Bioelectronics & Biophotonics Minor
2023-2024 Curriculum Chart

*This minor cannot be combined with the Bioelectronics concentration of the former Bioengineering major, the EE BS, or the EE minor*

Mathematics & Statistics

- **MATH 19A**
  Calculus

- **MATH 19B**
  Calculus

  **OR**

  - **AM 10**
    Math Methods for Engineers I

  - **MATH 21**
    Linear Algebra

  **OR**

  - **AM 20**
    Math Methods for Engineers II

  - **MATH 24**
    Ordinary Differential Equations

Physics

- **PHYS 5A/L**
  Intro to Physics I/Lab

- **PHYS 5C/N**
  Intro to Physics III/Lab

Biology & Biotechnology

*(Pick one)*

- **BME 140**
  Bioinstrumentation

- **ECE 104**
  Bioelectronics

- **ECE 130/L***
  Introduction to Optoelectronics and Photonics/Lab

*ECE 130 & ECE 130L requires Phys 5B*

Computer Engineering

- **CSE 12**
  (7 units)
  Computer Systems & Assembly Language/Lab
  (Prerequisites: CSE 20, or CSE 30, or BME 160, or equivalent)

- **ECE 13**
  (7 units)
  Computer Systems & C Programming

- **CSE 100/L**
  Logic Design/Lab

- **ECE 101/L**
  Intro to Electronic Circuits/Lab

- **ECE 103**
  Signals & Systems

- **ECE 121**
  (7 units)
  Microcontroller System Design

- **ECE 167**
  (7 units)
  Sensing & Sensor Technologies/Lab

Electronics
The bioelectronics and biophotonics minor is designed for students in chemical, biological, environmental sciences, and biomolecular engineering to learn how to interface biological systems with electronics including sensors, actuators, and wireless communications. Introductory chemistry and physiology is desired, but not required.

Essential courses for the minor in bioelectronics and biophotonics deal with the analog electronics to interface biological systems to sensors and with the signals they produce, both analog and digital, for interfacing to computer systems. The minor requirements may satisfy the requirements of other majors or minors. The minor cannot be combined with the bioelectronics concentration of the former bioengineering major or the electrical engineering B.S. or electrical engineering minor.