Biomedical Engineering (Biological Devices), **BSE**

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 campus](http://www.asu.edu)
- **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)

2021 - 2022 Major Map
Major Map (Archives)

Admission Requirements

General University Admission Requirements:
All students are required to meet general university admission requirements. 
Freshman | Transfer | International | Readmission

Additional Requirements:

minimum 1210 SAT combined evidence-based reading and writing plus math score or minimum 24 ACT combined score or 3.00 minimum ABOR GPA 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 3.00 minimum GPA in ABOR 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 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)
Change of Major Requirements

Admission requirements for many majors in the Ira A. Fulton Schools of Engineering are higher than university admission standards: [https://engineering.asu.edu/admission-requirements](https://engineering.asu.edu/admission-requirements).

Current ASU students should refer to [https://engineering.asu.edu/admission-requirements](https://engineering.asu.edu/admission-requirements) for the major change requirements for this program.

Students should refer to [https://changemajor.apps.asu.edu](https://changemajor.apps.asu.edu) 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 help students save time and money in their college journey. Students may learn more about these programs by visiting the admission site: [https://admission.asu.edu/transfer/pathway-programs](https://admission.asu.edu/transfer/pathway-programs).

Global Opportunities

Global Experience
With over 250 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 21st-century 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. [https://goglobal.asu.edu/](https://goglobal.asu.edu/)

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 examples include but are not limited to those shown in the following list. Advanced degrees or certifications may be required for academic or clinical positions.

<table>
<thead>
<tr>
<th>Career</th>
<th>*Growth</th>
<th>*Median Salary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bioinformatics Scientist</td>
<td>2.2%</td>
<td>$85,290</td>
</tr>
<tr>
<td>Biomedical Engineer</td>
<td>4.7%</td>
<td>$92,620</td>
</tr>
<tr>
<td>Biostatistician</td>
<td>34.6%</td>
<td>$92,270</td>
</tr>
<tr>
<td>Compliance Manager</td>
<td>not available</td>
<td></td>
</tr>
<tr>
<td>Health and Safety Engineer</td>
<td>3.9%</td>
<td>$94,240</td>
</tr>
<tr>
<td>Molecular Biologist</td>
<td>2.2%</td>
<td>$85,290</td>
</tr>
<tr>
<td>Regulatory Affairs Manager</td>
<td>not available</td>
<td></td>
</tr>
<tr>
<td>Validation Engineer</td>
<td>10.1%</td>
<td>$88,950</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  🌿 Green Occupation

Contact Information

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