

MS with Project, Focus in Nanomedicine (12 month program)

FALL

SPRING

Required Courses (8 cr):

BE 790 Biomedical Engineering Seminar, 0 cr

EK 481 Fundamentals of Nanomaterials and Nanotechnology, 4 cr

BE 745 Nanomedicine Principles and Applications, 4 cr

Choose one (4 cr):

BE 605 Molecular Bioengineering I

BE 606 Quantitative Physiology for Engineers

Math Requirement, choose one (4 cr):

EC 505 Stochastic Processes, 4 cr

EK 501 Mathematical Methods I: Linear Algebra and Complex Analysis, 4 cr

MA 561 Methods of Applied Mathematics I, 4 cr

MA 579 Numerical Methods for Bio. Sciences, 4 cr

MA 681 Accelerated Introduction to Statistical Methods for Quant. Research, 4 cr

ME 566 Advanced Engineering Mathematics, 4 cr

PY 501 Mathematical Physics, 4 cr

BE 601 Linear Algebra, 2 cr*

BE 604 Statistics and Numerical Methods, 2 cr*

MA 565 Mathematical Models in the Life Sciences, 4 cr

MA 684 Applied Multiple Regression and Multivariable Methods, 4 cr

BE 602 Ordinary Differential Equations, 2 cr*

BE 603 Partial Differential Equations, 2 cr*

*= BE 601 (fall only) is required plus BE 602, 603 or 604

BE 747 Advanced Signals and Systems Analysis for Biomedical Engineering, 4 cr

Choose four (16 cr), at least two from BE:

CH 629 DNA Nanotechnology, 4 cr

BE 504 Polymers and Soft Materials, 4 cr

BE 515 Introduction to Medical Imaging, 4 cr

BE 517 Optical Microscopy of Bio. Materials, 4 cr

BE 526/726 Fundamentals of Biomaterials, 4 cr

BE 535 Cell Mechanics, 4 cr

BE 549 Structure Fn of the Extracellular Matrix, 4 cr

BE 560 Biomolecular Architecture, 4 cr

EC 577 Electrical, Optical and Magnetic Properties of Materials, 4 cr

ME 555 MEMS: Fabrication and Materials, 4 cr

ME 579 Nano/Microelectronic Device Technology (also offered Summer), 4 cr

GMS BT 520 Biology of Cancer, 4 cr

BE 511, Biomedical Instrumentation, 4 cr

BE 527/727 Principles and Applications of Tissue Engineering, 4 cr

BE 565 Molecular Biotechnology, 4 cr

BE 566 DNA Structure and Function, 4 cr

BE 765 Biomedical Optics and Biophotonics, 4 cr

BI 576 Carcinogenesis, 4 cr

EC 777 Nano-Optics, 4 cr

ME 528 Biological Physics, 4 cr

ME 546 Introduction to Micro/Nanofluidics, 4 cr

Offered in Summer:

BI 551S Biology of Stem Cells, 4 cr

BE 569S Next Generation Sequencing, 4 cr

SUMMER

Required Courses (4 cr):

BE 951S Independent Study, 4 cr

MS with Project, Focus in Nanomedicine (9 month program)

F A L L

S P R I N G

Required Courses (12 cr):

BE 790 Biomedical Engineering Seminar, 0 cr

BE 745 Nanomedicine Principles and Applications, 4 cr

EK 481 Fundamentals of Nanomaterials and Nanotechnology, 4 cr

BE 951 Independent Study, 4 cr

Choose one (4 cr):

BE 605 Molecular Bioengineering I

BE 606 Quantitative Physiology for Engineers

Math Requirement, Choose one (4 cr):

EC 505 Stochastic Processes, 4 cr

MA 565 Mathematical Models in the Life Sciences, 4 cr

EK 501 Mathematical Methods I: Linear Algebra and Complex Analysis, 4 cr

MA 684 Applied Multiple Regression and Multivariable Methods, 4 cr

MA 561 Methods of Applied Mathematics I, 4 cr

BE 602 Ordinary Differential Equations, 2 cr*

MA 579 Numerical Methods for Bio. Sciences, 4 cr

BE 603 Partial Differential Equations, 2 cr*

MA 681 Accelerated Introduction to Statistical Methods for Quant. Research, 4 cr

*= BE 601 (fall only) is required plus BE 602, 603 or 604

ME 566 Advanced Engineering Mathematics, 4 cr

BE 747 Advanced Signals and Systems Analysis for Biomedical Engineering, 4 cr

PY 501 Mathematical Physics, 4 cr

BE 601 Linear Algebra, 2 cr*

BE 604 Statistics and Numerical Methods, 2 cr*

Choose four (16 cr), at least two from BE:

CH 629 DNA Nanotechnology, 4 cr

BE 511, Biomedical Instrumentation, 4 cr

BE 504 Polymers and Soft Materials, 4 cr

BE 527/727 Principles and Applications of Tissue Engineering, 4 cr

BE 515 Introduction to Medical Imaging, 4 cr

BE 565 Molecular Biotechnology, 4 cr

BE 517 Optical Microscopy of Bio. Materials, 4 cr

BE 566 DNA Structure and Function, 4 cr

BE 526/726 Fundamentals of Biomaterials, 4 cr

BE 765 Biomedical Optics and Biophotonics, 4 cr

BE 535 Cell Mechanics, 4 cr

BI 576 Carcinogenesis, 4 cr

BE 549 Structure Fn of the Extracellular Matrix, 4 cr

EC 777 Nano-Optics, 4 cr

BE 560 Biomolecular Architecture, 4 cr

ME 528 Biological Physics, 4 cr

EC 577 Electrical, Optical and Magnetic Properties of Materials, 4 cr

ME 546 Introduction to Micro/Nanofluidics, 4 cr

ME 555 MEMS: Fabrication and Materials, 4 cr

ME 579 Nano/Microelectronic Device Technology, 4 cr

GMS BT 520 Biology of Cancer, 4 cr