

SCHOOL OF PHARMACY

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Programs

- Pharmaceutical Sciences, B.S. to Pharm.D. (3+4 Accelerated Program) (<http://catalog.marshall.edu/graduate/programs-az/pharmacy/pharmaceutical-sciences-bs-pharmd-34-accelerated-program/>)
- Pharmaceutical Sciences, M.A. (Non-Thesis Option) (<http://catalog.marshall.edu/graduate/programs-az/pharmacy/pharmaceutical-sciences-ma/>)
- Pharmaceutical Sciences, M.S. (<http://catalog.marshall.edu/graduate/programs-az/pharmacy/pharmaceutical-sciences-ms/>)
- Pharmacy, Dual Degree: Pharm.D. and M.B.A. (<http://catalog.marshall.edu/graduate/programs-az/pharmacy/pharmacy-pharmd-mba/>)
- Pharmacy, Pharm.D. (<http://catalog.marshall.edu/graduate/programs-az/pharmacy/pharmacy-pharmd/>)

Courses

Pharmaceutical Sciences

MSPS 512 Med Chem & Drug Disc 1 Credit hour

This course gives an overview of drug discovery principles and techniques for the practicing medicinal chemist.

Grade Mode: Normal Grading Mode

MSPS 513 Biopharm 2 1 Credit hour

Topics include mechanisms immediate and sustained drug release in formulations; novel drug delivery systems; drug pre-formulation; the drug approval process; drug preparation, liberation, absorption and stability of dosage forms.

Grade Mode: Normal Grading Mode

MSPS 531 Regulatory Affairs 3 Credit hours

An overview of USFDA's regulation on drug. Topics covered include pharmaceutical regulatory agencies and organizations around the world and their International Regulatory Audits for Pharma, International Conference on Harmonization (ICH) guidelines, Pharmacopoeias and national formulary, US Food and Drug Administration (USFDA): History of USFDA Law and Regulation, GLP, MMP, NDA, and ANDA.

Grade Mode: Normal Grading Mode

MSPS 542 Science Seminars 1 Credit hour

The course will help graduate students in the pharmaceutical sciences learn the basics of scientific communication and how to critically evaluate scientific literature. This 1 credit hour course is repeatable for credit up to 4 times.

Grade Mode: Normal Grading Mode

MSPS 544 Prin Dis Drug Action 4 Credit hours

Topics covered include the concepts and mechanisms of the basic processes underlying disease and pathophysiology; the general principles underlying drug action and therapeutics, including receptor pharmacology, enzyme inhibition and pharmacology; the relationship between drug concentration at the target tissue and drug effect; as they relate to drug action and individual variation in response.

Grade Mode: Normal Grading Mode

MSPS 561 Biopharmaceutics I 3 Credit hours

Topics covered include the physicochemical principles of pharmacy, such as acid-base theory, solubility, physical states of drugs, thermodynamics, drug stability, excipients, surfactants, dispersions, polymers, drug delivery, chemical compatibility and interactions of drugs in various dosage forms.

Grade Mode: Normal Grading Mode

MSPS 562 Biopharmaceutics II 3 Credit hours

Topics covered include mechanisms of both immediate and sustained drug release in formulations involving solid and semi-solid systems; introduction to novel drug delivery systems; drug pre-formulation, the drug approval processes, and regulations governing the pharmaceutical industry; drug preparation, liberation, absorption and stability dosage.

Grade Mode: Normal Grading Mode

MSPS 581 Special Topics 1-3 Credit hours

Special Topics

Grade Mode: Normal Grading Mode

MSPS 585 Independent Study 1-3 Credit hours

Independent Study

Grade Mode: Normal Grading Mode

MSPS 586 Problem Report 1-3 Credit hours

Problem Report

Grade Mode: Normal Grading Mode

MSPS 632 Prod Dev by Quality Design 3 Credit hours

Product Development by Quality by Design

Grade Mode: Normal Grading Mode

MSPS 685 Independent Study 1-3 Credit hours

Independent Study

Grade Mode: Normal Grading Mode

MSPS 686 Problem Report 1-3 Credit hours

Problem Report

Grade Mode: Normal Grading Mode

MSPS 699 Thesis 1-6 Credit hours

Thesis

Attributes: Thesis

Grade Mode: Normal Grading Mode

Pharmacy

PHAR 501 Pharm Cont Prof Dev 1 0 Credit hours

Students will be introduced to additional professionalism topics, evaluation of clinical skills through the OSCEs and take part in a seminar series throughout the first through third years.

Grade Mode: Pass/Fail Grading Mode

PHAR 502 Pharm Cont Prof Dev 2 0 Credit hours

Students will be introduced to additional professionalism topics, evaluation of clinical skills through the OSCEs and take part in a seminar series throughout the first through third years.

Grade Mode: Pass/Fail Grading Mode

PHAR 503 Pharm Cont Prof Dev 3	0 Credit hours	PHAR 533 Introduction to Pharmacy 1	3 Credit hours
Students will be introduced to additional professionalism topics, evaluation of clinical skills through the OSCEs, and take part in a seminar series throughout the first through third years.		Continued professional development of pharmacy practitioner. Sterile produces, top 300 medications, laboratory values, SOAP notes, documentation, medication safety applications including patient counseling and technology, communication and public service are stressed.	
Grade Mode: Pass/Fail Grading Mode		Pre-req: PHAR 541 with a minimum grade of C.	
PHAR 504 Pharm Cont Prof Dev 4	0 Credit hours	Grade Mode: Normal Grading Mode	
Students will be introduced to additional professionalism topics, evaluation of clinical skills through the OSCEs and take part in a seminar series throughout the first through third years.		PHAR 536 Introduction to Pharmacy 2	3 Credit hours
Grade Mode: Pass/Fail Grading Mode		Begin professional development understanding the responsibilities of a registered pharmacist providing patient care, professional conduct, personnel management, personal conduct, pharmacy calculations, immunizations, legal issues, and team dynamics are stressed.	
PHAR 505 Pharm Cont Prof Dev 5	0 Credit hours	Grade Mode: Normal Grading Mode	
Students will be introduced to additional professionalism topics, evaluation of clinical skills through the OSCEs, and take part in a seminar series throughout the first through third years.		PHAR 537 Pharmacokinetics	3 Credit hours
Grade Mode: Pass/Fail Grading Mode		An introductory course emphasizing basic principles in pharmacokinetics.	
PHAR 506 Pharm Cont Prof Dev 6	0 Credit hours	Grade Mode: Normal Grading Mode	
Students will be introduced to additional professionalism topics, evaluation of clinical skills through the OSCEs and take part in a seminar series throughout the first through third years.		PHAR 538 Pharmacy Skills Lab 2	3 Credit hours
Grade Mode: Pass/Fail Grading Mode		Students will learn the necessary skills of a pharmacist (pt. interviewing, sterile compd, clinical reasoning)	
PHAR 512 Pharmacy Skills Lab I	1 Credit hour	Grade Mode: Normal Grading Mode	
Students will learn the necessary skills of a pharmacist (pt. interviewing, sterile compd, immunizations)		PHAR 542 Immunology and Microbiology	4 Credit hours
Grade Mode: Normal Grading Mode		Topics covered include an introduction to the classification, morphology and physiology of microorganisms, primarily organisms that can cause human pathology, such as bacteria, viruses, fungi, protozoans, parasites, and worms; the body's immune response and mechanisms of defense at the cellular and humoral (molecular) level will also be covered in the context of pathogenic organisms, tissue transplants, and autoimmune disease.	
PHAR 523 Pharmacogenomics	2 Credit hours	Grade Mode: Normal Grading Mode	
This course will provide students with the foundational knowledge of the principles and concepts of pharmacogenomics and pharmaceutical genetics, including a conceptual understanding of how genomic differences can impact drug metabolism, transport, and targets.		PHAR 544 Prin of Disease & Drug Action	4 Credit hours
Grade Mode: Normal Grading Mode		Topics covered include skills in obtaining and utilizing drug information reference and foundational skills required in patient counseling.	
PHAR 524 Drug Info & Comm Skills	2 Credit hours	Grade Mode: Normal Grading Mode	
Topics covered include basic skills in obtaining and utilizing drug information references, and foundational skills required in patient counseling, such as the Indian Health method of counseling.		PHAR 545 Therapeutics I	4 Credit hours
Grade Mode: Normal Grading Mode		Students will learn about the therapeutic use, human physiology, pharmacologic and chemical properties of over-the-counter medication and non-medication interventions for both treatment and prevention of disease.	
PHAR 531 Biopharmaceutics I	3 Credit hours	Pre-req: PHAR 541.	
Topics covered include the physicochemical principles of pharmacy, such as acid-base theory, solubility, physical states of drugs, thermodynamics, drug stability, excipients, surfactants, dispersions, polymers, drug delivery, chemical compatibility and interactions of drugs in various dosage forms.		Grade Mode: Normal Grading Mode	
Grade Mode: Normal Grading Mode		PHAR 547 Pharmaceutical Chemistry	4 Credit hours
PHAR 532 Biopharmaceutics II	3 Credit hours	An introductory course providing the fundamental basics of pharmaceutical chemistry.	
Topics covered include mechanisms of both immediate and sustained drug release in formulations involving solid and semi-solid systems; introduction to novel drug delivery systems; drug pre-formulation, the drug approval processes, and regulations governing the pharmaceutical industry; drug preparation, liberation, absorption and stability dosage.		Grade Mode: Normal Grading Mode	
Pre-req: PHAR 531.		PHAR 623 Patient Safety	2 Credit hours
Grade Mode: Normal Grading Mode		Further professional development in the management of patient safety policies and procedures. Areas covered: medication reconciliation, discharge planning, risk management, and other methods of improving patient safety.	
		Grade Mode: Normal Grading Mode	
		PHAR 635 Research Methods and Stats	3 Credit hours
		The fundamentals of clinical and outcomes research will be discussed and applied to patient care. Students will gain an understanding of study design, research methods, statistical analysis, and research in pharmacy.	
		Grade Mode: Normal Grading Mode	

- PHAR 636 Pharm Skills Lab III** **3 Credit hours**
Students will learn foundational patient care skills necessary for practice as a pharmacist. Students will apply knowledge, demonstrate critical-thinking and problem-solving skills, practice technical and communication skills, and demonstrate professional behavior in the therapeutic decision making process.
Pre-req: PHAR 512 with a minimum grade of C and PHAR 537 with a minimum grade of C.
Grade Mode: Normal Grading Mode
- PHAR 637 Pharm Skills Lab IV** **3 Credit hours**
Students will learn foundational patient care skills necessary for practice as a pharmacist. Students will apply knowledge, demonstrate critical-thinking and problem-solving skills, practice technical and communication skills, and demonstrate professional behavior in the therapeutic decision making process.
Pre-req: PHAR 512 with a minimum grade of C and PHAR 538 with a minimum grade of C and PHAR 636 with a minimum grade of C.
Grade Mode: Normal Grading Mode
- PHAR 641 Therapeutics 1 - OTC/Self-Care** **4 Credit hours**
Students will learn about the therapeutic use, human physiology, pharmacologic and chemical properties of over-the-counter medication and non-medication interventions for both treatment and prevention of disease.
Grade Mode: Normal Grading Mode
- PHAR 643 Therapeutics 3 GI & Renal** **4 Credit hours**
Students will learn about the pharmacology, pathophysiology, and therapeutics associated with commonly encountered gastrointestinal, hepatic, and renal disorders. Activities emphasized include patient assessment, consultation, communication, drug monitoring, drug effectiveness, and the professional and legal dynamics encountered in pharmacy practice.
Grade Mode: Normal Grading Mode
- PHAR 644 Therapeutics 4 - Endocrine** **4 Credit hours**
Students will learn about therapeutic and prophylactic treatments for diseases of the endocrine, genitourinary and reproductive systems. Use of medication and non-medication interventions will be emphasized as deemed appropriate. This course will emphasize performance of the activities of the pharmacist as health care provider.
Grade Mode: Normal Grading Mode
- PHAR 652 Therapeutics 2 - Cardiology** **5 Credit hours**
Students learn about therapeutic interventions for treatment and prevention of cardiovascular and pulmonary disease. Exploration of human physiology, disease pathophysiology and medications pharmacologic and chemical properties precede therapeutic use discussions.
Grade Mode: Normal Grading Mode
- PHAR 662 Pharmacy Administration** **6 Credit hours**
Provides students with a functional working knowledge of the healthcare system and business environment. Concepts examined include but are not limited to: leadership, operations management, health policy, motivational theories, employment issues, labor law, pharmacoeconomics, business planning, and financial analysis of pharmacy operations.
Grade Mode: Normal Grading Mode
- PHAR 711 Med Therapy Management** **1 Credit hour**
The student will learn to resolve medication-related problems to reduce costs and improve outcomes.
Grade Mode: Normal Grading Mode
- PHAR 723 Therapeutics 7 - Special Pops** **2 Credit hours**
This course will emphasize the unique needs and differences in therapeutic recommendations for patients at the extremes of ages, diverse cultural backgrounds, and those with co-morbidities and other health conditions.
Grade Mode: Normal Grading Mode
- PHAR 730 Therapeutics 8 - Derm/Ophth/MUS** **3 Credit hours**
Grade Mode: Pass/Fail Grading Mode
- PHAR 732 Clin Aspects Rx Meds** **3 Credit hours**
A discussion of the clinical aspects of medications will be covered with an emphasis on 1) pharmaceutical calculations and 2) analysis of the differences between various drugs and drug classes.
Grade Mode: Normal Grading Mode
- PHAR 733 Residency Preparation** **3 Credit hours**
This course will help to prepare the pharmacy student for completion of postgraduate training, exploring processes including research project design and execution, interviewing, residency applications, and professional development.
Grade Mode: Normal Grading Mode
- PHAR 734 Medications of Abuse** **3 Credit hours**
This course discusses medications of abuse and their impact on society, reviews the history of substance use disorder relating them to current affairs and the impact on society.
Grade Mode: Normal Grading Mode
- PHAR 735 Pharmacy Law & Ethics** **3 Credit hours**
An applied analysis of federal and West Virginia state law and ethical standards in the practice of Pharmacy and Pharmaceutical Care.
Grade Mode: Pass/Fail Grading Mode
- PHAR 736 Pharmacy Skills Lab 6** **3 Credit hours**
Covers foundational patient care skills. Students apply knowledge, demonstrate critical-thinking and problem-solving skills, practice technical and communication skills, and demonstrate professional behavior in the therapeutic decision making process.
Pre-req: PHAR 637 with a minimum grade of C.
Grade Mode: Normal Grading Mode
- PHAR 737 Pharmacy Skills Lab 5** **3 Credit hours**
Covers foundational patient care skills. Students apply knowledge, demonstrate critical-thinking and problem-solving skills, practice technical and communication skills, and demonstrate professional behavior in the therapeutic decision making process.
Grade Mode: Normal Grading Mode
- PHAR 738 Pharmacy Education I** **3 Credit hours**
This course will prepare students for a career in pharmacy education.
Grade Mode: Normal Grading Mode
- PHAR 739 Pharmacy Education II** **3 Credit hours**
This course will prepare students to apply skills learning in PHAR 738 in a lab setting.
Pre-req: PHAR 738 with a minimum grade of C.
Grade Mode: Normal Grading Mode
- PHAR 743 Therapeutics 9 - Hem/Oncology** **4 Credit hours**
Students will learn treatment/prevention of heme-onc diseases including physiology, pathophysiology, pharmacology and therapy. Activities emphasized include patient assessment, consultation monitoring, communication, and drug effectiveness (safety, interactions, and adverse events).
Grade Mode: Normal Grading Mode

- PHAR 752 Therapeutics 6 - Neuro/Psych** **5 Credit hours**
Students will learn treatment and prevention of neurological and psychiatric diseases including the physiology, pathophysiology, pharmacology and therapy. This course emphasizes the pharmacist as a health care provider.
Grade Mode: Normal Grading Mode
- PHAR 761 Therapeutics 5 - Infect Dis** **6 Credit hours**
This course discusses clinical microbiology and principles of anti-infective therapy as well as the pathophysiology, associated pharmacology, and therapeutic approaches to infectious diseases. Successful completion of PHAR 542 is a prerequisite.
Grade Mode: Normal Grading Mode
- PHAR 781 Veterinary Pharmacy** **3 Credit hours**
To instruct students in the administration, clinical pharmacology, clinical applications, diseases, medication safety and comparative dosing of veterinary medications that a pharmacist may encounter in the community pharmacy setting.
Grade Mode: Normal Grading Mode
- PHAR 801 Special Topics I** **1-6 Credit hours**
An opportunity for individual students to gain advanced experiences in practice, research, or service. Students will identify mentor and jointly develop individualized learning outcomes and a learning plan.
Grade Mode: Normal Grading Mode
- PHAR 802 Special Topics II** **1-6 Credit hours**
An opportunity for students to didactically explore advanced topics within the profession of pharmacy.
Grade Mode: Normal Grading Mode
- PHAR 811 IPPE - Community Pharmacy 1** **1 Credit hour**
Introduction to community pharmacy practice in a supervised setting. Students are exposed to the roles and responsibilities of the community pharmacist.
Grade Mode: Normal Grading Mode
- PHAR 813 IPPE - Community Pharmacy 2** **1 Credit hour**
Grade Mode: Normal Grading Mode
- PHAR 814 Intro Phar Institutions 2** **1 Credit hour**
Builds on the foundations of the Institutional Pharmacy 1 Experience. The student will demonstrate critical thinking and problem solving, document professional practice activities, and parenteral compounding abilities.
Grade Mode: Normal Grading Mode
- PHAR 815 IPPE - Outpat Clinical Skills** **1 Credit hour**
Introduces pharmacist student to the ambulatory care setting. Student will demonstrate the ability to develop a therapeutic plan that includes the selection of appropriate drug therapy based on patient characteristics.
Grade Mode: Normal Grading Mode
- PHAR 816 IPPE - Inpat Clinical Skills** **1 Credit hour**
Introduces the pharmacy student to the clinical skills in an institutional setting needed to be successful. Student will demonstrate appropriate drug dosing and drug selection based on patient characteristics.
Grade Mode: Normal Grading Mode
- PHAR 817 IPPE - Pharmacy Management** **1 Credit hour**
Students are exposed to the role and responsibilities of a pharmacy team leader, manager, or director and the application of management strategy, tools, and responsibilities.
Grade Mode: Normal Grading Mode
- PHAR 821 IPPE - Institutional** **2 Credit hours**
The Introductory Pharmacy Practice Experience in Institutions is designed to allow the student to demonstrate knowledge and skill learned in the classroom while concurrently gaining understanding to the systems and function of the pharmacy in an institutional setting.
Grade Mode: Normal Grading Mode
- PHAR 881 APPE - Adv Inpat Clin Skills** **5 Credit hours**
Provides experience in clinical, acute care/institutional, team-based environment. With guidance, students are expected to collect patient information, evaluate/monitor drug therapy, educate patients/caregivers and respond to drug information inquiries.
Grade Mode: Normal Grading Mode
- PHAR 882 APPE - Adv Outpat Clin Skills** **5 Credit hours**
Provides experience in clinically focused multidisciplinary outpatient environment. Responsibilities include collecting patient-specific information, evaluating and monitoring drug therapy, providing education about medications/MRPs and responding to drug or medication related inquiries.
Grade Mode: Normal Grading Mode
- PHAR 883 APPE - Advanced Community** **5 Credit hours**
Experience in community pharmacy setting to provide patient-centered care. Responsibilities include dispensing, OTC/Self-Care, MTM, preventative health screening(s), immunizations, compounding and patient counseling as part of the health care team.
Grade Mode: Normal Grading Mode
- PHAR 884 APPE 4-Adv Institutional** **5 Credit hours**
This is a 5-week experiential rotation in an approved health system that prepares the student to function within integrated pharmacy services. Particular emphasis is placed on the preparation, distribution, and control of medications, medication monitoring, and the ability to communicate with other healthcare professionals. This rotation develops competence to function as a staff hospital pharmacist.
Grade Mode: Normal Grading Mode
- PHAR 885 APPE - Transitions of Care** **5 Credit hours**
Students provide pharmacy services across the healthcare system. Students focus on addressing needs of geriatric and complex patients with multiple chronic disease states with members of the health care team.
Grade Mode: Normal Grading Mode
- PHAR 886 APPE - Diverse Populations** **5 Credit hours**
Experience in community, ambulatory or other setting to medically under-served population. Focus on providing culturally sensitive, compassionate and effective care to a diverse, ethnic, rural, poor and/or indigent population(s).
Grade Mode: Normal Grading Mode
- PHAR 887 APPE - Elective** **5 Credit hours**
APPE electives take place in a variety of pharmacy practice settings (both patient care and non-patient care). Electives provide the student with highly focused experiences based on the preceptor's speciality.
Grade Mode: Normal Grading Mode
- PHAR 891 Pharmacy Capstone I** **2 Credit hours**
Pharmacy capstone experience where students are challenged to demonstrate acquisition of pharmacy skill, knowledge, and behavior competency.
Grade Mode: Normal Grading Mode

PHAR 892 Pharmacy Capstone 2 **2 Credit hours**

Pharmacy capstone experience, where students are challenged to demonstrate acquisition of pharmacy skill, knowledge, and behavior competency.

Pre-req: PHAR 891 with a minimum grade of C.

Grade Mode: Normal Grading Mode