MICROFLUIDICS IN BIOMEDICAL SCIENCES TRAINING PROGRAM
UNIVERSITY OF MICHIGAN

Note: These courses are required to fulfill the MBSTP program requirements. These do not reflect the requirements for Certificate Programs or other

CORE COURSE

- CHE 696 - Introduction to BioMEMS and Microfluidics

APPROVED BIOLOGY COURSES

One required:

- 415 Introductory Biochemistry
  Prerequisite: Two Terms of Organic Chemistry equivalent to Chem. 225 and 226. No credit to those who have completed or are enrolled in Biology 411.
- Biology 525/526 - Chemical Biology I & II
- Biology 427 - Molecular Biology
  Prerequisite: Biology 305; Biology 310, 311; Biochem. 415 or Chem. 451; or Graduate Standing
- Biology 428 - Cell Biology
- Biological Chemistry 578 - Biochemical Techniques
- CDB 530 Cell Molecular Biology

ELECTIVES

Taking at least one of the following courses is recommended, but not required:

Chemical Engineering Courses:

- 444 - Applied Chemical Kinetics
- 527 - Fluid flow
  Prerequisite: ChemE 341
- 543 Advanced Separations Processes
  Prerequisite: ChemE 343
- Additional ChE Courses (currently listed as ChE 696):
  - Biomolecular Engineering, Instructor: Joerg Lahann
  - Nana-bio Assemblies, Instructor: Mark Burns, Ron Larson
  - Nanocolloids and Nanomaterials, Instructor: Nick Kotov
  - Molecular Systems Biology, Instructor: Peter Woolf

Electrical Engineering Courses:

- EECS 423 - Solid –State Device Laboratory
  Prerequisite: EECS 320 or Graduate Standing
- EECS 425 - Integrated Microsystems Laboratory
  Prerequisite: EECS 311, or EECS 312, or EECS 414, or Graduate Standing
- EECS 528 - Principles of Microelectronics Process Technology
  Prerequisite: EECS 421 or EECS 423
- EECS 515 - Integrated Microsystems
  Prerequisite: EECS 414

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Biomedical Engineering Courses:

- BiomedE 476 (ME 476) – Biofluid Mechanics
  Prerequisite: ME 235, ME 320, and ME 370
- BiomedE 479- Biotransport
  Prerequisite: Math 216, ME 330, or permission of instructor
- BiomedE 561- Biological Micro- and Nanotechnology
  Prerequisite: Biology 162, Intro Physics and Chemistry, Senior Standing or permission of instructor

Mechanical Engineering Courses:

- ME 406 – Biomechanics for Engineering Students
- ME 476 (BME 476) – Biofluid Mechanics

Material Science Engineering Courses:

- MSE 410 – Biomaterials
- MSE 505 – Materials Science of Thin Films
- MSE 512 – Polymer Physics
- MSE 516 - Mechanics of Thin Films
- MSE 583 – Biocompatibility of Materials

Chemistry Courses:

- Chemistry 545 – Analytical Chemistry
  Prerequisites: Chem 447, 461
- Chemistry 646 – Separation Processes
  Prerequisites: Che 545 and Graduate Standing