

Imaging & Sensing Track Curriculum Map

Fall Year 1 (17 hrs)	Spring Year 1 (16 hrs)	Fall Year 2 (17 hrs)	Spring Year 2 (18 hrs)	Fall Year 3 (16 hrs)	Spring Year 3 (17 hrs)	Fall Year 4 (12/13 hrs)	Spring Year 4 (14/15 hrs)
MATH 221 (4) Calculus I	MATH 231 (3) Calculus II	MATH 241 (4) Calculus III	MATH 285 (3) Intro Diff Eq.	BIOE 476 (3) Tissue Engineering	BIOE 310 (3) Comp. Tools for Bio Data	BIOE 400 (4) Sr. Design or Free Elective (3)	BIOE 400 (4) Sr. Design or Free Elective (3)
ENG 100 (1) Engineering Lecture	PHYS 211 (4) Univ. Physics, Mechanics	PHYS 212 (4) Univ. Physics, Elec & Mag	BIOE 205 (3) Systems in Bioengineering	BIOE 302 (3) Modeling Human Physiology	BIOE 360 (3) Transport & Flow in Bioengineering	BIOE 420 (3) Intro. Bio Control Systems	
BIOE 100 (1) BIOE Freshman Seminar	BIOE 120 (1) Introduction to Bioengineering	CS 101 (3) Intro. to Comp or CS 124 (3)	BIOE 210 (3) Linear Algebra for Biomedical Data Science		BIOE 414 (3) Biomedical Instrumentation		
RHET 105 (4) Principles of Composition	MCB 150 (4) Molec&Cellular Basis of Life	BIOE 201 (3) Conservation Princ Bioeng	BIOE 202 (2) Cell & Tissue Engineering Lab	BIOE 303 (2) Quant Human Physiology Lab			
CHEM 102 (3) General Chemistry I	CHEM 104 (3) General Chemistry II	BIOE 206 (3) Cellular Bioengineering	CHEM 232 (4) Organic Chemistry I		BIOE 415 (2) Biomedical Instrumentation Lab		
↓ C	↓ C	BIOE 200 (1) BIOE Career Immersion					
CHEM 103 (1) General Chem Lab I	CHEM 105 (1) General Chem Lab II			Track Elec (3)		Free Elec (3)	Track Elec (3)
SS/Hum (3)				Free Elec (1)	Track Elec (3)	Track Elec (3)	Track Elec (2)
				SS/Hum (3)	Free Elec (3)		SS/Hum (3)

** Note – not taking courses as advised may result in a delayed graduation date. Students are responsible for any impact resulting from not following departmental advising.

** If outlined in RED then the BIOE course is offered both Fall & Spring Semesters

**Courses with dashed line borders are not currently required as part of the Core BIOE Curriculum

Imaging/Sensing Track Electives

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| <ul style="list-style-type: none"> • BIOE 424 - Preclinical Molecular Imaging (3 hr) • BIOE 450 - Quantitative Pharmacology (3 hr) • BIOE 483 - Biomedical Computed Imaging Systems (3 hr) • BIOE 484 - Stat Analysis of Biomedical Images (3 hr) • BIOE 485 - Comp Math for Machine Learning/Imaging (4 hr) • BIOE 486 - Applied Deep Learning for Biomedical Imaging (3 hr) • BIOE 498 NIE/ST1 - Surgical Technologies (3 hr) • BIOE 498 AL - Immunoengineering (3 hr) • BIOE 498 TL - Intro to Systems Bio (3 hr) • BIOE 498 LEC/TC1 - Tech for Cancer Diag & Therapy (3 hr) • BIOE 498 RI - Regulatory Safety Issue in Bioengineering (3 hr) • ECE 210 - Analog Signal Processing (4 hr) • ECE 329 - Fields and Waves I (3 hr) • ECE 310 - Digital Signal Processing (3 hr) • ECE 311 - Digital Signal Processing Lab (1 hr) • ECE 365 - Data Science & Instrumentation (3 hr) • ECE 380 - Biomedical Imaging (3 hr) • ECE 401 - Signal & Image Analysis (4 hr) | <ul style="list-style-type: none"> • ECE 416 - BioSensors (3 hr) • ECE 417 - Multimedia Signal Processing (4 hr) • ECE 418 - Image & Video Processing (4 hr) • ECE 437 - Sensors & Instrumentation (3 hr) • ECE 460 - Optical Imaging (4 hr) • ECE 467 - BioPhotonics (3 hr) • ECE 472 - Biomedical Ultrasound Imaging (3 hr) • ECE 473 - Fundamental of Engineering Acoustics (3 hr) • ECE 480 - Magnetic Resonance Imaging (3 hr) • SE 423 - Mechatronics (3 hr) • ME 487 - MEMS-NEMS Theory & Fabrication (4 hr) • TMGT 461 TMD/TME - Tech, Eng, & Mngmt Project (4 hr) • ECE/NE 410 - Neural Circuits & Systems (3 hr) • ECE 421/NE 420 - Neural Interface Engineering (3 hr) |
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*Note, ECE 210 & ECE 329 are no longer required track electives. However, this pathway is necessary to meet prereqs for the **bolded** ECE upper level courses so please check what course you want to take when deciding.

General Education Requirements

- ☐ 6 hours in Humanities
- ☐ 6 hours in Social/Behavioral Sciences
- ☐ 1 Advanced Composition Course
- ☐ 1 Western Comparative Cultures Course
- ☐ 1 Non-Western Comparative Cultures Course
- ☐ 1 US Minority Cultures Course
- ☐ Language Other Than English

PreMed Requirements

- ☐ Meet with The Career Center for Premed advising
- ☐ Common Courses (*additional requirements may apply depending on school*):
 - ☐ MCB 450/354 (BioChem)
 - ☐ CHEM 233 (Orgo 1 lab)
 - ☐ Social/Behavioral Science Sequence (3 courses)