

BIOINNOVATION, PHD

Graduate education in the sciences and engineering rarely offers the training and experiences that fully prepare graduates to enter directly into non-academic research and leadership positions. The Interdisciplinary PhD Program in Bioinnovation at Tulane University challenges this paradigm by cultivating in its students the ability to develop clinically-relevant biomedical technologies that have the potential to evolve into marketable products. Participating fellows benefit from and expand upon an environment of translational research at Tulane that spans the School of Science & Engineering (SSE), School of Medicine (SOM) and School of Public Health and Tropical Medicine (SPHTM). Simultaneous collaborations with the Business and Law Schools, industry partners and the FDA provide fellows with a strong foundation in entrepreneurship and regulation. This program was initiated in 2012 by an NSF Integrative Graduate Education and Research Traineeship (IGERT) award.

Training within this program emphasizes bioinnovation, which we define as the development and progression to the marketplace of clinically relevant biomedical technologies and devices.

Requirements

Course ID	Title	Credits
Quantitative Fundamentals (choose two courses)		
BIOS 6040	Intermediate Biostatistics	3
BIOS 7080	Design of Experiments	3
CENG 6450	Applied Biochemistry I	3
FINE 7140	Venture Capital & Private Equity	3
GBCH 7250	Biomedical Statistics and Data Analysis	2
MATH 6470	Analy Methods Appl Math	3
MATH 7360	Data Analysis	3
Biological Systems (choose two courses)		
BMEN 6030	Anatomy & Physio for Engr	3
BMEN 6070	Quant Physio Lec	3
BMEN 6260	Molec Princ Funct Biomatr	3
BMEN 6400	Biomaterials & Tissue Engineering	3
BMEN 6430	Vascular Bioengineering	3
BMSP 6070	Advanced Cell Biology	3
BMSP 7770	Physiological Basis of Disease	3
CELL 6750	Cell Biology	3
CENG 6770	Advances In Biotechnolog	3
NSCI 6310	Cellular Neuroscience	3
TRMD 6170	Immunology	3
Modeling and Transport Phenomena (choose two courses)		
BMEN 6330	Advanced Biofluid Mech	3
BMEN 6420	Transport in Cells and Organs	3
BMEN 6790	Design Studio	3
BMEN 6820	Math Analysis Bio Systms	3
COSC 6100	Data Visualization	3
COSC 6200	Large Scale Computation	3
COSC 6600	Comput Model Biomed Sys	4
MATH 7350	Scientific Computing I	3
Entrepreneurship (choose three courses)		
4LAW 5410	Intellectual Property	3
MGMT 7210	Management of Technology and Innovation	3
SCEN 6000	Entrepreneurship Eng & Biosci	3
Other Requirements		
SCEN 7010	Bioinnovation Internship	6
SCEN 7020	Bioinnovation Research	3