

# THE UNIVERSITY OF RHODE ISLAND

## Biomedical & Pharmaceutical Sciences - BS

Pre-Health Profession Curriculum Sheet

120 credits Minimum

2026-2027 Catalog Year

Effective Fall 2026

Class of 2030

### **ABOUT THE BIOMEDICAL & 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 BPS 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. **Pre-Health Path:** In addition, the program effectively prepares students for entry into a wide variety of health professions including medicine and dentistry. + Additional prerequisites for health professional school applications.

### **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 the requirements of the major or minor when appropriate.

| General Education Credit Count                      |                      |                                                 |                         |           |
|-----------------------------------------------------|----------------------|-------------------------------------------------|-------------------------|-----------|
| List courses that meet general education:           |                      |                                                 |                         |           |
| At least 40 cr. (16 or 19 in the major)             |                      |                                                 |                         |           |
| Course in major                                     | Cr, grade            |                                                 | Pre Health Course       | Cr, grade |
| BIO 103                                             | 1                    |                                                 | PHY 112 <sup>+</sup>    | 3         |
| BIO 110 or 101                                      | 3                    |                                                 | PHY 186 <sup>+</sup>    | 1         |
| CHM 101                                             | 3                    |                                                 | BIO 102 <sup>+</sup>    | 3         |
| COM 100                                             | 3                    |                                                 | BIO 104 <sup>+</sup>    | 1         |
| MTH 103 (or choice gen ed)                          | 3,0                  |                                                 | WRT or ENG <sup>+</sup> |           |
| MTH131 or 141                                       | 3                    |                                                 | PSY 113 <sup>+</sup>    | 3         |
| WRT 106 or 104                                      | 3                    |                                                 | SOC 224 <sup>+</sup>    | 3         |
|                                                     |                      |                                                 | PHY 111 <sup>+</sup>    | 3         |
|                                                     |                      |                                                 | PHY 185 <sup>+</sup>    | 1         |
|                                                     |                      |                                                 |                         |           |
|                                                     |                      |                                                 |                         |           |
|                                                     |                      |                                                 |                         |           |
| <b>Met by major required courses: 16 (or 19) cr</b> |                      | Met with add. Pre health courses: 34 (or 37) cr |                         |           |
|                                                     | Total Gen Ed credits |                                                 | ≥ 40                    |           |

| General Education Outcome Audit                                                       |                      |
|---------------------------------------------------------------------------------------|----------------------|
| List course as each outcome is met:                                                   |                      |
|                                                                                       | Course               |
| <b>KNOWLEDGE</b>                                                                      |                      |
| <b>A1. STEM</b> BIO110, 103, (MTH 103), MTH131                                        | CHM101               |
| <b>A2. Social &amp; Behavioral Sciences</b>                                           | SOC 224 <sup>+</sup> |
| <b>A3. Humanities</b>                                                                 |                      |
| <b>A4. Arts &amp; Design</b>                                                          |                      |
| <b>COMPETENCIES</b>                                                                   |                      |
| <b>B1. Write effectively</b>                                                          | WRT106/4             |
| <b>B2. Communicate effectively</b>                                                    | COM100               |
| <b>B3. Mathematical, statistical, or computational strategies</b>                     | MTH103, 131          |
| <b>B4. Information literacy</b>                                                       | WRT106/4             |
| <b>RESPONSIBILITIES</b>                                                               |                      |
| <b>C1. Civic knowledge &amp; responsibilities</b>                                     | COM100               |
| <b>C2. Global responsibilities</b>                                                    |                      |
| <b>C3. Diversity and inclusion</b>                                                    | SOC 224 <sup>+</sup> |
| <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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#### PREREQUISITES TO THE MAJOR:

| <b>Basic Non-Science Requirements</b> (*also fulfill 6 cr of general education requirements) | <b>Course</b> | <b>Grade</b> | <b>Cr</b> | <b>Semester Plan</b> |
|----------------------------------------------------------------------------------------------|---------------|--------------|-----------|----------------------|
| Careers in Pharmaceutical Science                                                            | BPS 250       |              | 1         |                      |
| Communication *B2, C1                                                                        | COM 100       |              | 3*        |                      |
| Research Writing (or WRT104) *B1, B4                                                         | WRT 106       |              | 3*        |                      |
| Introduction to URI                                                                          | URI 101       |              | 1         |                      |

| <b>Basic Science /Math Requirements</b> (*also fulfills 10 or 13 cr general education reqs) | <b>Course</b> | <b>Grade</b> | <b>Cr</b> | <b>Semester Plan</b> | <b>QPA</b> |
|---------------------------------------------------------------------------------------------|---------------|--------------|-----------|----------------------|------------|
| General Biology (or BIO101) *A1                                                             | BIO 110       |              | 3*        |                      |            |
| General Biology Lab *A1                                                                     | BIO 103       |              | 1*        |                      |            |
| Human Anatomy & Physiology I                                                                | BIO 220       |              | 3         |                      |            |
| Human Anatomy and Physiology I lab                                                          | BIO 221       |              | 1         |                      |            |
| Human Anatomy and Physiology II                                                             | BIO 222       |              | 3         |                      |            |
| Human Anatomy and Physiology II lab                                                         | BIO 223       |              | 1         |                      |            |
| 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         |                      |            |
| Medical Microbiology (or 211)                                                               | CMB 201       |              | 3         |                      |            |
| Medical Microbiology lab                                                                    | CMB 202       |              | 1         |                      |            |
| Biochemistry                                                                                | CMB 311       |              | 3         |                      |            |
| Precalculus (MTH103, placement) *A1                                                         | MTH 103       |              | 3* or 0   |                      |            |
| Calculus (or MTH141) *A1, B3                                                                | MTH 131       |              | 3*        |                      |            |
| Statistics (or STA 307, 3 cr; or STA 409, 4 cr)                                             | STA 308       |              | 4         |                      |            |
| Pre-professional QPA of 2.3 or higher                                                       |               |              |           |                      |            |

#### **BPS Progression, Retention, and Graduation requirements**

BPS students request transfer from University College (UC) to the College of Pharmacy (PHARM) during the semester in which they are enrolled to complete all science and mathematics pre-requisite courses (BIO 103, 110, 220, 221, 222, 223; CHM 101, 102, 112, 114, 227, 228; CMB 201, 202, 311; MTH 131 or 141; and STA 308 or 307 or 409). Transfer requests from UC to PHARM will be reviewed and acted upon after grades are posted for the enrolled courses. For students who are off-sequence, consideration for transfer to PHARM may be considered prior to completion of CHM228, CMB311, or STA308.

Only those students having an equal or greater than 2.30 quality point average in the required pre-requisite courses (BIO 103, 110, 220, 221, 222, 223; CHM 101, 102, 112, 114, 227, 228; CMB 201, 202, 311; MTH 131 or 141; and STA 308 or 307 or 409), and an overall cumulative grade point average of 2.00 or above will be admitted to the College of Pharmacy for the B.S. Biomedical and Pharmaceutical Sciences degree. Applicants not meeting the criteria will not be considered for admission to the college.

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### MAJOR REQUIREMENTS:

| Major Requirements (Courses specifically listed are required, 33 credit)                                                                                                                             |                      |       |     |                                                        |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|-------|-----|--------------------------------------------------------|
| 3 <sup>rd</sup> and 4 <sup>th</sup> Year                                                                                                                                                             | Course               | Grade | Cr  | Semester Plan                                          |
| Pharmaceutics I: Biopharmaceutics                                                                                                                                                                    | BPS 301              |       | 2   | Fall                                                   |
| Essential Pharmacokinetic Concepts                                                                                                                                                                   | BPS 306              |       | 2   | Spring                                                 |
| Principles of Medicinal Chemistry                                                                                                                                                                    | BPS 313              |       | 2   | Fall                                                   |
| Pharmaceutics II                                                                                                                                                                                     | BPS 315              |       | 4   | Fall                                                   |
| Human Drug Metabolism                                                                                                                                                                                | BPS 325              |       | 2   | Spring                                                 |
| Intro to Pharmaceutical Research                                                                                                                                                                     | BPS 345              |       | 3   | Sp.Yr 2 or Fall Yr 3                                   |
| Pharmaceutical Pharmacology I                                                                                                                                                                        | BPS 401              |       | 3   | Fall                                                   |
| Pharmaceutical Pharmacology II                                                                                                                                                                       | BPS 402              |       | 3   | Spring                                                 |
| GMPs in Manufacture of Pharmaceuticals                                                                                                                                                               | BPS 425              |       | 3   | Spring                                                 |
| Formulation and Manufacturing Lab                                                                                                                                                                    | BPS 443              |       | 2   | Spring                                                 |
| Biotechnology, Biologics, and Biosimilars                                                                                                                                                            | BPS 446              |       | 3   | Spring                                                 |
| Techniques in Medicinal Chemistry and Molecular Biology lab                                                                                                                                          | BPS 451              |       | 4   | Fall                                                   |
| Experiential Education, $\geq 260$ hours, 3.33 hr/week for 13 weeks per 1 credit enrolled Fall or Spring semester, proportional for summer or J-term<br>**List enrolled credits under Prof Electives | BPS 460, 497, or 498 |       | 0** | Fall, Spring, Summer (See Experiential Ed coordinator) |

| BPS Professional Electives (18 credits required)                                                                                                                                                                                                                                                                                                                                                                                                                             |                    |       |    |                    |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|-------|----|--------------------|
| <p>*** Students have the option to tailor their academic program to prepare them for the specific career paths that they choose by taking 18 credits of pre-approved BPS professional electives.</p> <p><i>Must be at 300-level or above. May also count toward minor, 2<sup>nd</sup> major, general education, honors project, experiential education.</i></p> <p><b>At least 9 of the 18 cr of Professional Electives must be under BPS, PHP, or PHC course codes.</b></p> |                    |       |    |                    |
| Course Name                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Course Code (300+) | Grade | Cr | Semester Plan      |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | BPS/PHC/PHP        |       |    |                    |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | BPS/PHC/PHP        |       |    |                    |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | BPS/PHC/PHP        |       |    |                    |
| General Genetics* (fulfills BIO minor)                                                                                                                                                                                                                                                                                                                                                                                                                                       | BIO 352*           |       | 4  | BIO102/104 prereq. |
| Prin. of Cell Biology (recommended/BIO minor)                                                                                                                                                                                                                                                                                                                                                                                                                                | BIO 341            |       | 3  |                    |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                    |       |    |                    |
| 0-12 credits to make $\geq 120$ total                                                                                                                                                                                                                                                                                                                                                                                                                                        |                    |       |    |                    |
| (Exact number will vary by student according to transfer credits, general education choices, non-degree credits, initial math placement, credits taken for experiential education, etc.)                                                                                                                                                                                                                                                                                     |                    |       |    |                    |

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### Proposed Semester Sequence for Pre-Health Profession Students

| Fall                                | Spring                              | BPS Milestones                                                                                                                                                                                                                                                                                                                                            | Pre-Health Milestones                                                                                                                                                                                                                                                                                        |
|-------------------------------------|-------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Year One                            |                                     |                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                              |
| BIO 110* and 103*, 3+1 cr.          | BIO 102* and 104*, 3+1 cr.          | <ul style="list-style-type: none"><li>○ Complete BIO, CHM, &amp; MTH pre-reqs</li><li>○ Pre-Professional GPA ≥ 2.30</li><li>○ Complete ≥ 29 cr.</li></ul>                                                                                                                                                                                                 | <ul style="list-style-type: none"><li>○ Aim for a GPA ≥ 3.6</li><li>○ Gen ed can include SOC224 or PSY113</li><li>○ Attend a pre-health 101 info session</li><li>○ Investigate research opportunities, direct patient care/clinical experience</li></ul>                                                     |
| CHM 101* and 102, 3+1 cr.           | CHM 112 and 114, 3+1 cr.            |                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                              |
| MTH 103*, 3 cr. ; or choice Gen Ed* | MTH 131*, 3 cr.                     |                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                              |
| COM 100*, 3 cr.                     | WRT 106*, 3 cr.                     |                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                              |
| URI 101, 1 cr.                      |                                     |                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                              |
| (15 cr. Total, 13 gen ed)           | (14 cr. Total, 10 gen ed)           |                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                              |
| Year Two                            |                                     |                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                              |
| BIO 220 and 221, 3+1 cr.            | BIO 222 and 223, 3+1 cr.            | <ul style="list-style-type: none"><li>○ Complete BIO, CHM, CMB, STA pre-reqs</li><li>○ Pre-Professional GPA ≥ 2.30</li><li>○ Complete ≥ 60 cr.</li><li>○ Meet progression standards for move from UC to BPS</li></ul>                                                                                                                                     | <ul style="list-style-type: none"><li>○ Aim for a GPA ≥ 3.6</li><li>○ Gen ed can include SOC224/PSY113 or 2nd WRT choice</li><li>○ Get involved in service, CFRP, shadowing</li><li>○ Start research and direct patient care/clinical experience</li></ul>                                                   |
| CHM 227, 3 cr.                      | CHM 228, 3 cr.                      |                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                              |
| CMB 201 and 202, 3+1 cr.            | CHM 226, 2 cr.                      |                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                              |
| BPS 250, 1 cr.                      | STA 308 (or 307 or 409), 4 cr.      |                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                              |
| PHY 111* and 185*, 3+1 cr.          | CMB 311, 3 cr.                      |                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                              |
| (16 cr. Total, 4 gen ed)            | (16 cr. Total)                      |                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                              |
| Year Three                          |                                     |                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                              |
| BPS 301, 2 cr.                      | BPS 306, 2 cr.                      | <ul style="list-style-type: none"><li>○ Advanced knowledge of pharmacology, medicinal chemistry, pharmacokinetics, and pharmaceuticals.</li><li>○ Knowledge of laboratory methods, biologic medications, and choice specialty areas</li><li>○ Maintain Professional GPA ≥ 2.3, Cumulative GPA ≥ 2.0</li></ul>                                             | <ul style="list-style-type: none"><li>○ Aim for a GPA ≥ 3.6</li><li>○ Prof elective can include BIO 352 and/or BIO 341</li><li>○ Finish coursework for entrance exams</li><li>○ If applying in junior year, Complete pre-health requirements by first semester</li><li>○ Take MCAT spring semester</li></ul> |
| BPS 313, 2 cr.                      | BPS 325, 2 cr.                      |                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                              |
| BPS 315, 4 cr.                      | BPS 425, 3 cr.                      |                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                              |
| BPS 345, 3 cr.                      | BPS 443, 2 cr.                      |                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                              |
| PHY 112* and 186*, 3+1 cr.          | Prof Elective/*Gen Ed choice, 3 cr  |                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                              |
|                                     | Prof Elective/*Gen Ed choice, 3 cr. |                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                              |
| (15 cr. Total, 4 gen ed)            | (15 cr. Total)                      |                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                              |
| Year Four                           |                                     |                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                              |
| BPS 401, 3 cr.                      | BPS 402, 3 cr.                      | <ul style="list-style-type: none"><li>○ Advanced knowledge of pharmacology, medicinal chemistry, pharmacokinetics, and pharmaceuticals.</li><li>○ Knowledge of laboratory methods, biologic medications, and choice specialty area.</li><li>○ Maintain Professional GPA ≥ 2.3, Cumulative GPA ≥ 2.0</li><li>○ Complete ≥ 120 cr. for graduation</li></ul> |                                                                                                                                                                                                                                                                                                              |
| BPS 451*, 4 cr.                     | BPS 446, 3 cr.                      |                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                              |
| Prof Elective/*Gen Ed choice, 3 cr. | Prof Elective/*Gen Ed choice, 3 cr. |                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                              |
| Professional Elective, 3 cr.        | Professional Elective, 3 cr         |                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                              |
| Professional Elective, 3 cr.        | Professional Elective, 3 cr.        |                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                              |
| (16 cr. Total)                      | (15 cr. Total)                      |                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                              |