

# PHARMACEUTICAL PRODUCT DEVELOPMENT PROGRAM

*College of the Sciences and Mathematics*

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Pharmaceutical Product Development Program (<http://www.wcupa.edu/pharm/>)

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Thomas R. Simpson ([tsimpson2@wcupa.edu](mailto:tsimpson2@wcupa.edu)), *Director*

The Bachelor of Science in Pharmaceutical Product Development prepares students for careers in the pharmaceutical industry. The curriculum was developed through extensive dialog with representatives of the pharmaceutical and biotechnology industries and was designed to meet the unique needs of students seeking careers in this dynamic area. The curriculum for the degree is interdisciplinary in nature; students acquire a solid foundation in the physical and pharmaceutical sciences, as well as experience in technical writing, oral communication, statistics, economics, and biomedical ethics. All of the capstone drug design courses for the PPD major are taught by individuals employed at pharmaceutical companies, so that students can gain up-to-date knowledge about the industry. This innovative curriculum is coupled with up to two summers of paid internships following the sophomore and junior years. These assignments are provided within the pharmaceutical industry and give students experience and a level of understanding that is a practical, invaluable complement to the classroom. Graduates of this program are poised to enter industry with a breadth of understanding that otherwise takes several years of industrial experience to acquire. Furthermore, this diverse curriculum prepares students for both graduate and professional schools including medicine, dentistry, optometry, and pharmacy.

Contact the Pharmaceutical Product Development Office for further information on admission standards for undergraduate and transfer students.

## Programs

### Majors

- B.S. in Pharmaceutical Product Development (<http://catalog.wcupa.edu/undergraduate/sciences-mathematics/pharmaceutical-product-development/pharmaceutical-product-development-bs/>)
- B.S. in Pharmaceutical Product Development - Pre-Pharmacy Concentration (<http://catalog.wcupa.edu/undergraduate/sciences-mathematics/pharmaceutical-product-development/pharmaceutical-product-development-bs-pre-pharmacy-concentration/>)

### Graduate Opportunities

See the graduate catalog for more information on the Pharmaceutical Product Development programs. (<http://catalog.wcupa.edu/graduate/sciences-mathematics/pharmaceutical-product-development/>)

## Policies

- See undergraduate admissions information. (<http://catalog.wcupa.edu/general-information/admissions-enrollment/undergraduate-admissions/>)
- See academic policies. (<http://catalog.wcupa.edu/undergraduate/academic-policies-procedures/>)

All undergraduate students are held to the academic policies and procedures outlined in the undergraduate catalog. Students are encouraged to review departmental handbooks for program tips, suggested course sequences, and explanations of procedures. When

applicable, additional policies for specific department programs may be listed below.

### Degree Completion Policy for the PPD Program

Students will be required to complete all the required courses in chemistry and biology, including the capstone interdisciplinary courses. A grade of C or better must be earned in those courses.

## Faculty

### Professors

John Gault ([jgault@wcupa.edu](mailto:jgault@wcupa.edu)) (1991)

B.S., U.S. Naval Academy; M.B.A., University of Pennsylvania; Ph.D., Drexel University

Randall H. Rieger ([rrieger@wcupa.edu](mailto:rrieger@wcupa.edu)) (2000)

B.A., Bowdoin College; M.S., Ph.D., University of North Carolina

Joan Woolfrey ([jwoolfrey@wcupa.edu](mailto:jwoolfrey@wcupa.edu)) (2000)

Chairperson, Women's and Gender Studies

B.S., North Dakota State University; M.A., The New School for Social Research; Ph.D., University of Oregon

### Associate Professors

James R. Pruitt ([jpruitt@wcupa.edu](mailto:jpruitt@wcupa.edu)) (2011)

B.S., Ph.D., University of California

Thomas R. Simpson ([tsimpson2@wcupa.edu](mailto:tsimpson2@wcupa.edu)) (2016)

Director, Pharmaceutical Product Development Program

B.S., Allegheny College; M.S., Ph.D., University of Rochester

## Courses

### PPD

#### PPD 481. Drug Design I. 3 Credits.

The first course in a three-semester sequence provides an overview of the pharmaceutical industry and the drug development process, followed by an in-depth study of the clinical trials portion of the process. Statistical design used in trials for demonstrating drug safety and efficacy are discussed. The role of IRBs, informed consent, and other medical legal issues are explored.

Pre / Co requisites: PPD 481 requires a corequisite of STA 311 or permission of instructor.

Typically offered in Spring.

#### PPD 482. Drug Design II. 3 Credits.

A course emphasizing pharmacokinetic and toxicokinetic aspects of drugs. Sites and mechanisms of drug reaction and drug metabolism are discussed. Drug toxicology is also explored in depth. Laboratory therapeutic drug monitoring as a measure of improving drug efficacy is considered.

Pre / Co requisites: PPD 482 requires prerequisites of PPD 481 and BIO 367.

Typically offered in Fall.

#### PPD 483. Drug Design III. 3 Credits.

This course emphasizes the discovery portion of drug development and illustrates the major concepts in medicinal chemistry. The scientific tools used such as high throughput screening, genomics and computational chemistry, are considered. Criteria for making a compound workable as a drug are discussed, and the selection of the administration route is reviewed.

Pre / Co requisites: PPD 483 requires prerequisites of PPD 482, BIO 367, and BIO 469.

Typically offered in Spring.

#### PPD 484. Pharmaceutical Internship I. 1 Credit.

A summer, paid internship experience with a pharmaceutical or biotechnology company.

These internships are designed to provide experiences in key aspects of the pharmaceutical industry. Students will be supervised jointly by an on-site professional scientist and a member of the Pharmaceutical Product Development Program Committee.

Pre / Co requisites: PPD 484 requires a cumulative GPA of 2.75 or higher and departmental consent.

Consent: Permission of the Department required to add.

Typically offered in Summer.

**PPD 485. Pharmaceutical Internship II. 1 Credit.**

A second summer paid internship experience with a pharmaceutical or biotechnology company. These internships are designed to provide experiences in key aspects of the pharmaceutical industry. This experience will be designed to complement the experience gained from PPD 484.

Typically offered in Fall, Spring & Summer.

Repeatable for Credit.

**PPD 490. Special Topics in Drug Development. 1 Credit.**

This special topics course is designed to offer in depth seminars about novel and exciting areas of research in the field of pharmaceutical product development and drug discovery. Invited speakers will be industry experts presenting the most up-to-date information about their areas of expertise.

Pre / Co requisites: PPD 490 requires a prerequisite of PPD 481 and a corequisite of PPD 483.

Typically offered in Fall & Spring.

Repeatable for Credit.