

# THE UNIVERSITY OF RHODE ISLAND

## Pharmaceutical Sciences-BS

120 Credits Total

Effective Fall 2018  
Class of 2020 and 2021  
2016-2017 and 2017-2018 Catalog Years

### ABOUT THE PHARMACEUTICAL SCIENCE BS DEGREE:

The four-year program offers students a solid foundation in the basic sciences and expertise within the pharmaceutical and biomedical sciences. It is designed to provide educational and training experiences that prepare students for careers in the pharmaceutical, consumer product, and biomedical industries. Graduates of the B.S.P.S. program will be qualified to seek a diverse range of career options that include: research and development, manufacturing, product marketing, sales, quality, and administrative positions within the pharmaceutical industry; research and regulatory oversight careers within government agencies; and research and teaching positions in academia. As a prelude to many of these career opportunities, the program prepares students for graduate studies in the expanding fields of pharmaceutical and biomedical sciences.

**GENERAL EDUCATION GUIDELINES:** General education is 40 credits. Each of the twelve outcomes (A1-D1) must be met by at least 3 credits. A single course may meet more than one outcome, but cannot be double counted towards the 40 credit total. At least one course must be a Grand Challenge (G). No more than twelve credits can have the same course code (note- HPR courses may have more than 12 credits). General education courses may also be used to meet requirements of the major or minor when appropriate.

General Education Credit Count			
At least 40 cr., no more than 12 credits with the same course code. (Note: Not all boxes need to be filled to add to 40 credits)			
Course	Cr.	Course	Cr.
COM100	3		
WRT106	3		
ECN201	3		
CHM101	3		
BIO101	3		
BIO 103	1		
MTH103	3		
MTH131	3		
		Total Gen Ed credits	≥ 40

General Education Outcome Audit	
	Course
<b>KNOWLEDGE</b>	
<b>A1. STEM</b> CHM101, MTH111, MTH131,	BIO101
<b>A2. Social &amp; Behavioral Sciences</b>	ECN201
<b>A3. Humanities</b>	
<b>A4. Arts &amp; Design</b>	
<b>COMPETENCIES</b>	
<b>B1. Write effectively</b>	WRT106
<b>B2. Communicate effectively</b>	COM100
<b>B3. Mathematical, statistical, or computational strategies</b>	MTH103/131
<b>B4. Information literacy</b>	WRT106
<b>RESPONSIBILITIES</b>	
<b>C1. Civic knowledge &amp; responsibilities</b>	
<b>C2. Global responsibilities</b>	
<b>C3. Diversity and inclusion</b>	
<b>INTEGRATE &amp; APPLY</b>	
<b>D1. Ability to synthesize</b>	
<b>GRAND CHALLENGE</b>	
<b>G. Check that at least one course of your 40 credits is an approved "G" course</b>	

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<b>Basic Non-Science Requirements</b> (*these courses also fulfill general education requirements)	<b>Course</b>	<b>Grade</b>	<b>Cr</b>
Careers in Pharmaceutical Science	BPS 250		1
Communication *B2	COM 100*		3
Microeconomics *A2	ECN 201*		3
Research Writing *B1, B4	WRT 106*		3
Introduction to URI	URI 101		1

<b>Basic Science /Math Requirements</b>	<b>Course</b>	<b>Grade</b>	<b>Cr</b>
General Chemistry I *A1	CHM 101*		3
General Chemistry I Lab	CHM 102		1
General Chemistry II	CHM 112		3
General Chemistry II Lab	CHM 114		1
Organic Chemistry Lab	CHM 226		2
Organic Chemistry I	CHM 227		3
Organic Chemistry II	CHM 228		3
General Biology *A1	BIO 101*		3
General Biology Lab	BIO 103		1
Anatomy	BIO 121		4
Physiology	BIO 242		3
Microbiology	CMB 201		4
Biochemistry	CMB 311		3
Intro to Statistics	STA 308		4
Calculus *A1, B3	MTH 131* or 141*		3

\* Course approved for General Education

<b>Major Requirements</b>			
<b>3rd Year- 1st Semester</b>	<b>Course</b>	<b>Grade</b>	<b>Cr.</b>
Dosage I	BPS 301		2
Pharmaceutics II	BPS 315		4
Medicinal Chemistry	BPS 313		2
Intro to Pharmaceutical Research	BPS 345		3
Pharmacology I	BPS 401		3

General Education Course	Record on Page 1	3-4
<b>3rd Year-2nd Semester</b>		
Drug Metabolism	BPS 325	2
Pharmacology II	BPS 402	3
cGMP Processes	BPS 425	3
Formulations and Manufacturing Lab	BPS 443	2
Pharmacokinetics	BPS 306	2
General Education Course	Record on Page 1	3-4
<b>4th Year- 1st Semester</b>		
Pharmacogenetics/genomics	BPS 442	3
Techniques Lab	BPS 451	4
BSPS Professional Electives	See Pre-Approved Electives Page 4	3
General Education Course or BSPS Professional Elective (optional)	Record on Page 1 or See Page 4	3-4
General Education Course	Record on Page 1	3-4
<b>4th Year- 2nd Semester</b>		
BSPS Professional Elective <i>Suggested course: BPS 445</i>	See Pre-Approved Electives Page 4	3
BSPS Professional Elective <i>Suggested course: BPS 446</i>	See Pre-Approved Electives Page 4	3
BSPS Professional Elective <i>Suggested course: BPS 498</i>	See Pre-Approved Electives Page 4	3
General Education Course	Record on Page 1	3-4
General Education Course (optional)	Record on Page 1	3-4

<b>BSPS Professional Electives (12 credits required)</b>			
<b>Required Course Code</b>	<b>Substituted Course Code</b>	<b>Grade</b>	<b>Cr.</b>

\*\* Students have the option to tailor their academic program to prepare them for the specific career paths that they choose by taking 12 credits of BSPS pre-approved professional electives. (see page 4) At least 6 of the 12 credits of Professional Electives credits must be under BPS, PHP, or PHC course codes

## **Pre-Approved BSPS Professional Electives**

### **In College of Pharmacy**

BPS 311 (2) Foundations of Human Disease I (Fall)  
BPS 352 (3) Personal Cosmetics (Allabadidi)  
BPS 426x (3) cGMP Environmental Risks, Control and Monitoring, Spring  
BPS 436 (3) Psychotropic Drugs and Therapy (in Providence, Dr. Chichester, Spring).  
BPS 445 (3) Natural Products and Biotech Drugs (Spring, currently Dr. Rowley teaches)  
BPS 446 (3) Biotechnology, Biologics, and Biosimilar Drugs, Spring, BPS 442 is pre-requisite.  
BPS 450 (3) Practical Tools for Molecular Sequence Analysis, Fall (via Cell & Molecular Biology Dept).  
BPS 455 (3) Protein Molecular Modeling for Biomedical Sciences (Dr. King, Fall)  
BPS 497/498 (up to 6 credits total counted toward BSPS electives, Special Problems in BPS, independent study with a faculty, Fall, Spring. 6 credit max also includes ITR 301/302/303 and HPR 401/402).  
BPS 530 (3) Advanced Drug Metabolism (seniors only, good grade in BPS 325, Spring, odd years only)  
BPS 533 (3) Medicinal Plants, Dr. Seeram, Fall (BSPS and PharmD, juniors and seniors).  
BPS 542 (3) Bioinformatics I, Spring (project course, with computer sciences, cell & molecular biology).  
BPS 546 (3) Advanced Toxicology (spring, Dr. Slitt, not every year, graduate course but ok for seniors)

PHC 502 (3) Drug Development, Fall, graduate course but ok for seniors (not juniors!).  
PHC 520 (1-3 cr) Pharmaceutical Sciences Journal Club, can retake for max of 4 credits, different topics

PHP 405 (4) Epidemiology in Health Care (permission numbers for BSPS, juniors/seniors, Fall, Spring)  
PHP 422 (3) Biostatistics II, (Katenka, Fall)  
PHP 535X (3) Meta analysis by Ami (pre-PHP 540)  
PHP 540 (3) Principles, Methods, and Applications of Epidemiology (graduate class, seniors, Fall)  
PHP 550 (3) Pharmacoepidemiology (pre-PHP 540 or PHP 405), Spring, Fall  
PHP 575X (3) Causal Inference (pre-PHP 540)  
PHP 580 (3) Pharmacoeconomic Analysis, Spring, graduate class, seniors  
PHP 585X (3) Measurement in Health Outcome (pre-PHP 540)  
PHP 685 Pharmacoeconomic Methods (pre-PHP 580 and instructor permission)

### **From other Colleges and Departments (max of 6 credits outside of College of Pharmacy)**

BIO 341 (3) Principles of Cell Biology (seats first to BIO majors)  
BIO/CMB 352 (4) General Genetics (pre-req BIO101 and BIO102). Spring

BUS 315 (3) Legal Environment of Business, Spring (see business school for enrollment permissions)  
BUS 341 (3) Organizational Behavior (pre-BUS minor); (see business school for enrollment permissions)  
BUS 342 (3) Human Resources management (bus minor) (see business school for permissions)  
BUS 365 (3) Marketing Principles. Spring, (see business school for permissions)

CHM 425 (2) Advanced Organic Chemistry lab (concurrent with chm427). Fall  
CHM 427 (3) Intermediate Organic Chemistry, Dr. Levine, Fall

CMB 320 (3) Introduction to Computational Biology (Spring, pre MIC201 or CMB201)  
CMB 333 (3) Immunology and Serology, (pre-req MIC201 or CMB201) Fall  
CMB 334 (3) Virology, (pre-req MIC201 or CMB201), Spring  
CMB 352 (4) General Genetics (pre-req BIO101 and BIO102). Spring  
CMB 437 (3) Fundamentals of Molecular Biology (pre-req CMB 352 general genetics)  
CMB 482 (3) Proteins & Enzymes (pre-req biochemistry BCH311 or CMB311)  
CMB 435 (3) Introduction to Biology and Genetics of Cancer (Howlett, Fall)

### **By approval: other 300-level and above courses related to the major.**

NOTE: These are courses that have been offered recently. No guarantee they will be offered every year:  
See each Department for schedule and permissions. (Updated February 23, 2018)

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## B.S in Pharmaceutical Sciences (Effective Fall 2018)

Class of 2020 and 2021  
2016-2017 and 2017-2018 Catalog Years  
Requirements by Year

For course titles and pre-requisite information, please visit: [uri.edu/catalog](http://uri.edu/catalog)

Fall	Spring	Milestones
<b>Year One</b>		
CHM 101/102	CHM 112/114	Complete CHM 101 and CHM 112 w/C- or higher (pre-req for CHM 227)
BIO 101/103	BIO 121	
MTH 103 or MTH 131	MTH 131 (or if completed, Gen Ed)	Complete BIO 121
WRT 106 or COM 100	ECN 201	Complete each pre-prof course w/D or better and pre-prof GPA 2.0 or higher
URI 101	Gen Ed	
(15 cr. total)	(17 cr. total)	Complete 30 cr.

<b>Year Two</b>		
CHM 227	CHM 226	Complete each pre-prof course w/D or better and pre-prof GPA 2.0 or higher
BIO 242 (+ 244 recommended)	CHM 228	
CMB 201	CMB 311	Complete precurriculum requisites to move from UC to College of Pharmacy
WRT 106 or COM 100	STA 308	
BPS 250	Gen Ed	Complete CHM 227 with C- or higher
(14-15 cr. total)	(15 cr. total)	Complete 60 cr.

<b>Year Three</b>		
BPS 301	BPS 325	Advanced knowledge of Pharmacology, Medicinal Chemistry, Pharmaceutics and Compounding
BPS 315	BPS 425	
BPS 313	BPS 443	
BPS 345	BPS 402	Complete 90cr
BPS 401	BPS 306	
Gen Ed	Gen Ed	
(17-18 cr total)	(15-16 cr total)	

<b>Year Four</b>		
BPS 442	BSPS Prof. Elective <i>Suggested BPS 445</i>	Knowledge of Pharmacogenomics, Laboratory Methods, and Pharmacokinetics
BPS 451	BSPS Prof. Elective <i>Suggested BPS 446</i>	
Gen Ed	BSPS Prof. Elective <i>Suggested BPS 498</i>	
BSPS Prof. Elective	Gen Ed	Complete Intent to Graduation Form w/the College of Pharmacy
BSPS Prof. Elective or Gen Ed	Gen Ed	2.0 GPA, complete 120 cr for graduation
(16-18 cr total)	(15-17 cr total)	

Note: This plan is not intended to be prescriptive. Credits in transfer, as well as summer or j-term coursework, may result in deviations from the above recommendations.