

Biochemistry (Medicinal Chemistry), BS

LABCHMBS

Learn about the molecular processes of life and how medicines work at this level to benefit human health. The conceptual and hands-on skills you gain through the molecular and life sciences courses are tailored for pre-health and pre-medical students, serving as your gateway to a dynamic career or medical school.

Program description

Students in the BS program in biochemistry with a concentration in medicinal chemistry gain in-depth understanding of basic chemistry, biomolecular properties and function, and mechanisms governing cellular function. They develop the knowledge required to apply chemical and biochemical principles to drug design and functionality, with a specific focus on medicinal chemistry.


The curriculum comprises traditional coursework with a concentration in medicinal chemistry, combining lectures and laboratory sessions to provide a strong foundation in chemistry and biology. The program emphasizes the application of chemical and biochemical thinking to the design and mechanisms of medicines.

Students are encouraged to participate in faculty research groups and labs, offering hands-on research experiences in the field of medicinal chemistry.

In addition to the guidelines in the Concurrent Program Options section below, students interested in pursuing concurrent or second baccalaureate degrees in The College of Liberal Arts and Sciences are advised to visit [The College's website](#) for more information and requirements.

At a glance

- **College/School:** [The College of Liberal Arts and Sciences](#)
- **Location:** [Tempe](#) or [Online](#), [ASU Local](#)
- **Second language requirement:** No

- **First required math course:** MAT 270 - Calculus w/Analytic Geometry I or MAT 265 Calculus for Engineers I
- **Math intensity:** Substantial 

Required courses (Major Map)

[2024 - 2025 Major Map \(on-campus\)](#)

[2024 - 2025 Major Map \(online\)](#)

[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:

[Biochemistry \(Medicinal Chemistry\), MS](#)

[Computational Life Sciences, 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](#)

Tuition information

When it comes to paying for higher education, 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

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

Students should visit the [Change of Major form](#) for information about how to change a major to this program.

Attend online

ASU Online

ASU offers this program in an online format with multiple enrollment sessions throughout the year. Applicants may [view the program's ASU Online page](#) for program descriptions and to request more information.

ASU Local

It is now possible to earn an ASU degree with [ASU Local](#), an integrated college experience in which students take advantage of in-person success coaching and programming experiences on site while completing one of 130+ undergraduate online degree programs, all of which come with online faculty interaction and tutoring support.

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

Each of the more than 300 [Global Education program](#) options provides an opportunity for students to develop a valuable skill set that can give them an advantage in career and personal enrichment. Studying abroad helps students build cultural competency skills as well as heightened skills in communication, critical thinking and leadership that allow them to stand out on their graduate school applications.

Whether in a foreign country, in the U.S. or online, Global Education programs encourage students to build communication skills, challenge them to adapt and persevere, expose them to differences across the world and increase their ability to work with diverse groups of people. Students earn ASU credit for completed courses while staying on track for graduation.

Career opportunities

A solid undergraduate education in biochemistry with an emphasis in medicinal chemistry provides the necessary background for career paths in chemical, medical, pharmaceutical and biotechnology industries and for careers in governmental regulation, health care, research and other areas.

Many students who intend to apply to medical school take biochemistry with a medicinal chemistry emphasis in order to make their applications more competitive, and this degree program is ideal for such students. The program provides excellent preparation for advanced graduate study in biochemistry, pharmaceuticals, pharmacology and toxicology, as well as for careers in drug design and pharmaceuticals, medicine and health, research, food production, environmental protection and several other technical fields.

Students planning careers in medicine, dentistry, pharmacy, veterinary medicine or research in these or related fields also often pursue the medicinal chemistry concentration with supporting work in biology and chemistry as the route for pre-professional training.

Example job titles and salaries listed below are not necessarily entry level, and students should take into consideration how years of experience and geographical location may affect pay scales. Some jobs also may require advanced degrees, certifications or state-specific licensure.

Career	*Growth	*Median salary
<u>Dentist</u>	4.4%	\$155,040
<u>High School Teacher</u>	1.0%	\$62,360
<u>Medical Doctor (MD)</u>	2.5%	\$214,460
<u>Medical Lab Technician</u> ☀	4.9%	\$57,380
<u>Medical Scientist</u> ☀	9.8%	\$99,930
<u>Optometrists</u> ☀	8.8%	\$125,590
<u>Pharmacist</u>	2.6%	\$132,750
<u>Physician Assistant (PA)</u> ☀	26.5%	\$126,010
<u>Scientist/Biochemist</u> ☀	6.7%	\$103,810
<u>Veterinarian (Vet)</u> ☀	19.7%	\$103,260

* 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

Contact information

School of Molecular Sciences | PSD 104
SMSadvising@asu.edu | 480-965-7667

