Biomedical Engineering (Biological Devices), BSE

ESBMEBDBSE

Biological products are an FDA class of devices that include medical interventions that are living: stem cell therapies, gene therapies, programming the immune system to target cancer, and many others. Prepare yourself for a career creating and advancing developments in these devices in this interdisciplinary program.

Program Description

The BSE program in biomedical engineering with a concentration in biological devices provides in-depth knowledge of cell biology and helps students learn to apply that knowledge to solve engineering problems pertinent to medicine and other fields, including synthetic biology.

The biomedical industry has many branches that require depth of understanding of cell biology and its techniques, including immunohistochemical diagnostics, blood-contacting materials, controlled-release therapeutics and local delivery of therapeutics.

With courses that cover engineering, life sciences and that tie the two together, graduates are able to apply their skills in an ethical and a sustainable manner to make contributions that address societal and individual needs.


At a Glance

- **College/School:** [Ira A. Fulton Schools of Engineering](http://www.asu.edu)
- **Location:** Tempe
- **Additional Program Fee:** Yes
• **Second Language Requirement:** No
• **First Required Math Course:** MAT 265 - Calculus for Engineers I
• **Math Intensity:** Substantial

**Required Courses (Major Map)**

2023 - 2024 Major Map
Major Map (Archives)

**Concurrent Program Options**

Students pursuing concurrent degrees (also known as a "double major") earn two distinct degrees and receive two diplomas. Working with their academic advisors, students can create their own concurrent degree combination. Some combinations are not possible due to high levels of overlap in curriculum.

**Accelerated Program Options**

This program allows students to obtain both a bachelor's and master's degree in as little as five years. It is offered as an accelerated bachelor's plus master's degree with:

Biomedical Engineering, MS

Acceptance to the graduate program requires a separate application. Students typically receive approval to pursue the accelerated master's during the junior year of their bachelor's degree program. Interested students can learn about eligibility requirements and how to apply.

**Admission Requirements**

**General University Admission Requirements:**
All students are required to meet general university admission requirements.

First-year | Transfer | International | Readmission

**Additional Requirements:**

Minimum 1210 SAT combined evidence-based reading and writing plus math score or minimum 24 ACT combined score, or minimum high school GPA of 3.00 in ASU competency courses, or class ranking in top 25% of high school class, and no high school math or science competency deficiencies

**Transfer Admission Requirements:**

Transfer students with fewer than 24 transferable college credit hours:

1. minimum transfer GPA of 3.00 for fewer than 24 transfer hours, and
2. no high school math or science competency deficiencies, and
3. minimum 1210 SAT combined evidence-based reading and writing plus math score (or 1140 if taken prior to March 5, 2016) or minimum 24 ACT combined score, or a minimum high school cumulative GPA of 3.00 in ASU competency courses, or class ranking in top 25% of high school class

Transfer students with 24 or more transferable college credit hours must meet EITHER the primary OR the secondary criteria (not both):

Primary criteria

1. minimum transfer GPA of 3.00 for 24 or more transfer hours, and
2. no high school math or science competency deficiencies (if ASU Admission Services requires submission of a high school transcript)

Secondary criteria

1. minimum transfer GPA of 2.75 for 24 or more transfer hours, and
2. minimum GPA of 3.00 in all critical courses for Terms 1 and 2 (see major map for critical courses)

Tuition Information

When it comes to paying for college, everyone’s situation is different. Students can learn about ASU tuition and financial aid options to find out which will work best for them.

Change of Major Requirements

Admission requirements for many majors in the Ira A. Fulton Schools of Engineering are higher than university admission standards.

Students should visit the Change of Major form for information about how to change a major to this program.

Transfer Options

ASU is committed to helping students thrive by offering tools that allow personalization of the transfer path to ASU. Students may use MyPath2ASU® to outline a list of recommended courses to take prior to transfer.

ASU has transfer partnerships in Arizona and across the country to create a simplified transfer experience for students. These pathway programs include exclusive benefits, tools and resources, and they help students save time and money in their college journey.
Global Opportunities

Global Experience
With over 300 Global Education programs in more than 65 countries (programs vary in length, from one week to one year), study abroad is possible for all ASU students who wish to acquire global skills and knowledge in preparation for a forward-thinking career. Students earn ASU credit for completed courses, while staying on track for graduation, and they may apply financial aid and scholarships toward program costs.

Career Opportunities

Graduates of this program are well qualified for entry-level positions, including quality assurance, regulatory affairs and project management. Graduates are also highly qualified to seek advanced degrees if they wish to pursue research and design positions.

Career example titles and salaries listed below are not necessarily entry level, and students should take into consideration how years of experience, geographical location, and required advanced degrees or certifications may affect pay scales.

<table>
<thead>
<tr>
<th>Career</th>
<th>*Growth</th>
<th>*Median Salary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bioinformatics Scientist</td>
<td>3.9%</td>
<td>$87,300</td>
</tr>
<tr>
<td>Biomedical Engineer</td>
<td>5.1%</td>
<td>$99,550</td>
</tr>
<tr>
<td>Biostatistician</td>
<td>31.6%</td>
<td>$98,920</td>
</tr>
<tr>
<td>Compliance Manager</td>
<td>3.3%</td>
<td>$128,620</td>
</tr>
<tr>
<td>Health and Safety Engineer</td>
<td>3.7%</td>
<td>$100,660</td>
</tr>
<tr>
<td>Molecular Biologist</td>
<td>3.9%</td>
<td>$87,300</td>
</tr>
<tr>
<td>Regulatory Affairs Manager</td>
<td>3.3%</td>
<td>$128,620</td>
</tr>
<tr>
<td>Validation Engineer</td>
<td>11.7%</td>
<td>$96,350</td>
</tr>
</tbody>
</table>

* Data obtained from the Occupational Information Network (O*NET) under sponsorship of the U.S. Department of Labor/Employment and Training Administration (USDOL/ETA).

Bright Outlook

Professional Licensure

ASU programs that may lead to professional licensure or certification are intended to prepare students for potential licensure or certification in Arizona. Completion of an ASU program may not meet educational requirements for licensure or certification in another state. For more information, students should visit the ASU professional licensure webpage.
Students should note that not all programs within the Fulton Schools of Engineering lead to professional licensure.

Contact Information

School of Biological & Health Systems Engineering | ECG 334
sbhse.advising@asu.edu | 480-965-3028