



College of

Pharmacy and Pharmaceutical Sciences

WASHINGTON STATE UNIVERSITY

PREREQUISITE COURSES

Prerequisite Courses & Descriptions	Semester School	Quarter School
Science Courses		
Organic Chemistry - must complete full series with labs for science majors¹ Two semesters (7-8 credits) or three quarters (15 credits) of an organic chemistry series is required including at least 1 lab Comprehensive organic course covers structure, bonding, molecular properties, an overview of organic reactions, and stereochemistry, with emphasis on the properties and chemical reactivity, mechanisms, nomenclature and spectroscopy (IR, UV, NMR, MS) of the following organic functional groups: alkanes, cycloalkanes, alkenes, alkynes and alkylhalides, aromatic compounds (benzene), alcohols, thiols, ethers, epoxides, sulfides, aldehydes and ketones, carboxylic acids and derivatives (acid halides, acid anhydrides, esters, amides, and nitriles), carbonyl alpha-substitution reactions, carbonyl condensation reactions, aliphatic amines, arylamines and phenols, biomolecules (carbohydrates, amino acids, proteins, lipids, heterocycles and nucleic acids). (The WSU series is Chemistry 345 and 348)	7-8 credits	15 credits
Biochemistry¹ One semester (4 credits) or one quarter (5 credits) biochemistry for undergraduate science majors: Structure and function of proteins, nucleic acids and biological membranes; principles of enzymology; major metabolic pathways, DNA structure and repair, RNA structure and transcription, regulation of transcription, Hardy-Weinberg equilibrium, basic population genetics. Must be upper-division to fulfill the requirement, or evaluated to be equivalent. (The WSU course is MBioS 303)	4 credits	5 credits
Microbiology¹ One semester (3-5 credits) or one quarter (5 credits) of a general microbiology course. Introduction to the study of bacteria, viruses, rickettsiae, spirochetes, fungi and protozoa with emphasis on structure, function, nutrition, physiology, and genetics of microbes and their application to immunology, pathology, microbial diversity, and environmental microbiology. (The WSU course equivalent is MBios 305)	3-5 credits	5 credits
Human Anatomy with lab¹ One semester course (4 credits) that includes gross and microscopic anatomy of the human body. Must include lab. May take integrated Anatomy and Physiology (2 semesters, 8 credits or 3 quarters, 15 credits) with labs. See Physiology below. Upper division course is preferred. (The WSU course is Biol 315)	4 credits	5-10 credits
Physiology¹ One semester course (4 credits) examining function and control at the cell-tissue level, and at the organ-organismic level including each of the major organ systems (cardiovascular, respiratory, renal, endocrine, neural and gastrointestinal) as well as basic concepts of cellular physiology. Must include lab. Emphasis on mammalian/human physiology. May take integrated Anatomy and Physiology (2 semesters, 8 credits or 3 quarters, 15 credits) with labs. See Anatomy above. Upper division course is preferred. (The WSU course is Biol 353 or Neuro 425 & Neuro 426)	4 credits	5-10 credits

General Courses		
<p>Algebra, Pre-Calculus or higher¹ One semester (3-4 credits) or one quarter (5 credits) of Algebra, Pre-Calculus or higher level math class. (The WSU courses are Math 106, 140, 171 or 202)</p>	3-4 credits	5 credits
<p>Statistics¹ One semester (3-4 credits) or one quarter (5 credits) of a Statistics course. Introduction to descriptive and inferential statistics. Interpretation of estimates, confidence intervals, and significance tests. Elementary concepts of probability and sampling; binomial and normal distributions. Basic concepts of hypothesis testing, estimation, and confidence intervals; t-tests and chi-square tests. Linear regression theory and the analysis of variance. (The WSU course is Stat 212)</p>	3-4 credits	5 credits
<p>Arts and Humanities Courses² At least one course must be an English Writing/Composition class. Other courses may be selected by choice.</p>	12-15 credits	12-15 credits

¹ The **science** courses on this list must be completed by the end of the spring term before beginning the PharmD program.

² These courses may be completed by the end of the summer term before beginning the PharmD program.

Contact us for transcript evaluations, course equivalencies, or to arrange a campus visit at pharmacy.admissions@wsu.edu or 509-368-6605.