STATE UNIVERSITY SYSTEM OF FLORIDA

Board of Governors, State University System of Florida
Specialized Admissions Status
Initial Approval Request Form
In Accordance with Board of Governors Regulation 8.013, Specialized Admissions

INSTITUTION: University of Florida

DEGREE PROGRAM: BS in Biomedical Engineering

CIP CODE 14.0501 Effective Academic Year 2022-2023

1. Does this request for specialized admissions status apply to the whole degree program? If no, please specify which major(s) or track(s) are seeking the status.

2. Which criteria for specialized admissions status does the program meet?

   ☒ Limited Resources (if approved, the status will last a maximum of four years)

   ☐ Minimal Skills (if approved, the status will last a maximum of five years)

   ☐ Accreditation Requirements (If checked, you must also select either limited resources or minimal skills)

3. Provide a rationale for why the program meets the criteria selected above.
   - If the program is seeking specialized admissions status due to limited resources, provide details regarding which types of resources are limited and how the current demand for the program outpaces these resources.
   - If seeking specialized admission status based on accrediting body requirements, please include the name of the accrediting body and a direct link to or copies of the specific standard(s) which require the requested status.

Biomedical Engineering is currently a limited access program because the number of students who meet all the requirements for admission to the university and to the program are in excess of space and faculty resource limitations. All students seeking a degree in Biomedical Engineering at the University of Florida are required to take a hands-on cellular engineering laboratory (BME3323L) and a year-long senior design sequence (BME48832/3). Student capacity for both courses is limited by departmental space and personnel limitations.

BME3323L is required of all BME students and is typically taken in a student's junior year. The laboratory for this course is located in the Biomedical Sciences Building, BMS JG05 and requires specialized cell culture hoods and other biohazard safety equipment. The capacity for this laboratory is limited at any given time because of the space limitations due to the number of cell culture hoods in the room. Additional cell culture hoods cannot be added because of requirements related to the biohazards and required sterile techniques associated with cell culture and the handling of animal-derived cell species and samples. Sections of the laboratory course are currently offered multiple times in a given week. The course capacity per semester is at maximum capacity of 60 students causing the maximum capacity per academic year to be 120 students. BME3323L also requires specialized training for the instructors and student assistants (supervised teaching students). There is a higher number of student assistants for this course because of the safety requirements. Consequently, the number of sections cannot be further increased per semester due to current instructional resource limitations.

BME48832/3 is a two-semester design sequence required of all BME students in their senior year. All senior BME undergraduate students enroll in the course at the same time. This course is taught in our senior design space in the Nuclear Science Building, Room 408. This course requires prototyping of biomedical systems and devices. The laboratory space for this class houses many machining equipment and rapid prototyping tools, which are very expensive and can pose physical dangers if not handled correctly. As such, this space is overseen for handling instructions and safety by a full-time designated staff member (in addition to the course instructor and student assistants). This space is limited, and thus, we are capped at how many senior students can access this space at any given semester. Utilization of the space with 120 students is already at a maximum. Accommodation requires multiple work sessions with subsets of students on each day of a given week.

4. If the program is seeking specialized admissions status due to limited resources and/or is a Program of Strategic Emphasis, provide the institution's plan and timeline for increasing program resources. If the institution does not plan to increase capacity over the next few years, please provide a rationale. ☐ Not applicable

We are unable to increase capacity unless we are provided space and personnel resources. Resources would be needed to expand our teaching labs (new facilities and equipment) and financial resources for staffing these spaces with instructors, staff and teaching assistants to ensure adequate safety.

Space: Over the next 4 years, we do not have a plan to increase space capacity limitations. The BME department does not currently have additional space to allocate to the specialized courses.

Personnel Resources: The BME department does plan to hire two additional instructional faculty over the next year (Year 1). In the Years 2 and 3, the faculty will be trained to teach the specialized courses. By Year 4, our plan is to evaluate the potential for increasing the instructional coverage and number of sections for BME3323L. We will also evaluate the potential for increasing additional student work sessions and utilization of the departmental design space.

5. If approved for specialized admissions status, what will be the program's admissions requirements? Additionally, please indicate how these requirements and procedures ensure equal access for qualified Florida College System Associates in Arts graduates competing for available space in the program.

We are currently operating as a limited access program, so no changes are required to our processes.

Current Admissions Requirements and Process

The Biomedical Engineering (BME) undergraduate major is a limited enrollment program. Students who enter the University of Florida as freshmen identify pre-BME as their major of choice and begin enrolling in the required critical-tracking courses to prepare for upper division. During the Fall semester of the sophomore year, pre-BME majors apply for admission to the upper division BME major, which begins in the Spring semester of the sophomore year.

Current UF students must meet the following minimum requirements to be considered for admission to the upper division program.

- Minimum 2.8 GPA in critical tracking courses (best attempt). Only the best attempt in each critical tracking course is considered for admission to the upper division program. Critical tracking courses are indicated in the plan of study (see attached).
- No more than two attempts allowed for critical tracking courses (withdrawals included).

- Minimum grade of C in each critical tracking course.
- Completion of the first three semesters of the BME Plan of Study by Fall semester of application.
- BME departmental online application.

Students submit application information via a University of Florida Qualtrics survey. In addition to student demographic information questions, the application consists of the following short answer questions. In order to ensure admissions policies do not discriminate against students whose academic performance could potentially be influenced by race, color, national origin, disability, religion, sex, or socioeconomic status related effects, we perform a holistic review by reading each response. The responses to the questions allow consideration of student creativity and talent that will increase the likelihood of student success.

- What about the BME curriculum leads you to select BME over another engineering discipline?
- What are your career goals after graduating from UF?
- What are your extracurricular activities prior to UF (clubs, organizations, research, volunteer work, etc.)?
- What are your extracurricular activities since joining UF (clubs, organizations, research, volunteer work, etc.)?

In addition students are provided space to clarify anything on your UF transcripts (i.e. repeated courses, drops, incomplete grades, etc.) or address areas of potential concern (i.e. off track, below 2.8 minimum critical tracking GPA, etc.) to assist the BME Undergraduate Studies Committee (USC) with the application review.

The department also admits transfer students during the Fall, Summer, and Spring based on space availability. The goal each year is to accept approximately 5 transfer students consistent with the UF College of Engineering suggestions. Prioritization is given to qualified Associate of Arts graduates from Florida public universities Prioritize over out-of-state and transfer students from private universities.

BME Plan of Study *(for Semesters 1-4)*

Bachelor of Science in Biomedical Engineering

Suggested Plan of Study – Freshman Admission

Course	CR	Course	Offered	Alt courses/Prerequisites and Corequisites
Term 1		*Fall*		
BME1008	1	Introduction to Biomedical Engineering	F, S	
BSC2010	**3**	**Integrated Principles of Biology 1**	F, S, Su	
BSC2010L	1	Integrated Principles of Biology 1 Lab	F, S, Su	Alt course: BSC2044L/ISC2400L (X-Lab 1)
CHM2045	**3**	**General Chemistry**	F, S, Su	Alt course: CHM2047/CHM2095
CHM2045L	1	General Chemistry Laboratory	F, S, Su	Alt course: CHM2047L/CHM2054L/ISC2400L (X-Lab 1)
IUF1000	3	What is the Good Life	F, S, Su	
MAC2311	**4**	**Analytic Geometry and Calculus 1**	F, S, Su	Alt course: Calculus AB or Calculus BC with a score of 3 or higher on AP exam
Term Credit	16			
Term 2		*Spring*		
CHM2046	**3**	**General Chemistry 2**	F, S, Su	Alt course: CHM2047/CHM2051/CHM2096
CHM2046L	1	General Chemistry 2 Lab	F, S, Su	Alt course: CHM2047L/CHM2054L/ISC2401L (X-Lab 2)
ENC1101	3	Expository and Argumentative Writing	F, S, Su	
MAC2312	**4**	**Analytic Geometry and Calculus 2**	F, S, Su	Prereq: MAC2311 or MAC3472 with min grade of C
PHY2048	**3**	**Physics with Calculus 1**	F, S, Su	Alt course: PHY2060
PHY2048L	1	Lab for Physics with Calculus 1	F, S, Su	Alt course: PHY2053L/PHY2064L/ISC2400L (X-Lab 1)
Term Credits	15			
Term 3		*Fall*		
CHM3217	4	Organic Chemistry/Biochemistry 1	F, S, Su	Alt course: CHM2210+CHM2211; Prereq: CHM2046, CHM2047 or CHM2051; CHM2046L or CHM2047L
COP2271	2	Computer Programming for Engineers (Matlab or C++)	F, S, Su	Alt course: COP3275/COP3502/others (with approval)
COP2271L	1	Computer Programming for Engineers Lab (same language)	F, S, Su	Alt course: COP3275/COP3502/others (with approval)
MAC2313	**4**	**Analytic Geometry and Calculus 3**	F, S, Su	Prereq: MAC2312, MAC2512 or MAC3473 with min grades of C
PHY2049	**3**	**Physics with Calculus 2**	F, S, Su	Alt course: PHY2061; Prereq: PHY2048
PHY2049L	1	Lab for Physics with Calculus 2	F, S, Su	Alt course: PHY2054L/PHY2064L/ISC2401L (X-Lab 2)
Term Credits	15			
Term 4		*Spring*		
BME3053C	2	Computer Applications for BME	F, S	Prereq: COP2271 and COP2271L or equivalent and MAC2312 with min grades of C
BME3060	**3**	**Biomedical Fundamentals**	F, S	Prereq: CHM2046 or CHM2096 and MAC2313 with min grades of C; Coreq: PHY2049, MAP2302, and BME1008
EEL3003	3	Elements of Electrical Engineering	F, S, Su	Prereq: MAC2313 and PHY2049
ENC3246	3	Professional Communication for Engineers	F, S, Su	Prereq: ENC1101 or ENC1102
MAP2302	**3**	**Elementary Differential Equations**	F, S, Su	Prereq: MAC2312, MAC2512 or MAC3473 with min grades of C
PCB3713C	**4**	**Cellular and Systems Physiology** (offered F beginning Fall 2020)	F, S	Prereq: BSC2010 and CHM2046, CHM2047, or CHM2096 and PHY2048 or PHY2060 with min grades of C; Coreq: PHY2049 or PHY2061
Term Credits	18			
Lower Div	**64**			

NOTE: BME is a limited access program. **Bold** courses are critical tracking and must be completed with a min 2.8 CT GPA, grade C or better, no more than 2 attempts.

6. What is the current race and gender profile of the program? Describe the potential impact on the race and gender profiles of the program. What strategies will be implemented to promote and maintain diversity in the program?

Current Race and Gender Profiles

Table 1: Gender Profile of Current Program

Gender Profile for UF BME	
(Graduating Classes 2014 – 2021; Students = 417)	
Male	230 (**55%**)
Female	187 (**45%**)

Table 2: Race Profile of Current Program

Race Profile for UF BME Graduating Classes	
(Graduating Classes 2014 – 2021)	
European on Caucasian American	200 (**51%**)
Asian American	87 (**22%**)
Hispanic American	82 (**21%**)
African American	16 (**4%**)
Non-Resident Alien	7 (**2%**)
Pacific American	2 (**1%**)
Indigenous American	2 (**1%**)

* Percentages are rounded to nearest who number. The gender and race data are for the graduating classes from 2014 to 2021 and represent current reflect the current student population.

Impact of Race and Gender Profiles on the Program

Fostering a diverse academic environment is critical to the continued success of the BME department at UF. The BME undergraduate student gender and race profiles has influenced the department's recent faculty recruitment with the goal that the instructional and student populations are representative of each other. Currently, 52% of the BME faculty are women and 24% of the faculty are URMs. In recognition of the importance of an inclusive environment for diverse gender and race populations, UF BME has also initiated departmental inclusion, diversity, equity, and access (idea) committees at the student and faculty levels. The department also hosts multiple IDEA events throughout the academic year and its engagement, Outreach and Public Relations Committee facilitates faculty led K-12 outreach events in the community targeted toward minority and/or socioeconomic disadvantaged groups.

Strategies for Promoting and Maintaining Diversity in the Program

The UF College of Engineering goal is admit students that reflect the Florida's diversity. UF BME admits students who are already in the UF College of Engineering. Consequently, our departmental strategy is to admit and maintain the diversity represented by the freshman engineering cohort. In order to promote diversity of our applicant pool, we actively connect with freshman students though the college's freshman advising office. We also ensure a holistic review process that considers more than just academic ability. BME has methods both curricular and extracurricular to connect with potential students. BME has a presence at UF HWCOE Freshman Convocation and the UF Majors events. BME also has a representative in the HWCOE course EGS1006 Introduction to Engineering. We also have BME upper division students in critical College student organizations who also advertise our program; these organizations include NSBE, SWE and SHPE. We foster inclusion starting in freshman year when students take BME1008 Introduction to Biomedical Engineering; students learn about the importance of inclusion in innovation and inclusive design. In order to promote, maintain and foster an inclusive environment, we make IDEA a priority (see description for Impact of Race and Gender Profiles on the Program).

Required Signatures

Requestor/Initiator	Date
Signature of College Dean	Date
Signature of Campus EO Officer	Date
Signature of Provost	Date
Signature of Chair of the Board of Trustees	Date
Date Approved by the Board of Trustees	