

# BIOMEDICAL ENGINEERING, MBE

The Masters in Biomedical Engineering is a coursework only Masters program that develops deeper technical knowledge in biomedical engineering beyond the BS. It can be completed in three semesters of full-time study.

## Admission Requirements

Applicants for the Masters in Biomedical Engineering program must hold a bachelor's degree from a program that is accredited by the Engineering Accreditation Commission of ABET at the time of graduation, or provide evidence of an equivalent academic background to the Dean of the College of Engineering and Polymer Science and the appropriate department chair.

Applicants to the Masters in Biomedical Engineering must submit a completed Graduate School application, official undergraduate transcripts, undergraduate grade point average, three letters of recommendation, and a statement of purpose that provides a rationale for proposed graduate study. Applicants must have an overall grade point average of 2.75 or better or 3.00 for the last two years (64 semester credits or equivalent).

Applicants whose native language is not English must have a TOEFL score of at least 79 on the internet-based TOEFL.

## Bridge-up requirements for applicants with a non-engineering bachelor's degree

Applicants with a bachelor's degree in a discipline other than engineering shall have completed coursework in calculus, differential equations, statics, have one year of classical physics, one year of chemistry, MECE 300 Thermodynamics I, and the following:

Code	Title	Hours
<b>Must complete 4 of the 5 following courses</b>		
ELEN 307	Basic Electrical Engineering	4
BMEN 362	Transport Fundamentals for Biomedical Engineering	3
BMEN 300	Biomaterials	3
BMEN 305	Introduction to Biophysical Measurements	4
or ELEN 340	Signals & Systems	
CIVE 202	Introduction to Mechanics of Solids	3

An overall GPA of 3.0 must be maintained for these courses. These undergraduate engineering courses may be taken prior to graduate admission.

## Accelerated Degree Pathway from UA's BS in Biomedical Engineering

Qualified undergraduates in UA's Bachelor of Science in Biomedical Engineering program who are interested in earning the Masters in Biomedical Engineering can do so as part of an Accelerated Degree Pathway (ADP) that accelerates time to completion when earning both degrees. These students must apply and meet the minimum requirements for admission to the ADP program in the Spring before their last year of study for the BS, and at the time of graduation with the BS, apply and meet the minimum requirements for admission to the

Masters in Biomedical Engineering. Interested students should consult the department during their junior year for more information.

The University's Academic Requirements (See Academic Requirements in this Graduate Bulletin), the following College of Engineering and Polymer Science requirements and the department's academic requirements must all be satisfied for the masters degrees in the College of Engineering and Polymer Science.

Students in the program:

- will be matched with major advisor, and
- will complete a formal Plan of Study that complies with the requirements below, and is acceptable to the Associate Chair for Graduate Studies in Biomedical Engineering and the Department Chair.

## Summary

Code	Title	Hours
<b>Core Required Courses</b>		<b>12</b>
<b>Technical Electives</b>		<b>18</b>
<b>Total Hours</b>		<b>30</b>

## Core Required Courses

Code	Title	Hours
<b>Core Required Courses</b>		
BMEN 600	BME Graduate Colloquium <sup>1</sup>	1
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BMEN 605	Fundamentals of Biomedical Engineering	4
BMEN 606	Physiology for Biomedical Science and Engineering	3
BMEN 611	Biometry	3
<b>Total Hours</b>		<b>12</b>

<sup>1</sup> This course must be taken twice in different semesters to meet degree requirements.

## Technical Electives

Code	Title	Hours
<b>Select minimum of 18 credits from among the following <sup>2</sup></b>		<b>18</b>
<i>Up to six credits of 500-level courses may be chosen:</i>		
BMEN 530	Design of Medical Imaging Systems	3
<b>BMEN:5xx</b>		
<i>Choose the remaining electives at the 600-level:</i>		
BMEN 627	Advances in Drug and Gene Delivery Systems	3
BMEN 653	Transport Phenomena in Biology & Medicine	3
BMEN 654	Microfluidics in Biotechnology	3
BMEN 661	Advanced Biomaterials	3
BMEN 662	Tissue Engineering & Regenerative Medicine	3
BMEN 697	Special Topics: Biomedical Engineering	1-4
<b>BMEN:6xx</b>		

<sup>2</sup> A minimum of six credits of graduate level BMEN courses are required to complete the Technical Elective requirement; other credits can be taken at the graduate level in other disciplines with program approval.