

Proposed Requirements for BME Concentration (Pending Approval)

Foundation Courses (13 - all required)

| | |
|---------------------------------|-------------------------------|
| EN 3 | Introduction to Engineering |
| EN 4 | Dynamics and Vibration |
| MA 19 or 17 | AP Calculus |
| MA 20 | Intermediate Calculus |
| BI20 or BN1 | Introductory Biology/Neurosci |
| AM 33 | Methods in Applied Math |
| CH 33 | Inorganic Chemistry |
| CH 35 | Organic Chemistry |
| AM 65 or AM165 or SO110, BC 203 | Statistics (Biostatistics) |
| EN 51 | Electricity and Magnetism |
| EN 72 | Thermodynamics EN 100 |
| EN 81 | Fluidmechanics |
| EN 123 | Instrument Design |

Additional Engineering Courses (any 2 or 5)

| | |
|--------|-------------------------------|
| EN 31 | Solid Mechanics |
| EN 41 | Materials |
| EN 52 | Electric Circuits and Signals |
| EN 121 | Biomechanics |
| EN 149 | Biomaterials |
| EN 157 | Linear System Analysis |

Additional Biology Courses (any 2 of 6)

| | |
|--|--------------|
| BI 47 | Genetics |
| BI 53 | Immunology |
| BI 80 or 117 | Physiology |
| BI 105 or 106 | Cell Biology |
| BN 102 or 167 | Neurobiology |
| BI 189 | Histology |
| Other courses with approval of concentration advisor | |

Bioengineering Electives (any 3 of 13)

| | |
|--|-------------------------------------|
| BI 104 | S01 Animal Locomotion |
| BI 108 | Organ Replacement |
| BI 109 | Polymer Science for Biomaterials |
| EN 111* | Transport Phen in Chem & Biomed Eng |
| EN 112* | Chemical and Bioreactor Design |
| BI 114 | Tissue Engineering |
| EN 121** | Biomechanics |
| EN 122 | Neuroscience |
| EN 149** | Biomaterials |
| BI 172 | Scientific basis of Medical Imaging |
| EN 193 | Medical Imaging |
| PH 199 | S0 4 Biological Physics |
| BI 211 | Drug and Gene Delivery |
| BI 213 | Techniques in Molecular & Cell Sci |
| BI 214 | Experimental Surgery |
| EN 298 | Solid Biomechanics |
| Other courses with approval of concentration advisor | |

*Pending Approval

**Unless already taken to satisfy requirement under "Additional Engineering Courses"

Design & Research Project (one semester required; two strongly recommended)

EN/BI 195/6

This curriculum will be required for the class of 2007 onward. Students in the class of 2006 may take either the new curriculum (assuming timely approval) or the existing curriculum.

Existing Requirements for BME Concentration

Basic Science and Mathematics (5)

| | |
|---------------|--------------------------------|
| CH 33 | Inorganic Chemistry |
| CH 35 | Organic Chemistry |
| MA 19 (or 17) | Calculus I, II |
| MA 20 | Intermediate Calculus |
| MA 33 | Methods in Applied Mathematics |

Engineering Courses (7)

| | |
|------------------|-------------------------------|
| EN 3 | Introduction to Engineering |
| EN 4 | Dynamics and Vibration |
| EN 41 | Materials Science |
| EN 31, 51, or 81 | Field Course |
| EN 52 | Electrical Circuits & Signals |
| EN 72 | Thermodynamics |
| EN 123 | Instrumentation Design |

Biology Courses (5)

| | |
|------------------|------------------------------|
| BI 20 | Foundation of Living Systems |
| BI 47 | Genetics |
| BI 53 | Immunology |
| BI 80 or 17 | Physiology |
| BI 105, 106, 189 | Cell Biology |

Biotechnology Series (1)

| | |
|--|-------------------------------------|
| BI 017 | Biotechnology in Medicine |
| BI 017 | Biotechnology in Medicine |
| BI 104 | S-01, Animal Locomotion |
| BI 108 | Organ Replacement |
| BI 109 | Polymer Science for Biomaterials |
| BI 112 | Biomaterials |
| BI 114 | Tissue Engineering |
| BI 172 | Scientific Basis of Medical Imaging |
| BI 211 | Drug and Gene Delivery |
| BI 213 | Techniques in Molecular & Cell Sci |
| BI 214 | Experimental Surgery |
| Other courses with approval of the concentration advisor | |

Bioengineering Series (1)

| | |
|--|--------------------|
| EN 121 | Biomechanics |
| EN 122 | Neuroengineering |
| EN 149 | Biomaterials |
| EN 298 | Solid Biomechanics |
| Other courses with approval of the concentration advisor | |

BME Undergraduate Advisors:

Lysaght@Brown.Edu
Tayhas_Palmore@Brown.Edu

Honors in BME:

Diane_Hoffman-Kim@Brown.Edu

Brown Graduate BME Program:

Jeffrey_Morgan@Brown.Edu

No formal tracks are established at this time but students with different interests might make the following selections from the "menus".

Biomaterials: EN41; EN149; BI53; BI189; BI109; BI114; BI213

Tissue Engineering & Regenerative Medicine: EN121; EN149; BI47; BI80; BI108; BI114; BI213

Biomechanics: EN31; EN 121; BI53; BI80; BI108; BI109; EN298

Instrumentation, Imaging, Neuroengineering: EN52; EN157; BI80; BI102; EN 122; BI172; BI211