

To Transfer to UCSD and SDSU:

Beginning in Fall 2000 all students majoring in biology who wish to transfer to UCSD or SDSU must have satisfied all biology pre-major requirements prior to admission to the biology major. In the event that a transfer student has been unable to complete all required courses prior to enrolling at UCSD, he/she will be allowed a maximum of three quarters at UCSD to complete any remaining required pre-major coursework. For more information see <http://www.biology.ucsd.edu/sa/ugadmission.html>

Note: Two calculus-based physics course sequences are now available for biology majors. Sequence one—PHYS 170, 172, and 174. Sequence two—PHYS 270, 272, and 274. Check with your transfer institution for specific requirements.

Web sites for biology majors:

SDSU: <http://www.sci.sdsu.edu>

UCSD: <http://www.biology.ucsd.edu>

CSU, San Marcos: <http://www.csusm.edu/biology>

Articulation: <http://www.assist.org>

Biotechnology

School of Mathematics, Science, and Engineering

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Faculty Jonathan Atwater, Ph.D.; Nouna Bakhiet, Ph.D.

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General Description

Biotechnology is a rapidly expanding field of biology that has significant future potential for both improving life and providing a growing source of technical jobs. Biotechnology is the science of using and modifying biological materials in order to develop products and organisms for specific uses. The biotechnology laboratory technician works in a research or industry laboratory.

Career Options

Below is a sample of the career options available for the biotechnology major. Most of these require a certificate or an associate in science degree and are career options at an entry-level technician position in the following areas, which include but are not limited to the biotechnology industry: food, oil, genomics, pharmaceutical industry, forensic science, agriculture, anthropology, NASA projects, and basic research in academic or nonprofit institutions.

Degree/Certificate Options

Major Code

Associate in Science Degree: Transfer Preparation

Biotechnology	01512
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Certificate of Achievement

Biotechnology	01511
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Certificate of Proficiency

Step-Up Biotechnology	01513
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Consult with a counselor to develop a Student Education Plan (SEP), which lists the courses necessary to achieve your academic goal.



ASSOCIATE IN SCIENCE DEGREE



Biotechnology

Transfer Preparation * (Major Code: 01512)

The associate in science degree augments student transfer preparation and qualifies students for entry-level positions in biotechnology research laboratories.

First Semester

MATH 70 Intermediate Algebra II 4

Second Semester

BIOL 100 Principles of Biology ** 3

BIOL 101 Principles of Biology Laboratory ** 1

BIOL 205 DNA Science I 2

BIOL 229 Introduction to Biological Research I 3

CHEM 170 Preparation for General Chemistry (4) **

OR 4-5

CHEM 200 General Chemistry I (5) **

Third Semester

BIOL 206 DNA Science II 2

BIOL 211 Introduction to Cell and Molecular Biology 4

BIOL 230 Introduction to Biological Research II 3

BIOL 265 General Microbiology 5

Total units 31-32

** Transfer students should substitute higher-level courses required for their major (e.g.: BIOL 210 can replace BIOL 100/101; CHEM 170 or 200 can be replaced by higher-numbered chemistry courses; and MATH 70 can be replaced by higher-numbered math courses.

To earn an associate degree, additional general education and graduation requirements must be completed. See page 49.

* Students planning to transfer to a four-year college or university should complete courses specific to the transfer institution of choice. University requirements vary from institution to institution and are subject to change. Therefore, it is important to verify transfer major preparation and general requirements through consultation with a counselor in either the Counseling Center or Transfer Center. See catalog TRANSFER COURSES INFORMATION section on page 32 for further information.

CERTIFICATE



Biotechnology

Certificate of Achievement

Career/Technical (Major Code: 01511)

Provides training in the theory and practices of biotechnology, which include introduction to microbiology, cell biology, and molecular biology techniques. Each participant is required to take a qualifying examination prior to certification.

First Semester

MATH 70 Intermediate Algebra II * 4

Second Semester

BIOL 100 Principles of Biology * 3

BIOL 101 Principles of Biology Laboratory * 1

BIOL 205 DNA Science I 2

BIOL 229 Introduction to Biological Research I 3

CHEM 170 Preparation for General Chemistry (4)

OR 4-5

CHEM 200 General Chemistry I (5)

Third Semester

BIOL 206 DNA Science II 2

BIOL 211 Introduction to Cell and Molecular Biology 4

BIOL 230 Introduction to Biological Research II 3

BIOL 265 General Microbiology 5

Total units 31-32

* Higher-numbered courses are also acceptable: BIOL 210 can replace BIOL 100/101; CHEM 170 or 200 can be replaced by higher-numbered chemistry courses; and MATH 70 can be replaced by higher-numbered math courses.

Step-Up Biotechnology

Certificate of Proficiency

Career/Technical (Major Code: 01513)

Provides students with training for entry-level employment in a biotechnology laboratory in industry or research. Introduces students to laboratory skills utilized by this rapidly expanding field of biology, which has a significant future potential for both improving life and providing a growing source of technical jobs. Exposes students to concepts in biotechnology, which is the science of using and modifying biological materials in order to develop products and organisms for specific uses.

BIOL 75 Introduction to Biotechnology 1.5

BIOL 76 Basic Biotechnology Laboratory Computations 1.5

BIOL 77 Biotechnology Laboratory Skills 3

BIOL 78 Biotechnology Job Success Skills 1.5

Total units 7.5