirements

Code

English

ENG 0802

Title

Credit Hours

4

or ENG 0812	Analytical Reading and Writing: ESL	
or ENG 0902	Honors Analytical Reading and Writing	
Chemistry		
Select one of the following:		4
CHEM 1031 & CHEM 1033	General Chemistry I and General Chemistry Laboratory I	
CHEM 1951 & CHEM 1953	Honors General Chemical Science I and Honors Chemical Science Laboratory I (F)	
Select one of the following:		4
CHEM 1032 & CHEM 1034	General Chemistry II and General Chemistry Laboratory II	
CHEM 1952 & CHEM 1954	Honors General Chemical Science II and Honors Chemical Science Laboratory II (S)	
Select one of the following:		4
CHEM 2201 & CHEM 2203	Organic Chemistry I and Organic Chemistry Laboratory I	
CHEM 2921 & CHEM 2923	Organic Chemistry for Honors I and Organic Honors Laboratory I (F)	
Select one of the following:		4
CHEM 2202	Organic Chemistry II	
& CHEM 2204	and Organic Chemistry Laboratory II	
CHEM 2922	Organic Chemistry for Honors II	
& CHEM 2924	and Organic Honors Laboratory II (S)	
Biology		
BIOL 1111	Introduction to Organismal Biology	4
or BIOL 1911	Honors Introduction to Organismal Biology	
Select one of the following:		4
BIOL 1112	Introduction to Biomolecules, Cells and Genomes	
or BIOL 1912	Honors Introduction to Biomolecules, Cells and Genomes	
BIOL 2112	Introduction to Cellular and Molecular Biology	
or BIOL 2912	Honors Introduction to Cellular and Molecular Biology	
Mathematics		
Select one of the following:		4
MATH 1031	Differential and Integral Calculus	
MATH 1041	Calculus I	
or MATH 1941	Honors Calculus I	
Physics		4
Select one of the following:	Introduction to Concern Division I	4
PHYS 1021	Introduction to General Physics I	
PHYS 1061	Elementary Classical Physics I	
or PHYS 1961 PHYS 2021	Honors Elementary Classical Physics I General Physics I	
or PHYS 2921	-	
	Honors General Physics I	
Anatomy and Physiology Select one of the following:		3-4
KINS 1221	Principles of Anatomy and Physiology I	5-4
KINS 1221 KINS 1223	Human Anatomy and Physiology I	
Select one of the following:		3-4
KINS 1222	Principles of Anatomy and Physiology II	5-4
KINS 1222 KINS 1224	Human Anatomy and Physiology II	
Social Sciences and Humanities E		
Select 6 courses for a minimum of 1		18
Social Sciences		10

Select at least 2 courses (6 credits minimum) from at least two different departments:

(S) - Spring only course	ę	
(F) - Fall only course		
Code	Title	Credi Hours
Total Credit Hours		60-62
Philosophy		
Literature		
Languages		
Intellectual Heritage		
Fine Arts		
Communication/Pub	lic Speaking	
Philosophy		
Classics		
Architecture		
Select at least 2 course	es (6 credits minimum) from at least two different departments:	
Humanities		
Sociology		
Religion		
Psychology		
Political Science		
History		
Geography		
Criminal Justice		
Anthropology		

¹ It is recommended that students select courses that will satisfy General Education requirements. Please see your academic advisor for assistance with course selections.

Suggested Academic Plan

Bachelor of Science in Pharmaceutical Sciences with Concentration in Pre-Pharmacy

Suggested Plan for New Students Starting in the 2025-2026 Academic Year

Years 1 and 2:

Year 1		
Fall		Credit Hours
Select one of the following:		4
CHEM 1031 & CHEM 1033	General Chemistry I and General Chemistry Laboratory I	
CHEM 1951 & CHEM 1953	Honors General Chemical Science I and Honors Chemical Science Laboratory I (F)	
Select one of the following:		4
MATH 1031	Differential and Integral Calculus	
MATH 1041 or MATH 1941	Calculus I or Honors Calculus I	
ENG 0802 or ENG 0812 or ENG 0902	Analytical Reading and Writing [GW] or Analytical Reading and Writing: ESL [GW] or Honors Analytical Reading and Writing [GW]	4
Social Sciences Elective ¹		3
	Credit Hours	15
Spring		
BIOL 1111 or BIOL 1911	Introduction to Organismal Biology or Honors Introduction to Organismal Biology	4

(F) - Fall only course		
Code	Title	Credit Hours
	Total Credit Hours	60-62
	Credit Hours	14-15
Social Sciences or Humaniti		3
KINS 1224	Human Anatomy and Physiology II	
KINS 1222	Principles of Anatomy and Physiology II	
Select one of the following:	•	3-4
PHYS 2021 or PHYS 2921	General Physics I or Honors General Physics I	
PHYS 1021 PHYS 1061 or PHYS 1961	Introduction to General Physics I Elementary Classical Physics I or Honors Elementary Classical Physics I	
Select one of the following:	Introduction to Conoral Physics I	4
CHEM 2922 & CHEM 2924 Select one of the following:	Organic Chemistry for Honors II and Organic Honors Laboratory II (S)	
CHEM 2202 & CHEM 2204	Organic Chemistry II and Organic Chemistry Laboratory II	
Select one of the following:		4
Spring		
	Credit Hours	17-18
Social Sciences or Humaniti	ies Elective ¹	3
Humanities Elective ¹		3
KINS 1223	Human Anatomy and Physiology I	
KINS 1221	Principles of Anatomy and Physiology I	
Select one of the following:		3-4
CHEM 2921 & CHEM 2923	Organic Chemistry for Honors I and Organic Honors Laboratory I (F)	
CHEM 2201 & CHEM 2203	Organic Chemistry I and Organic Chemistry Laboratory I	
Select one of the following:		4
BIOL 2112 or BIOL 2912	Introduction to Cellular and Molecular Biology or Honors Introduction to Cellular and Molecular Biology	
BIOL 1112 or BIOL 1912	Introduction to Biomolecules, Cells and Genomes or Honors Introduction to Biomolecules, Cells and Genomes	
Fall Select one of the following:		4
Year 2		
	Credit Hours	14
Humanities Elective ¹		3
& CHEM 1954 Social Sciences Elective ¹	and Honors Chemical Science Laboratory II (S)	3
CHEM 1952	Honors General Chemical Science II	
CHEM 1032 & CHEM 1034	•	
CHEM 1032 & CHEM 1034	General Chemistry II and General Chemistry Laboratory II	

(S) - Spring only course

¹ It is recommended that students select courses that will satisfy General Education requirements. Please see your academic advisor for assistance with course selections.