

Biomedical Engineering Degree Plan – Biomedical and Molecular Imaging

First year BME students take 12 credit hours in the fall and spring, and 6 credit hours in the summer. In subsequent years they are enrolled in 9 credit hours in fall and spring, and 6 credit hours in the summer. Typically, didactic course work is completed in the first two years, and in subsequent years students are enrolled for research, seminars or journal clubs totaling full-time enrollment equivalency. Advancement of the student to Ph.D. candidacy is dependent upon passing the qualifying examination (Exam I), which generally takes place in the second year. A typical degree plan for students with a research focus in Biomedical and Molecular Imaging is shown below. Additional Advanced Elective courses can be taken with permission from the student's research supervisor.

| Year | Term | Title | Credit Hour | Total Credit Hrs/Term |
|---|---------------------------------|---|-------------|-----------------------|
| First Year | Fall | Professionalism, Responsible Conduct of Research, and Ethics I | 1 | |
| | | Biomedical Image Processing | 3 | |
| | | Introduction to Biomedical and Molecular Imaging | 3 | |
| | | Laboratory Rotations | 5 | Semester Total: 12 |
| | Spring | Professionalism, Responsible Conduct of Research, and Ethics II | 1 | |
| | | Basic Principles of MRI | 3 | |
| | | Metabolic Imaging of Disease | 3 | |
| | | Laboratory Rotations | 5 | Semester Total: 12 |
| | Summer | Human Physiology | 3 | |
| | | Research | 3 | Semester Total: 6 |
| Second Year | | | | |
| Second Year | Fall | Works in Progress in Biomedical Engineering | 1 | |
| | | BME Exam 1 Preparation Course | 1 | |
| | | Mathematical Biostatistics | 3 | |
| | | Molecular Probe Development | 3 | |
| | | Research | 1 | Semester Total: 9 |
| | Spring | Works in Progress in Biomedical Engineering | 1 | |
| | | BME Exam I (Qualifying Exam) | 1 | |
| | | Research | 7 | Semester Total: 9 |
| | Summer | Dissertation Research | 6 | Semester Total: 6 |
| | Third Year | | | |
| Third Year | Fall | Works in Progress in Biomedical Engineering | 1 | |
| | | Dissertation Research | 8 | Semester Total: 9 |
| | Spring | Works in Progress in Biomedical Engineering | 1 | |
| | | BME Exam II (Dissertation Proposal) | 1 | |
| | | Dissertation Research | 7 | Semester Total: 9 |
| | Summer | Dissertation Research | 6 | Semester Total: 6 |
| | Fourth Year & Beyond | | | |
| Fourth Year & Beyond | Fall | Works in Progress in Biomedical Engineering | 1 | |
| | | Dissertation Research | 8 | Semester Total: 9 |
| | Spring | Works in Progress in Biomedical Engineering | 1 | |
| | | Dissertation Research | 8 | Semester Total: 9 |
| | Summer | Dissertation Research | 6 | Semester Total: 6 |
| Minimum Credit Hours for PhD 102 | | | | |

| Advanced Elective Courses (Partial List) | Credit Hour | Campus | Course # |
|---|--------------------|---------------|-----------------|
| Multiscale Microscopy for Biomedical Research | 3 | UTSW | CMB 5306 |
| Advanced NMR Spectroscopy | 1.5 | UTSW | MB 5154 |
| Medical Imaging Techniques | 3 | UTD | BMEN 6394 |
| Biomedical Image Processing | 3 | UTD | BMEN 6395 |
| Image-Guided Drug Delivery | 3 | UTD | BMEN 6366 |
| Engineering Systems Modeling and Simulation | 3 | UTD | BMEN 6372 |
| Introduction to Medical Device Development | 3 | UTD | BMEN 6330 |
| Physiology and Immunology for Engineers | 3 | UTD | BMEN 6373 |
| Medical Imaging | 3 | UTA | BE 5346 |
| Digital Processing of Biological Signals | 3 | UTA | BE 5352 |
| Tissue Ultrasound – Optical Imaging | 3 | UTA | BE 5326 |
| Human Physiology in Bioengineering | 3 | UTA | BE 5309 |

For more detailed descriptions and additional listings of courses available, see the UTSW course descriptions webpages or the websites below.

http://www.utdallas.edu/student/catalog/gradcurrent/ECS/BME/coursedescriptions_biomed.htm

<http://catalog.uta.edu/engineering/bio/>