PHD PROGRAMS OF STUDY

GW Biomedical PhD Programs

7.22.2025

Year | Semester		CANCER BIOLOGY	GENOMICS & BIOINFORMATICS	MICROBIOLOGY & IMMUNOLOGY	NEUROSCIENCE	PHARMACOLOGY & PHYSIOLOGY
YEAR 1	FALL *12 credits*	Required Core Courses: • BMSC 8210 Genes to Cells (3) • BMSC 8230 Molecular Basis of Human Disease (3) • BMSC 8212 Systems Physiology (3) • BMSC 8215 Lab Rotation (2) • BMSC 8216 Scientific Writing (1)				
	SPRING *9 credits*	Required Core Courses: BMSC 8215 Lab Rotation (2) • BMSC 8217 Ethics & Grant Writing (1) Foundation Courses [recommended to select 2] Students must take the Foundation Course that corresponds to their selected PhD program, and are encouraged to take a second foundation that will count as an elective.				
		CANC 8221 Basic Science of Oncology (3)	GENO 8231 Intro to Genomics, Proteomics & Bioinformatics (3)	MICR 8210 Infection & Immunity (3)	NRSC 8284 Foundations of Experimental Neuroscience I (3)	PHAR 6116 Pharmacogenetics & Personalized Medicine (3)
		Electives [select 1-2] ANAT 6160 Clinically Oriented Human Neuroanatomy (3) • BIOC 6246 Advanced Genomic Data Analysis (3) • Additional options possible with Program Director approval				
	SUMMER *3-6 credits*	Required Core Courses: BMSC 8215 Lab Rotation (2) • BMSC 8218 Careers in Biomedical Sciences (1)				
						PHAR 8211 Physiology (3)
		Select your PhD program and mentor				
YEAR 2	FALL *9 credits*	Core Course: BMSC 8235 Applied Biostatistics for Basic Research (2) Readings & Research: CANC • GENO • MICR • NRSC • PHAR 8998 (1-3) Seminar: CANC 8214 (1) • GENO 8234 (1) • MICR 8214 (1) • NRSC 8283 (2) • PHAR 8214 (1)				
		CANC 8222 Molecular Oncology & Cancer Epigenetics* (3)	GENO 6223 Bioinformatics* (2)	MICR 8230 Molecular & Cellular Immunology* (3)	Electives [select 2-3]	PHAR 6205 Pharmacology* (5)
		Electives [select 1-2] ANAT 6130 Clinically Oriented Human Embryology (3) • ANAT 6150 Clinically Oriented Human Microscopic Anatomy (4) • ANAT 6182 Fundamentals of Regenerative Biology and Systems Physiology (4) • ANAT 6275 Advanced Studies in Translational Sciences (3) • BIOC 6230 New Technologies in Scientific Research (2) • MICR 6236 Fundamentals of Genomics I (3) • PUBH 6851 Intro to R (1) • PUBH 6852 Intro to Python (1) • PUBH 6276 Public Health Microbiology (3) • Courses marked with [*] above and required by one program can serve as electives for students in other programs • Additional options possible with Program Director approval				
	SPRING *9 credits*	Readings & Research: CANC • GENO • MICR • NRSC • PHAR 8998 (1-3) Seminar: CANC 8214 (1) • GENO 8234 (1) • MICR 8214 (1) • NRSC 8283 (2) • PHAR 8214 (1)				
		CANC 8223 Cancer Immunology* (3)	GENO 6225 AI & Mach Learn (2) • GENO 6237 Proteom & Biomarkers* (2)	Electives [select 2-3]	Electives [select 2-3]	PHAR 8281 Mol Pharm & Neurobio of Exc Tissues* (3)
		Electives [select 1-2]				Electives [select 1-2]
		ANAT 6160 Clinically Oriented Neuroanatomy (3) • BIOC 6246 Advanced Genomic Data Analysis • BMSC 8219 Writing the Grant-Style Qualifier (2) • MICR 6237 Fundamentals of Genomics II (2) • MICR 6292 Tropical Infectious Disease (2) • MICR 8271 HIV Persistence, Comorbidities, and Treatment (2) • PHAR 6206 Adv Pharmacology (5) • PUBH 6851 Intro to R (1) • PUBH 6852 Intro to Python (1) • Courses marked with [*] above and required by one program can serve as electives for students in other programs • Additional options possible with Program Director approval				
	SUMMER *3 credits*	BMSC 8220 Research Practicum (3) • *Complete a grant-style qualifying exam*				
YEAR 3+		For Years 3-5, register for 3 credits of CANC / GENO / MICR / NRSC / PHAR 8999 (Dissertation Research) per semester (Fall, Spring & Summer). A total of 72 credit hours is required for the PhD degree. Students needing additional time beyond 72 credits register for 1 credit of CCAS 0940 (Doctoral Research) each Fall & Spring and Continuous Enrollment each Summer semester up through final dissertation defense.				

Integrated Biomedical Sciences
THE GEORGE WASHINGTON UNIVERSITY

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