



BS Biological Eng/MS Pharmacy (Non-thesis)
Effective FALL 2023

YEAR FOUR

Fall Courses		Hours	Spring Courses		Hours
BIOE 4740	Biomaterials	3	BIOE 4760	Biomechanics	3
BIOE 4910	Engineering Design Project I	2	BIOE 4911	Engineering Design Project II	2
BIOE 6625*	Tissue Engineering	3	BIOE 6720*	Biomedical Device Design	3
PMCY 6500*	Pharm Drug Development	3	PMCY 6510*	Adv Drug Delivery Systems	3
XXXX	Elective	3	XXXX	Elective	3
XXXX	BIOE Lab Elective	3	XXXX	Elective	3
Total		6/17	Total		6/17

*For DD program - only 12 credit hours will be counted towards MS, you can choose the remaining as 4XXX level

Summer Courses	Hours
PHRM 7080 Pharmaceutical Sciences Internship	3
Total	3

YEAR FIVE

Fall Courses		Hours	Spring Courses		Hours
PHRM 6800	Applied Project in Pharm Biomed Sci	3	BIOE 6650	Animal Cell Biomanufacturing	3
PHRM 7230E	Ethical Issues in Biomed Research OR	3	PMCY 6600	Biological Therapeutics	3
BIOE 6780	Regulations and Ethics of BIOE		PHAR 6030E	Current Good Manufacturing Practices	4
PHAR 6010E	Intro to Drugs, Biologics Dev FDA	4	PHRM 6950	Applied Project Writing and Defense	3
PHAR 6120E	Process Control & Validation	3	XXXX	PHRM Elective	2
GRSC 7001	GradFIRST Seminar	1	BIOE XXXX	BIOE Elective	3
Total		14	Total		18

TOTAL CREDIT HOURS FOR MS - 6 + 6 + 3 + 14 + 18 = 47

Selection of a major advisor and PHRM 6800 Master's Applied Project needs to be discussed with the Major Advisor in **YEAR FOUR**. MS project work to be completed and presented in PHRM 6950 Spring Year FIVE.

Elective Offerings (Must choose one elective from each group)

Pharmacy Elective Options

PMCY 6410E (2 credits) – Robotics in Drug Discovery
 PMCY 6420E (2 credits) – Drug Discovery and Toxicology
 PMCY 6430E (2 credits) – Biopharm. and PK
 PHAR 6xxxE (2 credits) – Reg. Sci. Cell Manufacturing

BIOE Lab Elective Options

BIOE 4960R (3 credits) – Undergraduate Research
 BIOE 4750 (3 credits) – Biomedical Eng Laboratory
 ENGR 3910 (3 credits) – Cooperative Work Experience

BIOE Professionalism Elective Options (3rd yr)

BIOE 2100 Bioengineering Professional Persona
 BIOE 4780 Regulations and Ethics in BME
 ELEE 4545 Engineering Entrepreneurship
 ENGR 4570 International Engineering Project Management