

Cover Sheet: Request 14674

Biomedical Engineering Curriculum Modification

Info

Process	Major Curriculum Modify Ugrad/Pro
Status	Pending at PV - University Curriculum Committee (UCC)
Submitter	Kristin Theus undergrad@bme.ufl.edu
Created	2/3/2020 10:02:32 AM
Updated	4/7/2020 1:02:51 PM
Description of request	Add a footnote to Model Semester Plan page to read "Can substitute BCH4024" for the BME4311 requirement.

Actions

Step	Status	Group	User	Comment	Updated
Department	Approved	ENG - Biomedical Engineering 021934001	Daniel Ferris		2/3/2020
BSBME Model Semester Plan_current.docx					2/3/2020
College	Approved	ENG - College of Engineering	Heidi Dublin	Approved by the HWCOE Curriculum Committee and Faculty Council.	3/13/2020
No document changes					
Associate Provost for Undergraduate Affairs	Approved	PV - APUG Review	Casey Griffith		3/20/2020
No document changes					
University Curriculum Committee	Pending	PV - University Curriculum Committee (UCC)			3/20/2020
No document changes					
Office of the Registrar					
No document changes					
Student Academic Support System					
No document changes					
Catalog					
No document changes					
Academic Assessment Committee Notified					
No document changes					
College Notified					
No document changes					

Major|Modify_Curriculum for request 14674

Info

Request: Biomedical Engineering Curriculum Modification

Description of request: Add a footnote to Model Semester Plan page to read "Can substitute BCH4024" for the BME4311 requirement.

Submitter: Kristin Theus undergrad@bme.ufl.edu

Created: 2/27/2020 3:21:46 PM

Form version: 2

Responses

Major Name

Enter the name of the major. Example: "Mathematical Modeling"

Response:
Biomedical Engineering

Major Code

Enter the two-letter or three-letter major code.

Response:
BME

Degree Program Name

Enter the name of the degree program in which the major is offered.

Response:
Biomedical Engineering

Undergraduate Innovation Academy Program

Is this an undergraduate program in the Innovation Academy?

Response:
No

Effective Term

Enter the term (semester and year) that the curriculum change would be effective.

Response:
Fall

Effective Year

Response:
2020

Current Curriculum for Major

Response:

Students enrolled in the undergraduate Biomedical Engineering major are required to complete BME4311: Molecular Biomedical Engineering, a 3-credit course, as part of the core curriculum. We would like to allow students the option to complete BCH4024: Introduction to Biochemistry and Molecular Biology (4-credit course) in place of BME4311, similar to our CHM3217 requirement. We will add a footnote at the bottom of the model semester plan to indicate this course option.

Proposed Curriculum Changes

Describe the proposed changes to the curriculum. If the change is to offer the program through UF Online, please explain and attach a letter of support from the Director of UF Online.

Response:

We are proposing to allow BME undergraduate students to complete either BME4311: Molecular Biomedical Engineering or BCH4024: Introduction to Biochemistry and Molecular Biology (4-credit course).

UF Online Curriculum Change

Will this curriculum change be applied to a UF online program as well?

Response:

No

Pedagogical Rationale/Justification

Describe the rationale for the proposed changes to the curriculum.

Response:

Approximately 15-20% of BME undergraduate students are pre-health, which means that they must complete BCH4024 prior to submitting an application to professional schools. Pre-health students are currently completing BCH4024 and then BME4311, which covers several concepts that they have already been exposed to in BCH4024. Pre-health BME students are already completing BCH4024 so they would not be taking additional seats from the College of Medicine. This course option will help pre-health students by electing to take BCH4024 as a core curriculum requirement that will also satisfy a professional school prerequisite.

The BSBME program required all students to complete BCH4024 until 2016, when BME4311 was revised to incorporate content that students needed to know from BCH4024. Students matriculating to UF in 2016 were no longer required to complete BCH4024 because BME students did not need to learn all topics covered in BCH4024 in order to perform well in junior and senior courses.

Impact on Enrollment, Retention, Graduation

Describe any potential impact of the curriculum changes on students who are currently in the major.

Response:

No potential impact foreseen with the exception of reducing enrollment by ~20 students per year in BME4311. This is not a concern.

Assessment Data Review

Describe the Student Learning Outcome and/or program goal data that was reviewed to support the proposed changes.

Response:

N/A

Academic Learning Compact and Academic Assessment Plan

Describe the modifications to the Academic Learning Compact (for undergraduate programs) and Academic Assessment Plan that result from the proposed change.

Response:

N/A

Catalog Copy

Submitter agrees to prepare and upload document showing the catalog copy with the current and proposed curricula edited using the "track changes" feature in Word.

Response:

Yes

- **College:** [Herbert Wertheim College of Engineering](#)
- **Degree:** Bachelor of Science in Biomedical Engineering
- **Credits for Degree:** 131
- **Additional Information**

To graduate with this major, students must complete all university, college, and major requirements.

- [Overview](#)
- [Critical Tracking](#)

[Model Semester Plan](#)

- [Academic Learning Compact](#)

To remain on track, students must complete the appropriate critical-tracking courses, which appear in bold. These courses must be completed by the terms as listed above in the Critical Tracking criteria.

This semester plan represents an example progression through the major. Actual courses and course order may be different depending on the student's academic record and scheduling availability of courses. Prerequisites still apply.

This program is limited access and competitive. Students cannot register for courses in semesters 5-8 before they have been admitted to the biomedical engineering major.

Semester One		Credits
BME 1008	Introduction to Biomedical Engineering	1
BSC 2010	Integrated Principles of Biology 1 (Critical Tracking ; Gen Ed Biological Sciences)	3
BSC 2010L	Integrated Principles of Biology Laboratory 1 (Gen Ed Biological and Physical Sciences)	1
Select one:		3
CHM 2045	General Chemistry 1 (Critical Tracking ; Gen Ed Physical Sciences)	
CHM 2095	Chemistry for Engineers 1 (Critical Tracking)	
CHM 2045L	General Chemistry 1 Laboratory (Gen Ed Physical Sciences)	1

<u>IDS 1161</u>	What is the Good Life (Gen Ed Humanities)	3
<u>MAC 2311</u>	Analytic Geometry and Calculus 1 (Critical Tracking ; Gen Ed Mathematics)	4
	Credits	16
Semester Two		
Select one:		3
<u>CHM 2046</u>	General Chemistry 2 (Critical Tracking ; Gen Ed Physical Sciences)	
<u>CHM 2096</u>	Chemistry for Engineers 2 (Critical Tracking)	
<u>CHM 2046L</u>	General Chemistry 2 Laboratory (Gen Ed Physical Sciences)	1
<u>ENC 1101</u>	Expository and Argumentative Writing (State Core Gen Ed Composition ; Writing Requirement: 6,000 words)	3
<u>MAC 2312</u>	Analytic Geometry and Calculus 2 (Critical Tracking ; State Core Gen Ed Mathematics)	4
<u>PHY 2048</u>	Physics with Calculus 1 (Critical Tracking ; State Core Gen Ed Physical Sciences)	3
<u>PHY 2048L</u>	Laboratory for Physics with Calculus 1 (Gen Ed Physical Sciences)	1
	Credits	15
Semester Three		
<u>CHM 3217</u>	Organic Chemistry/Biochemistry 1 ¹	4
<u>COP 2271</u>	Computer Programming for Engineers ⁴	2
<u>COP 2271L</u>	Computer Programming for Engineers Laboratory ⁴	1

<u>MAC 2313</u>	Analytic Geometry and Calculus 3 (Critical Tracking ; Gen Ed Mathematics)	4
<u>PHY 2049</u>	Physics with Calculus 2 (Critical Tracking ; Gen Ed Physical Sciences)	3
<u>PHY 2049L</u>	Laboratory for Physics with Calculus 2 (Gen Ed Physical Sciences)	1
	Credits	15
Semester Four		
<u>BME 3053C</u>	Computer Applications for BME	2
<u>BME 3060</u>	Biomedical Fundamentals (Critical Tracking)	3
<u>EEL 3003</u>	Elements of Electrical Engineering	3
<u>ENC 3246</u>	Professional Communication for Engineers (Gen Ed Composition; writing requirement)	3
<u>MAP 2302</u>	Elementary Differential Equations (Critical Tracking ; Gen Ed Mathematics)	3
<u>PCB 3713C</u>	Cellular and Systems Physiology (Critical Tracking)	4
	Credits	18
Semester Five		
<u>BME 3101</u>	Biomedical Materials	3
<u>BME 3508</u>	Biosignals and Systems	3
<u>BME 4311</u> ⁵	Molecular Biomedical Engineering	3
<u>BME 4503</u>	Biomedical Instrumentation	3
<u>BME 4503L</u>	Biomedical Instrumentation Laboratory	1
<u>EGM 2511</u>	Engineering Mechanics: Statics	3
	Credits	16

Semester Six		
<u>BME 3012</u>	Clinically-Inspired Engineering Design	3
<u>BME 3323L</u>	Cellular Engineering Laboratory	3
<u>BME 4632</u>	Biomedical Transport Phenomena	3
<u>STA 3032</u>	Engineering Statistics	3
Gen Ed Social and Behavioral Sciences with International; Writing Requirement: 6,000 words ³		3
BME elective ²		3
Credits		18
Semester Seven		
<u>BME 4409</u>	Quantitative Physiology	3
<u>BME 4621</u>	Biomolecular Thermodynamics and Kinetics	3
<u>BME 4882</u>	Senior Design, Professionalism and Ethics 1	3
<u>State Core Gen Ed Social and Behavioral Sciences</u> ³		3
BME electives ²		6
Credits		18
Semester Eight		
<u>BME 4531</u>	Medical Imaging	3
<u>BME 4883</u>	Senior Design, Professionalism and Ethics 2	3
<u>State Core Gen Ed Humanities with Diversity</u> ³		3
BME electives ²		6

	Credits	15
	Total Credits	131

Plan of Study Grid

- ¹ Can substitute [CHM 2210](#) and [CHM 2211](#).
- ² BME Electives: A total of 15 credits of 3000/4000-level courses (9 credits of engineering electives and 6 credits technical electives, both of which must be selected from an approved list).
- ³ Courses should cover 12,000 words.
- ⁴ Course and corresponding laboratory to be completed in same language (Matlab or C++).
- ⁵ [Can substitute BCH4024 \(4 credits\)](#).

Students are also expected to complete the general education international (GE-N) and diversity (GE-D) requirements. This is often done concurrently with another general education requirement (typically, GE-C, H or S).

- **College:** [Herbert Wertheim College of Engineering](#)
- **Degree:** Bachelor of Science in Biomedical Engineering
- **Credits for Degree:** 131
- **Additional Information**

To graduate with this major, students must complete all university, college, and major requirements.

- [Overview](#)
- [Critical Tracking](#)

[Model Semester Plan](#)

- [Academic Learning Compact](#)

To remain on track, students must complete the appropriate critical-tracking courses, which appear in bold. These courses must be completed by the terms as listed above in the Critical Tracking criteria.

This semester plan represents an example progression through the major. Actual courses and course order may be different depending on the student's academic record and scheduling availability of courses. Prerequisites still apply.

This program is limited access and competitive. Students cannot register for courses in semesters 5-8 before they have been admitted to the biomedical engineering major.

Semester One		Credits
BME 1008	Introduction to Biomedical Engineering	1
BSC 2010	Integrated Principles of Biology 1 (Critical Tracking ; Gen Ed Biological Sciences)	3
BSC 2010L	Integrated Principles of Biology Laboratory 1 (Gen Ed Biological and Physical Sciences)	1
Select one:		3
CHM 2045	General Chemistry 1 (Critical Tracking ; Gen Ed Physical Sciences)	
CHM 2095	Chemistry for Engineers 1 (Critical Tracking)	
CHM 2045L	General Chemistry 1 Laboratory (Gen Ed Physical Sciences)	1

<u>IDS 1161</u>	What is the Good Life (Gen Ed Humanities)	3
<u>MAC 2311</u>	Analytic Geometry and Calculus 1 (Critical Tracking ; Gen Ed Mathematics)	4
	Credits	16
Semester Two		
Select one:		3
<u>CHM 2046</u>	General Chemistry 2 (Critical Tracking ; Gen Ed Physical Sciences)	
<u>CHM 2096</u>	Chemistry for Engineers 2 (Critical Tracking)	
<u>CHM 2046L</u>	General Chemistry 2 Laboratory (Gen Ed Physical Sciences)	1
<u>ENC 1101</u>	Expository and Argumentative Writing (State Core Gen Ed Composition ; Writing Requirement: 6,000 words)	3
<u>MAC 2312</u>	Analytic Geometry and Calculus 2 (Critical Tracking ; State Core Gen Ed Mathematics)	4
<u>PHY 2048</u>	Physics with Calculus 1 (Critical Tracking ; State Core Gen Ed Physical Sciences)	3
<u>PHY 2048L</u>	Laboratory for Physics with Calculus 1 (Gen Ed Physical Sciences)	1
	Credits	15
Semester Three		
<u>CHM 3217</u>	Organic Chemistry/Biochemistry 1 ¹	4
<u>COP 2271</u>	Computer Programming for Engineers ⁴	2
<u>COP 2271L</u>	Computer Programming for Engineers Laboratory ⁴	1

<u>MAC 2313</u>	Analytic Geometry and Calculus 3 (Critical Tracking ; Gen Ed Mathematics)	4
<u>PHY 2049</u>	Physics with Calculus 2 (Critical Tracking ; Gen Ed Physical Sciences)	3
<u>PHY 2049L</u>	Laboratory for Physics with Calculus 2 (Gen Ed Physical Sciences)	1
	Credits	15
Semester Four		
<u>BME 3053C</u>	Computer Applications for BME	2
<u>BME 3060</u>	Biomedical Fundamentals (Critical Tracking)	3
<u>EEL 3003</u>	Elements of Electrical Engineering	3
<u>ENC 3246</u>	Professional Communication for Engineers (Gen Ed Composition; writing requirement)	3
<u>MAP 2302</u>	Elementary Differential Equations (Critical Tracking ; Gen Ed Mathematics)	3
<u>PCB 3713C</u>	Cellular and Systems Physiology (Critical Tracking)	4
	Credits	18
Semester Five		
<u>BME 3101</u>	Biomedical Materials	3
<u>BME 3508</u>	Biosignals and Systems	3
<u>BME 4311</u>	Molecular Biomedical Engineering	3
<u>BME 4503</u>	Biomedical Instrumentation	3
<u>BME 4503L</u>	Biomedical Instrumentation Laboratory	1
<u>EGM 2511</u>	Engineering Mechanics: Statics	3
	Credits	16

Semester Six		
<u>BME 3012</u>	Clinically-Inspired Engineering Design	3
<u>BME 3323L</u>	Cellular Engineering Laboratory	3
<u>BME 4632</u>	Biomedical Transport Phenomena	3
<u>STA 3032</u>	Engineering Statistics	3
Gen Ed Social and Behavioral Sciences with International; Writing Requirement: 6,000 words ³		3
BME elective ²		3
Credits		18
Semester Seven		
<u>BME 4409</u>	Quantitative Physiology	3
<u>BME 4621</u>	Biomolecular Thermodynamics and Kinetics	3
<u>BME 4882</u>	Senior Design, Professionalism and Ethics 1	3
<u>State Core Gen Ed Social and Behavioral Sciences</u> ³		3
BME electives ²		6
Credits		18
Semester Eight		
<u>BME 4531</u>	Medical Imaging	3
<u>BME 4883</u>	Senior Design, Professionalism and Ethics 2	3
<u>State Core Gen Ed Humanities with Diversity</u> ³		3
BME electives ²		6

Credits	15
Total Credits	131

Plan of Study Grid

- ¹ Can substitute [CHM 2210](#) and [CHM 2211](#).
- ² BME Electives: A total of 15 credits of 3000/4000-level courses (9 credits of engineering electives and 6 credits technical electives, both of which must be selected from an approved list).
- ³ Courses should cover 12,000 words.
- ⁴ Course and corresponding laboratory to be completed in same language (Matlab or C++).

Students are also expected to complete the general education international (GE-N) and diversity (GE-D) requirements. This is often done concurrently with another general education requirement (typically, GE-C, H or S).