Revised 3/15/18

BME M.S./M.Eng Program Curriculum

FALL Year 1

16:125:xxx	BME Core Course (3cr)
16:125:xxx	BME Core Course (3cr)*
16:125:xxx	Bioengineering Elective (3cr)
16:125:501	Mathematical Modeling for BME (3cr)
16:125:601	Engineering Ethics/Seminar(1cr)
BME Seminars	(attendance required)

Advisor Selection Forms (December through June)

SPRING Year 1

16:125:xxx	BME Core Course (3cr)
16:125:xxx	BME Core Course (3cr)*
16:125:xxx	Bioengineering Elective (3cr)
16:125:586	Structure and Dynamics in Adult and Stem Cell Biology (3cr)
16:125:602	Engineering Writing/Seminar (1cr)
BME Seminars	(attendance required)

FALL & SPRING Year 2

16:125:xxx	Bioengineering Elective (3cr)
16:125:xxx	Bioengineering Elective (3cr) (As Needed)
16:125:628	Clinical Practicum (1cr)
16:125:701/702	Research (3cr/3cr)
16:125:699	Non-Thesis Study (3cr) (M.Eng Only)
BME Seminars	(attendance required)

BME Core Courses **Must take 3 out of 5:**

1)	16:125:561	BioImaging Methods (3cr)
2)	16:125:571	Biosignal Processing and Biomedical Imaging (3cr)
3)	16:125:572	Biocontrol, Modeling and Computation (3cr)
4)	16:125:573	Kinetics, Thermodynamics and Transport in Biomedicine (3cr)
5)	16:125:574	Biomechanics and Biomaterials (3cr)

Physiology

Students **must** have taken an UG level Physiology course previously or the following course must be taken.

1)	16:125:581	Mammalian Physiology (online course-3cr)
OR	Other Rutgers or RWJMS Physiology Courses – Contact the Graduate Program for information	

Advanced Engineering Mathematics^

1)	16:125:501	Mathematical Modeling for BME (3cr)

^Students may be asked to complete an alternate graduate-level math course based on need or availability. Students wishing to take an alternate math class should petition the graduate program director.

Advanced Cell Biology

1)	16:125:586	Structure and Dynamics in Adult and Stem Cell Biology (3cr)

Professional Developmental Courses **Must take 1, 2 and 5…3&4 are optional**

1)	16:125:601	Engineering Ethics and Seminar (1cr)
2)	16:125:602	Engineering Writing and Seminar (1cr)
3)	16:125:607	Preparing Future Faculty I (1cr)
4)	16:125:608	Preparing Future Faculty II (1cr)
5)	16:125:628	Clinical Practicum (1cr)

Summary of Minimum M.S./M.Eng Requirements

3 out of 5 BME Core Courses	**9 credits**
Advanced Engineering Math Course	**3 credits**
Advanced Cell Biology Course	**3 credits**
3 Bioengineering Electives (4 if M.Eng)	**9 credits (12 credits if M.Eng)**
3 out of 5 Professional Developmental Courses	**3 credits**
Research (M.S. ONLY)	**6 credits**
Non-Thesis Study (M.Eng ONLY)	**3 credits (MUST take an additional 3 credit elective)**
Total	**33 credits**

* If schedule allows, take up to two core classes per semester. Minimum of three core classes required.

Revised 3/15/18

BME Ph.D. Program Curriculum

Fall Year 1

16:125:xxx	BME Core Course (3cr) (*Register for one, possibly two core courses*)
16:125:xxx	BME Core Course (3cr)
16:155:501	Mathematical Modeling for BME (3cr)
16:125:699	Non-Thesis Rotation (3cr)
16:125:601	Engineering Ethics/Seminar (1cr)
BME Seminars	(attendance required)

Advisor Selection Forms (December through May)

SPRING Year 1

16:125:xxx	BME Core Course (3cr) (*Register for one or two core courses*)
16:125:xxx	Bioengineering Elective (3cr)
16:125:586	Structure and Dynamics in Adult and Stem Cell Biology (3cr)
16:125:602	Engineering Writing/Seminar (1cr)
16:125:702	Research (3+cr)
BME Seminars	(attendance required)

SUMMER Year 1

Research Based Qualifying Exam for Doctoral Studies tied in with "Engineering Writing 602" (May/June)

FALL Year 2

16:125:xxx	BME Core Course (3cr) (*Register for one remaining core course, if any* – see note*)
16:125:xxx	Bioengineering Elective (3cr) (*Register for one or two core courses)*
16:125:607	Preparing Future Faculty I (1cr)
16:125:701	Research (3+cr)
BME Seminars	(attendance required)

SPRING Year 2

16:125:578	Interdisciplinary BioStatistics Research Training (3cr)
16:125:xxx	Bioengineering Elective (3cr)
16:125:xxx	Life/Medical Sciences Elective (3cr)
16:125:608	Preparing Future Faculty II (1cr)
16:125:628	Clinical Practicum (1cr)
16:125:702	Research (3+cr)
BME Seminars	(attendance required)

SUMMER Year 2

Annual Research Verification Meeting
IDP Meeting
Prepare Thesis/Dissertation Proposal

FALL Year 3

BME Seminars	(Attendance required)
16:125:701	Research (3+cr)
Electives	(As required)

Deadline for Defense of Thesis/Dissertation Proposal

SPRING Year 3

16:125:702	Research (3+cr)
Electives	(As required)

Years 4-6

16:125:701/2	Research (3+cr)
BME Seminars	(Attendance required)
Electives	(Optional)

Annual Research Verification Meetings (Summers of years 4-6)
IDP Meetings (Summers of years 4-6)
Final Thesis/Dissertation and Defense (Year 5 or 6)

***Students are required to complete a total of 3 core BME courses, in addition to Math, Cell Biology and BioStatistics within the first four academic semesters.**

Revised 3/15/18

BME Core Courses **Must take 3 out of 5:**

1)	16:125:561	BioImaging Methods (3cr)
2)	16:125:571	Biosignal Processing and Biomedical Imaging (3cr)
3)	16:125:572	Biocontrol, Modeling and Computation (3cr)
4)	16:125:573	Kinetics, Thermodynamics and Transport in Biomedicine (3cr)
5)	16:125:574	Biomechanics and Biomaterials (3cr)

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OR		Other Rutgers or RWJMS Physiology Courses – Contact the Graduate Program for information

Advanced Engineering Mathematics^

1)	16:125:501	Mathematical Modeling for BME (3cr)

^Students may be asked to complete an alternate graduate-level math course based on need or availability. Students wishing to take an alternate math class should petition the graduate program director.

Advanced Cell Biology

1)	16:125:586	Structure and Dynamics in Adult and Stem Cell Biology (3cr)

Rigor and Reproducibility

1)	16:125:578	Interdisciplinary BioStatistics Research Training (3cr)

Medical/Life Science Elective

1) Life Science elective from the list in the Graduate Handbook or recommendation from Program Director

Developmental Courses

1)	16:125:601	Engineering Ethics (1cr) **(Required during 1st year)**
2)	16:125:602	Engineering Writing (1cr) **(Required during 1st year)**
3)	16:125:607	Preparing Future Faculty I (1cr) **(Required)**
4)	16:125:608	Preparing Future Faculty II (1cr) **(Required)**
5)	16:125:628	Clinical Practicum (1cr) **(Required)**

Summary of Minimum Ph.D. Requirements

3 out of 5 BME Core Courses	**9 credits**
Advanced Engineering Math Course	**3 credits**
Advanced Cell Biology Course	**3 credits**
BioStatistics Course	**3 credits**
Life Science/Medical Elective	**3 credits**
3 Bioengineering Electives	**9 credits**
5 Developmental Courses	**5 credits**
Non-Thesis Study (1st year Rotation)	**3 credits**
Research (minimum)	**34 credits**
Total	**72 credits (35 course credits)**

Note:

- Prerequisite work may not count as an elective. Please check with the program first.