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.

(Note: Not all box	(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 (n/a if placed MTH 131)	3			
MTH131	3			
			Total Gen	. 40
			Total Gen Ed credits	<u>>40</u>

General Education Outcome	e Audit
	Course
KNOWLEDGE	
A1. STEM CHM101, MTH 103, MTH131,	BIO101
A2. Social & Behavioral Sciences	ECN201
A3. Humanities	
A4. Arts & Design	
COMPETENCIES	
B1. Write effectively	WRT106
B2. Communicate effectively	COM100
B3. Mathematical, statistical, or	
computational strategies	MTH103/131
B4. Information literacy	WRT106
RESPONSIBILITIES	
C1. Civic knowledge &	
responsibilities	
C2. Global responsibilities	
C3. Diversity and inclusion	
INTEGRATE & APPLY	
D1. Ability to synthesize	
GRAND CHALLENGE	
G. Check that at least one course	
of your 40 credits is an approved	
"G" course	

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Basic Non-Sci	ence			
Requirements				
(*these courses also general education re		Course	Grade	Cr
Careers in Pharmaceut	ical 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

Basic Science /Math			
Requirements	Course	Grade	\mathbf{Cr}
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
	MTH 131*		
Calculus *A1, B3	or 141*		3

^{*} Course approved for General Education

Major Requirements			
3rd Year- 1st			
Semester	Course	Grade	Cr.
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 P	age 1	3-4
3rd Year-2nd			
Semester			
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 P	age 1	3-4
4th Year- 1st			
Semester			
Pharmacogenetics/genomics	BPS 442		3
Techniques Lab	BPS 451		4
	See Pre-App	roved	
BSPS Professional Electives	Electives Pa	age 4	3
General Education Course or	Record on Page 1 or		
BSPS Professional Elective (optional)	See Page 4		3-4
General Education Course	Record on Page 1		3-4
4th Year- 2nd			
Semester			
BSPS Professional Elective	See Pre-App	roved	
Suggested course: BPS 445	Electives Pa	age 4	3
	See Pre-App	_	
BSPS Professional Elective Suggested course: BPS 446	Electives Pa	age 4	3
	See Pre-App	roved	
BSPS Professional Elective Suggested course: BPS 498	Electives Page 4		3
General Education Course	Record on P	age 1	3-4
General Education Course (optional)	Record on P	age 1	3-4

BSPS Professional Electives (12 credits required)			
Suggested Course Code	Substituted Course Code	Grade	Cr.
BPS 445			
BPS 446			
BPS 498			
BSPS Prof. Elect. Choice			

^{**} 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 preapproved 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

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BPS 311 (2) Foundations of Human Disease I (Fall)
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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)

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

Fall	Spring	Milestones		
	Year One			
CHM 101/102	CHM 112/114	Complete CHM 101 and CHM 112 w/C- or		
BIO 101/103	BIO 121	higher (pre-req for CHM 227)		
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 and overall		
URI 101	Gen Ed	GPA 2.0 or higher		
(15 cr. total)	(17 cr. total)	Complete 30 cr.		

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

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

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

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.