Meining School of Biomedical Engineering Degree Requirements:
3 Engineering design: BME 5500 – Innovation and Design of Biomedical Technologies. Fall.
6 MEng Project (6 credits minimum): BME 5910 (2 credits – 1st semester) and BME 5920 (4 credits – 2nd semester)
12 BME Core (no more than 6 credits outside the College of Engineering)
1 BME Seminar: BME 5010 (S/U). Fall or Spring
8 Electives

BME Core

Cellular Engineering, Tissue Engineering, and Drug Delivery Area:

Fall Courses:
AEP 4700 – Biophysical Methods
BEE 4640 – Biosensors and Bioanalytical Techniques
BIOMG 3850 – Developmental Biology
BIOMG 6310 – Protein Structure and Function
BME 4810 – Biomedical Reaction Engineering (next offered FA16)
BME 5830 – Cell-Biomaterials Interactions
BME 6310 – Principles of Drug Delivery
CHEME 5430 – Bioprocess Engineering
MAE 6630 – Immuno-Engineering

Spring Courses:
AEP 5520 – Physics of Life
BEE 7600 – Nucleic Acid Engineering
BIOAP 4580 – Mammalian Physiology
BIOMG 4320 – Cell Biology
BME 5400 – Biomedical Computation
BME 5850 – Practice in Tissue Engineering
BME 6501 – Natural Engineering: Developmental Biology Paradigms for Regenerative Medicine
BME 6650 – Principles of Tissue Engineering (next offered SP17)
BME 6840 – Cancer for Engineering and Physicists (Next offered SP17)
CHEME 5440 – Systems Biology in Biotechnology and Medicine (next offered SP17)
CHEME 7740 – Principles of Molecular Stimulation
CHEME 7770 – Advanced Principles of Bimolecular Engineering

Biomedical Mechanics and Biomaterials Area:

Fall Courses:
BME 5810 – Soft Tissue Biomechanics OR BME 6640 – Mechanics of Bone
BME 5830 – Cell-Biomaterials Interactions
BME 6690 – Biofluid Mechanics and Physiological Transport (next offered SP17)
MAE 6240 – Physics of Micro and Nanoscale Fluid Mechanics

Spring Courses:
BEE 3400 – Design and Analysis of Biomaterials
BME 5390/FSAD 4390 – Biomedical Materials and Devices for Human Body Repair
BME 5400 – Biomedical Computation
BME 6501 – Natural Engineering: Developmental Biology Paradigms for Regenerative Medicine
BME 4640 – Orthopaedic Tissue Mechanics (next offered SP17)
MAE 5650 – Biofluid Mechanics
MSE 4610 – Biomedical Materials and their application
MSE 5130 – Mechanobiology of Materials and Cells
MSE 5620 – Biomineralization: The Formation and Properties of Inorganic Biomaterials

College of Engineering Requirements: At least 30 credits (no more than 2 credits graded S/U), a GPA of 2.5, and no grade lower than a C-.
Bioinstrumentation and Diagnostics Area:

**Fall Courses:**
- BEE 4590 – Biosensors and Bioanalytical Techniques
- BEE 4600 – Deterministic and Stochastic Modeling in Biological Engineering
- BEE 6550 – Biologically Inspired Microsystems Engineering
- BME 4110 – Science and Technology in Human Health
- BME 4980 – Introduction to Systems and Synthetic Biology (not currently being offered)
- BME 5700 – Biophysical Methods
- BME 5710 – Analytical Techniques for Material Science
- BME 6180 – Principles of Medical Imaging
- BME 6260 – Biomedical Optics, Imaging, and Spectroscopy
- BME 6670 – Nanobiotechnology
- ECE 5040/BME 5040 – Neural and Bioelectronic Interfaces
- MAE 6240 – Physics of Micro and Nanoscale Fluid Mechanics

**Spring Courses:**
- BEE 4500 – Bioinstrumentation
- BEE 4530 – Computer-Aided Engineering: Applications to Biomedical Processes
- BME 4910 – Principles of Neurophysiology
- BME 5030 – Electronic Bioinstrumentation
  (next offered SP17)
- BME 5400 – Biomedical Computation
- BME 5780 – Computer Analysis of Biomedical Images
- BME 7310 – Advanced Biomedical Engineering Analysis of Biomedical Systems
- MAE 6620 – Biomedical Tech. for Point-of-Care Diag. and Mobile and Global Health

**Electives:**

**Leadership Development:**
1) Any courses in the Johnson Graduate School of Management in the NBA or NCC categories at 5000 level or above.
   For example:
   - NBA 5070 – Entrepreneurship for Scientists and Engineers. Fall or Spring.
   - NBA 5150 – Leadership Theory and Practice. Fall or Spring.

2) Any courses in the Dyson School 5000 level or above.
   In addition the following courses are preapproved:
   - AEM 3340 – Women, Leadership, and Entrepreneurship. Fall.
   - AEM 4660 – Market Dynamics, Computer Simulation and Modeling. Fall or Spring.

3) Additional Relevant Courses:
   - BEE 5400 – Engineering Ethics and Professional Practice. Next offered FA16
   - BME 5100 – Clinical Preceptorship for Biomedical Engineers. Fall or Spring.
   - BME 5960 – Business and Management Fundamentals for Biomedical Engineers. Fall or Spring.
   - MAE 4610 – Entrepreneurship for Engineers. Fall. (preapproved in regardless of 4000 level)

**Science and Engineering:**
1) Any course at the 5000 level or above offered by the College of Engineering.
2) Any course at the 4000 level or above offered by the Department of Physics (College of Arts and Science), the Department of Chemistry and Chemical Biology (College of Arts and Sciences), or the various departments in the College of Agriculture and Life Sciences or the College of Arts and Sciences that participate in the Biological Sciences.

**Unpaid off-campus internship with industry (student must gain knowledge and experience) in the field of BME:**
- BME 5940 – Master of Engineering Internship. Fall or Spring.

**Larger Scope MEng Project** (requires project advisor and MEng director approvals) – BME 5930-Independent Design Project. Fall or Spring.
Project expectation will exceed the 6 credit minimum