Biological Sciences (Genetics, Cell and Developmental Biology), BS

Experience the excitement of scientific discovery. Learn how genetic information is organized and transmitted across generations and study how genes can affect change at the cellular level and in organisms.

**Program Description**

The BS program in biological sciences with a concentration in genetics, cell and developmental biology integrates the study of three exciting, closely related areas of life science research.

Genetics examines the blueprints of life, such as DNA sequence and gene expression, while cell biology studies the machinery of life enclosed within the boundaries of cells. Developmental biology uses both genetics and cell biology to understand how genes and the environment interact to produce a whole new individual from a single cell as well as understand the various developmental changes that organisms undergo throughout life.

The combined study of genetics, cell biology and development has resulted in a better understanding of many diseases and promises to prove even more important in the future.

This program is available as an accelerated degree program: [https://sols.asu.edu/degree-programs/accelerated-bachelor-master-science](https://sols.asu.edu/degree-programs/accelerated-bachelor-master-science).

Due to the high volume of overlap in curriculum, students enrolled in this degree are not permitted to declare a concurrent degree combination with any other School of Life Sciences program or with the Bachelor of Science degree in biochemistry from the School of Molecular Sciences. Students should speak with their academic advisor for any further questions.

**At a Glance**
• **College/School:** The College of Liberal Arts and Sciences
• **Location:** Tempe campus or online, ASU Local@Los Angeles

• **Additional Program Fee:** Yes
• **Second Language Requirement:** No
• **First Required Math Course:** MAT 251 - Calculus for Life Sciences
• **Math Intensity:** Moderate

**Required Courses (Major Map)**

2021 - 2022 Major Map (On-campus)
2021 - 2022 Major Map (Online)
Major Map (Archives)

**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 and master's degree with:

- Biology (Biology and Society), MS
- Biology, MS
- Global Management (Creative Industries and Design Thinking), MGM
- Global Management (Digital Audience Strategy), MGM
- Global Management (Global Affairs), MGM
- Global Management (Global Business), MGM
- Global Management (Global Development and Innovation), MGM
- Global Management (Global Digital Transformation), MGM
- Global Management (Global Entrepreneurship), MGM
- Global Management (Global Health Care Delivery), MGM
- Global Management (Global Legal Studies), MGM
- Global Management (Integrated Health Care), MGM
- Global Management (Nonprofit Leadership and Management), MGM
- Global Management (Public Administration), MGM
- Global Management (Public Policy), MGM
- Global Management (Sustainability Solutions), MGM
- Global Management (Sustainable Tourism), MGM
- Global Management, MGM
- Microbiology, MS
- Molecular and Cellular Biology, MS
Acceptance to the graduate program requires a separate application. During their junior year, eligible students are advised by their academic departments to apply.

**Admission Requirements**

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

[Freshman] [Transfer] [International] [Readmission]

**Change of Major Requirements**

A current ASU student has no additional requirements for changing majors.

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.

**Attend Online**

ASU offers this program in an online format with multiple enrollment sessions throughout the year. Applicants may view the program description and request more information [here](#).

**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™](https://www.asu.edu/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**

When studying abroad, students are able to engage in community service and outreach all around the world, which can help their graduate and professional program applications stand out. Students experience unique biological environments and gain an understanding of worldwide differences in the human condition. Study abroad programs exist across the globe, including a summer in Panama and a year in Ireland. [https://goglobal.asu.edu/](https://goglobal.asu.edu/)

The College of Liberal Arts and Sciences recommends the following study abroad programs for students majoring in biological sciences with a concentration in genetics, cell and developmental biology:
Career Opportunities

Graduates of this concentration have a variety of career options. This degree provides the fundamental coursework necessary for admission into medical, dental, veterinarian, pharmacy or graduate schools or any of the health professions. There also are many employment opportunities that can be pursued upon receipt of the Bachelor of Science with this concentration:

- animal breeder technician
- bioinformaticist
- biotechnologist
- cell culture specialist
- cloning technician
- crime lab technician
- cytotechnologist
- drug design technician
- food and drug inspector
- genetic counselor
- histologist
- in-vitro fertilization technician
- plant improvement specialist
- teacher
- technical writer
- vaccine development technician

Students in this concentration program learn critical thinking skills that can be applied to many scientific problems and professions as well as to the challenges of daily life. Students are encouraged to engage in independent research projects or internship opportunities to develop a better sense of how science is done.

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>Biological Sciences Professor</td>
<td>9.3%</td>
<td>$85,600</td>
</tr>
<tr>
<td>Clinical Trial Manager</td>
<td>4.8%</td>
<td>$137,940</td>
</tr>
<tr>
<td>Cytotechnologist</td>
<td>not available</td>
<td></td>
</tr>
<tr>
<td>Epidemiologist</td>
<td>4.6%</td>
<td>$74,560</td>
</tr>
<tr>
<td>Geneticist</td>
<td>2.2%</td>
<td>$85,290</td>
</tr>
<tr>
<td>Occupation</td>
<td>Growth Rate</td>
<td>Salary</td>
</tr>
<tr>
<td>---------------------</td>
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<td>---------</td>
</tr>
<tr>
<td>High School Teacher</td>
<td>3.8%</td>
<td>$62,870</td>
</tr>
<tr>
<td>Life Scientist</td>
<td>4.6%</td>
<td>$82,000</td>
</tr>
<tr>
<td>Medical Scientist</td>
<td>6.1%</td>
<td>$91,510</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

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