

CORE COURSE REQUIREMENTS	Introduction To Biomedical Engineering & Biotechnology [Industry Guest Lecturers] 3crs	Instrumentation and Laboratory Experience 3crs	Mathematics... A) Engineering: Advanced Numerical Methods -or- B) Life Sciences: Applied Math For Life Scientists 3crs	Quantitative Physiology (Organ System Level) 3crs	Bioethics (Regulatory Considerations. Multi-Campus Seminar Course. Industry Guest Lecturers.] 1cr	Advanced Cell And Molecular Biology (Biochemistry Component Integrated Throughout) 3crs	16 Core Credits
Specialization Options With Approval From Advisory Committee, Student Selects Program According To Interests and Background. Minimum Of 4 Courses (12 Credits) From Within Or Between Specialization Areas	Biomedical Engineering Specialization Options						12 Specialization Credits (minimum)
	Biomaterials: Tissue Engineering, Polymers/Plastics, Fibers/Textiles, Nanotechnology						
	Biomedical Information Systems: Bioinformatics, Genomics, Proteomics						
	Biomedical Instrumentation: Clinical Sciences, Signal Processing, Sensors, Microprocessing, Manufacturing/Quality Control						
	Biomechanics: Biotransport, Cell Mechanics, Tissue/Organ Mechanics, Joint/Muscle Mechanics						
	Medical Imaging: Optics, NMR, MRI, Acoustics, Cell Imaging						
	Medical Physics/Radiological Sciences: Dosimetry, Shielding/Protection, Nuclear Instrumentation						
	Biotechnology Specialization Options						
	Agricultural Biotechnology: Therapeutics, Pharmacology, Nutritional Biochemistry, Food Science Technology, Plant Tissue Culture						
Bioprocessing/Applied Microbiology: Bioremediation, Fermentation, Biocatalysis, Applied Genetic Engineering							
Molecular Biotechnology: Biochemical Applications, Diagnostics, Clinical Sciences							
Project/Directed Studies	Team based/cross disciplinary collaborations with other graduate students, postdoctoral fellows, industry representatives, intracampus and/or intercampus. Capstone, culminating experience based on course work/laboratory. Prelude to dissertation topic. Written/oral presentation at multi-campus research symposium.						3 Credits
Master Of Science Degree Awarded						31 Credits	
Doctoral Seminar (1 Credit/Semester)		Seminar Series with intercampus emphasis, industry/outside speakers, student presentations.				2 Credits (minimum)	
Qualifying Examination		Oral/written					
Dissertation Proposal							
Dissertation Credits						30 Credits (minimum)	
Dissertation Defense							
Ph.D. Degree Awarded						63 Credits Total (minimum)	

Course and Dissertation Sequence

	Fall Semester	Spring Semester
FIRST YEAR	9 credits core courses	7 credits - core courses 3 credits - specialization
SECOND YEAR	9 credits specialization	3 credits - graduate project 6 credits - dissertation research
THIRD YEAR	9 credits dissertation research 1 credit doctoral seminar	9 credits dissertation research 1 credit doctoral seminar
FOURTH YEAR	6 credits dissertation research dissertation defense	63 <i>total credits</i> <i>(minimum)</i>