

 <b>FLORIDA ATLANTIC UNIVERSITY</b>	<b>NEW/CHANGE PROGRAM REQUEST</b> <b>Graduate Programs</b>	UGPC Approval _____ UFS Approval _____ Banner _____ Catalog _____
	<b>Department</b> Computer and Electrical Eng. and Comp. Science <b>College</b> Engineering and Computer Science	
<b>Program Name</b> MS Biomedical Engineering Certificate in Biomedical Engineering	<input type="checkbox"/> <b>New Program*</b> <input checked="" type="checkbox"/> <b>Change Program*</b>	<b>Effective Date</b> (TERM & YEAR) Fall 2021
<b>Please explain the requested change(s) and offer rationale below or on an attachment.</b>  Small revisions based on course title change: PSB 6345 Neuroscience 1 (change to: "Cellular and Molecular Neuroscience") and PSB 6346 Neuroscience 2 (change to: "Systems and Integrative Neuroscience")		
<small>*All new programs and changes to existing programs must be accompanied by a catalog entry showing the new or proposed changes.</small>		
<b>Faculty Contact/Email/Phone</b> Hanqi Zhuang, zhuang@fau.edu, 561-297-3413	<b>Consult and list departments that may be affected by the change(s) and attach documentation</b>	
<b>Approved by</b> Department Chair <u>Hanqi Zhuang</u> College Curriculum Chair <u>Francisco Presuel-Moreno</u> College Dean <u>M. Carder</u> UGPC Chair _____ UGC Chair _____ Graduate College Dean _____ UFS President _____ Provost _____	<small>Digitally signed by Hanqi Zhuang Date: 2021.03.02 21:38:15 -05'00'</small>  <small>Digitally signed by Francisco Presuel-Moreno DN: cn=Francisco Presuel-Moreno, ou=Florida Atlantic University, ou=Ocean and Mechanical Engineering, email=fpresuel@fau.edu, c=US Date: 2021.03.04 09:49:00 -05'00'</small>  <small>Digitally signed by Michael Carder DN: cn=Michael Carder, ou=Florida Atlantic University, ou=_____ email=mcarder@fau.edu, c=US Date: 2021.03.04 14:26:22 -05'00'</small>  <small>Digitally signed by _____ DN: _____ email=_____, c=US Date: _____</small>  <small>Digitally signed by _____ DN: _____ email=_____, c=US Date: _____</small>	<b>Date</b> _____ _____ 3/4/2021 Apr 4, 2021 Apr 5, 2021 Apr 5, 2021 _____ _____

Email this form and attachments to [UGPC@fau.edu](mailto:UGPC@fau.edu) 10 days before the UGPC meeting.

## Master of Science with Major in Biomedical Engineering

### Electives

**Thesis Option:** 12 credits of elective courses as follows.

At least 9 credits from the Advising Sheet list of Engineering and Computer Science or Science Biomedical Engineering courses (such as Tissue Engineering, Stem Cell Engineering, Biomaterials, Introduction to Microfluidics and BioMEMS, Introduction to Robotics, NanoBiotechnology, Robotic Applications and Orthopedic Biomechanics, Medical Imaging, Bio-Signal Processing and Bioinformatics).

Up to 3 elective credits of approved Engineering and Computer Science or Science coursework may be added (courses such as Digital Signal Processing, Digital Image Processing, Machine Learning and Artificial Intelligence, Modern Control, Advanced Database Systems, Nanotechnology, [Neuroscience 1 and 2](#), [Cellular and Molecular Neuroscience](#), [Systems and Integrative Neuroscience](#), or a directed independent study course).

**Non-Thesis Option:** 18 credits of elective courses as follows.

At least 9 credits from the Advising Sheet of Engineering and Computer Science or Science Biomedical Engineering courses (such as Tissue Engineering, Stem Cell Engineering, Biomaterials, Introduction to Microfluidics and BioMEMS, Introduction to Robotics, NanoBiotechnology, Robotic Applications and Orthopedic Biomechanics, Medical Imaging, Bio-Signal Processing and Bioinformatics).

Up to 9 elective credits of approved Engineering and Computer Science or Science coursework may be added (courses such as Digital Signal Processing, Digital Image Processing, Machine Learning and Artificial Intelligence, Modern Control, Advanced Database Systems, Nanotechnology, [Neuroscience 1 and 2](#), [Cellular and Molecular Neuroscience](#), [Systems and Integrative Neuroscience](#), Immunology, Biology of Cancer, or an additional directed independent study course).

Up to 6 elective credits may be free elective courses (not included on the Biomedical Engineering Advising Sheet) subject to approval of the Biomedical Engineering Program Advisor.

## Biomedical Engineering Certificate

### Certificate Requirements

1. PCB 3063, Genetics, (or an equivalent course) as a deficiency requirement with a minimum grade of "C";
2. 9 credits of Biomedical Engineering courses such as Introduction to Biomedical Engineering, Biosystems Modeling and Control, Bioinformatics: Biomedical Engineering Perspectives, Tissue Engineering, Stem Cell Engineering, Biomaterials, Introduction to Microfluidics and BioMEMS, Introduction to Robotics, NanoBiotechnology, Robotic Applications and Orthopedic Biomechanics, Medical Imaging and Bio-Signal Processing;
3. 6 credits of Science courses relevant to Biomedical Engineering such as Special Topics (Advanced Biotechnology Lab), Bioinformatics, [Cellular and Molecular Neuroscience](#), [Systems and Integrative Neuroscience](#); ~~and Neuroscience 1 and 2~~;
4. The grade point average of the above 15 credits must be 3.0 or better.
5. All courses must be at the 5000 and 6000 levels.