

BIOMEDICAL ENGINEERING CURRICULUM

Pre-Medical Emphasis (Effective 8/17/2015)

Name: _____
 MSUID#: _____
 Net ID: _____
 Advisor: _____

SEMESTER	1	CH 1213 Chemistry I	CH 1211 Chem I Lab	**Soc/Beh Sci Elective (3hr)	BIO 1134 Biology I	MA 1713 Calculus I	EN 1103 En Comp I	ABE 1911 Engr in Life Sci		
SEMESTER	F									18
SEMESTER	S	CH 1223 Chemistry II	CH 1221 Chem II Lab	PH 2213 Physics I	*Bio Sci Elective (3h)	MA 1723 Calculus II	EN 1113 En Comp II	ABE 1921 Intro to Engr Des		17
SEMESTER	F	CH 4513 Org Chem 1	4CH 4511 Org Chem 1 Lab	PH 2223 Physics II	EM 2413 Engr Mech I	MA 2733 Calculus III	MA 3123 Intro to Stat Infer			16
SEMESTER	S	CH 4523 Org Chem 2	CH 4521 Org Chem 2 Lab	PH 2233 Physics III	EM 2433 Engr Mech II	MA 2743 Calculus IV	ABE 4803 Biosys Simulation		MCAT	16
SEMESTER	F	BIO 3304 Gen Micro Bio	ABE 3413 Bio Instrum I	BCH 4013 Prin Biochem	EM 3213 Mech of Materials	MA 3253 Diff Equations	ABE 4911 Engr Seminar		MCAT	17
SEMESTER	S	GE 3513 Tech Writing	ABE 4423 Bio Instrum II	ABE 3303 Trans in Biol Env	EM 3313 Fluid Dynamics	*Engr Elective (3hr)	ABE 3813 Bio Phys Prop of Mat		MCAT	18
SEMESTER	F	**Humanities Elective (3h)	ABE Elective (3 hrs)	ABE 4323 Phys Sys in BME		*Engineering Elective (3h)	ABE 4813 Princ Engr Design			15
SEMESTER	S	**Humanities Elective (3hr)	*Engr / Math Elective (3h)	**Fine Arts Elective (3h)	**Soc/Beh Sci Elective (3h)		ABE 4833 Pract Engr Design			15

L - Lab Included
 F - Fall
 S - Spring

* Restricted elective course options are listed on the back
 ** Must be on University core curriculum

Updated: October 23, 2017

TOTAL **132**

Biological Science Electives:

BIO 2103 - Cell Biology
BIO 3504 - Comparative Anatomy (with Lab)
BIO 4114 - Cellular Physiology
BIO 4405 - Pathogenic Microbiology
BIO 4413 - Immunology
BIO 4433 - Principles of Virology
BIO 4473 - Medical Virology
BIO 4503 - Vertebrate Embryology
BIO 4504 - Comparative Vertebrate Embryology
BIO 4514 - Animal Physiology
ADS 4613 - Physiology of Reproduction
BCH 4113 - Essentials of Molecular Genetics

Engineering / Math /Physics Electives:

MA 3113 - Intro to Linear Algebra
MA 3353 Differential Equations II
MA 4373 - Intro to Partial Differential Equations
MA 4313 - Numerical Analysis I
MA 4143 Graph Theory
MA 4373 - Intro to Partial Differential Equations
PH 2233 Physics III

Engineering Electives:

ABE 4523 - Biomedical Materials
ABE 4613 - Biomechanics
ABE 4723 - Tissue Engineering
ABE 4624 - Experimental Methods in Material Research
EM 4123 - An Intro to Finite Element Method
EM 4133 - Mechanics of Composite Materials
EM 4213 - Advanced Mechanics of Materials
ME 3113 - Engineering Analysis
ME 3533 - Thermodynamics
ME 4123 - Failure of Engineering Materials
ME 4743 - LabCIEW
ME 4833 - Intermediate Fluid Mechanics

Engineering Electives:

EG 1143 - Graphic Communication
CSE 4613 - Bio-Computing
CSE 4623 - Computational Biology
IE 4113 - Human Factor Engineering
IE 4173 - Occupational Safety Engineering
IE 4553 - Engineering Law and Ethics
IE 4733 - Linear Programming
IE 4743 - Engineering Design Optimization
ECE 3714 - Digital Devices and Logic Design



BIOMEDICAL ENGINEERING CURRICULUM

(Effective 8/17/2015)

Name: _____
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SEMESTER	1	2	3	4	5	6	7	8	
F	CH 1213 Chemistry I	CH 1211 Chem I Lab	**Soc/Beh Sci Elective (3hr)	BIO 1134 Biology I	MA 1713 Calculus I	EN 1103 Enh Comp I	ABE 1911 Engr in Life Sci		18
S	CH 1223 Chemistry II	CH 1221 Chem II Lab	PH 2213 Physics I	*Humanities Elective (3hr)	MA 1723 Calculus II	EN 1113 En Comp II	ABE 1921 Intro to Engr Des		17
F	CH 2503 Elem Organic	CH 2501 Elem Org Lab	PH 2223 Physics II	EM 2413 Engr Mech I	MA 2733 Calculus III	MA 3123 Intro to Stat Infer			16
S		Bio Sci Elective (3hr)	*Engineering Elective (3hr)	EM 2433 Engr Mech II	MA 2743 Calculus IV	ABE 4803 Biosys Simulation			15
F	BCH 4013 Prin Bio Chem	ABE 4911 Engr Seminar	ABE 3413 Bio Instrum I	EM 3213 Mech of Materials	MA 3253 Diff Equations	**Soc / Beh Elective (3hr)			16
S	BIO 3304 Gen Micro Bio	ABE 3813 Biophy Prop of Mat	ABE 4423 Bio Instrum II	EM 3313 Fluid Dynamics		ABE 3303 Trans in Biol Env			16
F		*ABE Elective (3 hrs)	ABE 4323 Phys Sys in BME	GE 3513 Tech Writing	*Engineering Elective (3h)	ABE 4813 Princ Engr Design			15
S	**Humanities Elective (3hr)	*Engr / Math Elective (3h)	**Fine Arts Elective (3h)	ABE Elective (3hr)		ABE 4833 Pract Engr Design			15

L - Lab Included
 F - Fall
 S - Spring

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Updated: October 23, 2017

TOTAL **128**

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BIO 3504 - Comparative Anatomy (with Lab)
BIO 4114 - Cellular Physiology
BIO 4405 - Pathogenic Microbiology
BIO 4413 - Immunology
BIO 4433 - Principles of Virology
BIO 4473 - Medical Virology
BIO 4503 - Vertebrate Embryology
BIO 4504 - Comparative Vertebrate Embryology
BIO 4514 - Animal Physiology
ADS 4613 - Physiology of Reproduction
BCH 4113 - Essentials of Molecular Genetics

Engineering / Math /Physics Electives:

MA 3113 - Intro to Linear Algebra
MA 3353 Differential Equations II
MA 4373 - Intro to Partial Differential Equations
MA 4143 Graph Theory
MA 4373 - Intro to Partial Differential Equations
MA 4313 - Numerical Analysis I
PH 2233 Physics III

Engineering Electives:

ABE 4523 - Biomedical Materials
ABE 4613 - Biomechanics
ABE 4723 - Tissue Engineering
ABE 4624 - Experimental Methods in Material Research
EM 4123 - An Intro to Finite Element Method
EM 4133 - Mechanics of Composite Materials
EM 4213 - Advanced Mechanics of Materials
ME 3113 - Engineering Analysis
ME 3533 - Thermodynamics
ME 4123 - Failure of Engineering Materials
ME 4743 - LabCIEW
ME 4833 - Intermediate Fluid Mechanics

Engineering Electives:

EG 1143 - Graphic Communication
CSE 4613 - Bio-Computing
CSE 4623 - Computational Biology
IE 4113 - Human Factor Engineering
IE 4173 - Occupational Safety Engineering
IE 4553 - Engineering Law and Ethics
IE 4733 - Linear Programming
IE 4743 - Engineering Design Optimization
ECE 3714 - Digital Devices and Logic Design



BIOLOGICAL ENGINEERING CURRICULUM

Base Curriculum (Effective 8/17/2015)

Name: _____
 MSUID #: _____
 Net ID: _____
 Advisor: _____

SEMESTER	1	2	3	4	5	6	7	8	
F	CH 1213 Chemistry I	CH 1211 Chem I Lab	**Soc/Beh Sci Elective (3hr)	BIO 1134 Biology I	MA 1713 Calculus I	EN 1103 En Comp I	ABE 1911 Engr in Life Sci		18
S	CH 1223 Chemistry II	CH 1221 Chem II Lab	PH 2213 Physics I	**Humanities Elective (3hr)	MA 1723 Calculus II	EN 1113 En Comp II	ABE 1921 Intro to Engr Des		17
F	CH 2503 Elem Organic	CH 2501 Elem Org Lab	PH 2223 Physics II	EM 2413 Engr Mech I	MA 2733 Calculus III	MA 3123 Intro to Stat Infer			16
S	BCH 4013 Prin Bio Chem	Bio Sci Elective (3hr)	Engr/Math Elective (3hr)	EM 2433 Engr Mech II	MA 2743 Calculus IV	ABE 4803 Biosys Simulation			15
F	BIO 3304 Gen Micro Bio	ABE 4911 Engr Seminar	ABE 3413 Bio Instrum I	EM 3213 Mech of Materials	MA 3253 Diff Equations	**Soc/Beh Elective (3hr)			16
S	BIO 3304 Gen Micro Bio	ABE 3813 Biophy Prop of Mat	ABE 4423 Bio Instrum II	EM 3313 Fluid Dynamics		ABE 3303 Trans in Biol Env			16
F		*ABE Elective (3 hrs)	ABE 4323 / ABE 4113	GE 3513 Tech Writing	*Engineering Elective (3h)	ABE 4813 Princ Engr Design			15
S	**Humanities Elective (3hr)	*Engr / Math Elective (3h)	**Fine Arts Elective (3h)	*ABE Elective (3hr)		ABE 4833 Pract Engr Design			15

L - Lab Included
 F - Fall
 S - Spring

* Restricted elective course options are listed on the back
 ** Must be on University core curriculum

Updated: October 20, 2017

TOTAL **128**

Biological Science Electives:

BIO 2103 - Cell Biology
BIO 3504 - Comparative Anatomy (with Lab)
BIO 4114 - Cellular Physiology
BIO 4405 - Pathogenic Microbiology
BIO 4413 - Immunology
BIO 4433 - Principles of Virology
BIO 4473 - Medical Virology
BIO 4503 - Vertebrate Embryology
BIO 4504 - Comparative Vertebrate Embryology
BIO 4514 - Animal Physiology
ADS 4613 - Physiology of Reproduction
BCH 4113 - Essentials of Molecular Genetics

Biological Science Electives:

BIO 3103 - Genetics with Lab
BIO 3104 - Ecology
BIO 4204 - Plant Anatomy and Lab
BIO 4213 - Plant Ecology
BIO 4324 - Soil Microbiology
BIO 4404 - Env Microbiology with Lab
CVM 2443 - Essentials of Biotech
WF 3133 - Applied Aquatic Ecology with Lab
WF 4372 - Water Quality Mgt
ADS 4213 - Livestock Nutrient Analysis
ADS 3213 - Performance Analysis of Meat Animal with Lab
PSS 4103 - Forage and Pasture Crops with Lab
FO 4452 - Remote Sensing Applications with Lab (FO 4451)

Engineering /Math Electives:

CE 3803 - Environmental/Water Res Engineering with lab
CE 3813 - Environment/Water Res Engineering with lab
CE 4843 - Advanced Sanitary Analysis
CE 4893 - Hazardous Waste Mgt
CHE 4613 - Air Pollution Control Design
CHE 4623 - Hazardous Waste Incineration
CHE 4990 - Pollution Abatement and Control
EG 1143 - Graphic Communication
CSE 4613 - Bio-Computing
CSE 4623 - Computational Biology
IE 4113 - Human Factor Engineering
IE 4173 - Occupational Safety Engineering
IE 4553 - Engineering Law and Ethics
IE 4733 - Linear Programming
IE 4743 - Engineering Design Optimization
IE 4533 - Project Management
IE 3913 - Engineering Economics I
IE 4613 - Engineering Statistics I

Engineering Electives:

MA 3113 - Intro to Linear Algebra
MA 3353 - Differential Equation II
MA 4313 - Numerical Analysis I
MA 4373 - Intro to Partial Differential Equation
EM 4123 - An Intro to Finite Element Method
EM 4133 - Mechanics of Composite Materials
EM 4213 - Advanced Mechanics of Materials
ME 3113 - Engineering Analysis
ME 3533 - Thermodynamics
ME 4123 - Failure of Engineering Materials
ME 4743 - Lab CIEW
ME 4833 - Intermediate Fluid Mechanics
PH 2233 - Physics III
ECE 3714 - Digital Devices and Logic Design

ABE Electives:

ABE 4523 - Biomedical Materials
ABE 4613 - Biomechanics
ABE 4723 - Tissue Engineering
ABE 2873 - Land Surveying
ABE 3513 - GPS/GIS
ABE 4543 - Precision Agriculture II
ABE 4624 - Exp Methods Material Research
FO 4453 - Remote Sensing Applications
IE 4733 - Linear Programming



BIOLOGICAL ENGINEERING CURRICULUM

Environmental Emphasis (Effective 8/17/2015)

Name: _____
 MSUID #: _____
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 Advisor: _____

SEMESTER	1	2	3	4	5	6	7	8	
F	CH 1213 Chemistry I	CH 1211 Chem I Lab	**Soc/Beh Sci Elective (3hr)	BIO 1134 Biology I	MA 1713 Calculus I	EN 1103 En Comp I	ABE 1911 Engr in Life Sci		18
S	CH 1223 Chemistry II	CH 1221 Chem II Lab	PH 2213 Physics I	Bio Science Elective (3hr)	MA 1723 Calculus II	EN 1113 En Comp II	ABE 1921 Intro to Engr Des		17
F	CH 2503 Elem Organic	CH 2501 Elem Org Lab	PH 2223 Physics II	EM 2413 Engr Mech I	MA 2733 Calculus III	MA 3123 Intro to Stat Infer			16
S		Eng/Bio Sci Elective (3hr)	Engr/Math Elective (3hr)	EM 2433 Engr Mech II	MA 2743 Calculus IV	ABE 4803 Biosys Simulation			15
F	BCH 4013 Prin Bio Chem	ABE 3413 Bio Instrum I	**Soc/Beh Elective (3hr)	EM 3213 Mech of Materials	MA 3253 Diff Equations	ABE 4911 Engr Seminar			16
S	BIO 3304 Gen Micro Bio	ABE 4423 Bio Instrum II	ABE 3303 Trans in Biol Env	ABE 4263 Soil Water Engr		ABE 3813 Bio Phys Prop of Mat			16
F		*ABE Elective (3 hrs)	ABE 4113 Bio Trmnt of NPS	GE 3513 Tech Writing	*Engineering Elective (3h)	ABE 4813 Princ Engr Design			15
S	**Humanities Elective (3hr)	*Engr / Math Elective (3h)	**Fine Arts Elective (3h)	EM 3313 Fluid Dynamics		ABE 4833 Pract Engr Design			15

L - Lab Included
 F - Fall
 S - Spring

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 ** Must be on University core curriculum

Updated: October 23, 2017

TOTAL **128**

Biological Science Electives:

BIO 2103 - Cell Biology
BIO 2503 - Environmental Quality
BIO 3504 - Comparative Anatomy (with Lab)
BIO 4114 - Cellular Physiology
BIO 4405 - Pathogenic Microbiology
BIO 4413 - Immunology
BIO 4433 - Principles of Virology
BIO 4473 - Medical Virology
BIO 4503 - Vertebrate Embryology
BIO 4504 - Comparative Vertebrate Embryology
BIO 4514 - Animal Physiology
ADS 4613 - Physiology of Reproduction
BCH 4113 - Essentials of Molecular Genetics
WF 4222 - Limnology and Lab
PSS 4333 - Soil Conservation
BIO 4502 - Toxicology

Biological Science Electives:

BIO 3103 - Genetics with Lab
BIO 3104 - Ecology
BIO 4204 - Plant Anatomy and Lab
BIO 4213 - Plant Ecology
BIO 4324 - Soil Microbiology
BIO 4404 - Env Microbiology with Lab
CVM 2443 - Essentials of Biotech
WF 3133 - Applied Aquatic Ecology with Lab
WF 4373 - Prin & Practice of Conservation in Ag Landscape
WF 4343 - Pond and Stream Mgt
ADS 4213 - Livestock Nutrient Analysis
ADS 3213 - Performance Analysis of Meat Animal with Lab
PSS 4103 - Forage and Pasture Crops with Lab
FO 4452 - Remote Sensing Applications with Lab (FO 4451)
GR 3113 - Conservation of Nat Resources
GR 4303 - Principles of GIS
GR 4313 - Advanced GIS

ABE Electives:

ABE 4523 - Biomedical Materials
ABE 4613 - Biomechanics
ABE 4723 - Tissue Engineering
ABE 2873 - Land Surveying
ABE 3513 - GPS/GIS
ABE 4543 - Precision Agriculture II
ABE 4624 - Exp Methods
Material Research
ABE 4993 - Watershed Modeling
CE 2803 - Env Engineering Issues
CE 4513 - Engr Hydrology (Prereq CE 3813)
FO 4453 - Remote Sensing Applications
IE 4733 - Linear Programming

Engineering /Math Electives:

CE 3803 - Environmental/Water Res Engineering with lab
CE 3813 - Environment/Water Res Engineering with lab
CE 4843 - Advanced Sanitary Analysis
CE 4893 - Hazardous Waste Mgt
CHE 4613 - Air Pollution Control Design
CHE 4623 - Hazardous Waste Incineration
CHE 4990 - Pollution Abatement and Control
EG 1143 - Graphic Communication
CSE 4613 - Bio-Computing
CSE 4623 - Computational Biology
IE 4113 - Human Factor Engineering
IE 4173 - Occupational Safety Engineering
IE 4553 - Engineering Law and Ethics
IE 4733 - Linear Programming
PH 2233 - Physics III
ECE 3714 - Digital Devices and Logic Design

Engineering Electives:

MA 3113 - Intro to Linear Algebra
MA 3353 - Differential Equation II
MA 4313 - Numerical Analysis I
MA 4373 - Intro to Partial Differential Equation
EM 4123 - An Intro to Finite Element Method
EM 4133 - Mechanics of Composite Materials
EM 4213 - Advanced Mechanics of Materials
ME 3113 - Engineering Analysis
ME 3533 - Thermodynamics
ME 4123 - Failure of Engineering Materials
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ME 4833 - Intermediate Fluid Mechanics
IE 4743 - Engineering Design Optimization
IE 4533 - Project Management
IE 3913 - Engineering Economics I
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BIOLOGICAL ENGINEERING CURRICULUM

Pre-Medical Emphasis (Effective 8/17/2015)

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 MSUID#: _____
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 Advisor: _____

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SEMESTER 2 S	CH 1223 Chemistry II	CH 1221 Chem II Lab	PH 2213 Physics I	*Bio Sci Elective (3h)	MA 1723 Calculus II	EN 1113 En Comp II	ABE 1921 Intro to Engr Des	17
SEMESTER 3 F	CH 4513 Org Chem 1	CH 4511 Org Chem 1 Lab	PH 2223 Physics II	EM 2413 Engr Mech I	MA 2733 Calculus III	MA 3123 Intro to Stat Infer		16
SEMESTER 4 S	CH 4523 Org Chem 2	CH 4521 Org Chem 2 Lab	PH 2233 Physics III	EM 2433 Engr Mech II	MA 2743 Calculus IV	ABE 4803 Biosys Simulation	MCAT	16
SEMESTER 5 F	BIO 3304 Gen Micro Bio	ABE 3413 Bio Instrum I	BCH 4013 Prin Biochem	EM 3213 Mech of Materials	MA 3253 Diff Equations	ABE 4911 Engr Seminar	MCAT	17
SEMESTER 6 S	GE 3513 Tech Writing	ABE 4423 Bio Instrum II	ABE 3303 Trans in Biol Env	EM 3313 Fluid Dynamics	*Engr Elective (3hr)	ABE 3813 Bio Phys Prop of Mat	MCAT	18
SEMESTER 7 F	**Humanities Elective (3h)	*ABE Elective (3 hrs)	ABE 4323 Phys Sys in BME		*Engineering Elective (3h)	ABE 4813 Princ Engr Design		15
SEMESTER 8 S	**Humanities Elective (3hr)	*Engr / Math Elective (3h)	**Fine Arts Elective (3h)	**Soc/Beh Sci Elective (3h)		ABE 4833 Pract Engr Design		15

L - Lab Included
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TOTAL **132**

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BIO 4433 - Principles of Virology
BIO 4473 - Medical Virology
BIO 4503 - Vertebrate Embryology
BIO 4504 - Comparative Vertebrate Embryology
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ADS 4613 - Physiology of Reproduction
BCH 4113 - Essentials of Molecular Genetics

Biological Science Electives:

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ADS 4213 - Livestock Nutrient Analysis
ADS 3213 - Performance Analysis of Meat Animal with Lab
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FO 4452 - Remote Sensing Applications with Lab (FO 4451)

Engineering /Math Electives:

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CE 4893 - Hazardous Waste Mgt
CHE 4613 - Air Pollution Control Design
CHE 4623 - Hazardous Waste Incineration
CHE 4990 - Pollution Abatement and Control
EG 1143 - Graphic Communication
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IE 4113 - Human Factor Engineering
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IE 4553 - Engineering Law and Ethics
IE 4733 - Linear Programming
IE 4743 - Engineering Design Optimization
IE 4533 - Project Management
IE 3913 - Engineering Economics I
IE 4613 - Engineering Statistics I
PH 2233 - Physics III
ECE 3714 - Digital Devices and Logic Design

Engineering Electives:

MA 3113 - Intro to Linear Algebra
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SEMESTER 6 S	BIO 3304 Gen Micro Bio	ABE 3813 Biophy Prop of Mat	ABE 3303 Trans in Biol Env	*ABE Elective (3hr)		ABE 4423 Bio Instrum II		16
SEMESTER 7 F		*ABE Elective (3 hrs)	ABE 4323 Phys Sys in BME	GE 3513 Tech Writing	*Engineering Elective (3h)	ABE 4813 Princ Engr Design		15
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Engineering / Math /Physics Electives:

MA 3113 - Intro to Linear Algebra
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