



COLLEGE OF ARTS AND SCIENCES

BIOCHEMISTRY

1-800-334-4111 • WWW.CAMPBELL.EDU

THE CAMPBELL PROGRAM

With the expansion of scientific research into the areas of biotechnology, there is a need for graduates to have a balanced understanding of both biology and chemistry. Our goal is to offer a well-rounded, interdisciplinary program which gives students the “best of both worlds.” The courses offered in this program are designed to prepare students for professional and graduate schools as well as careers in government and private industry. Students may take advanced electives in either Biology or Chemistry to prepare them for specific career goals.

THE CAMPBELL APPROACH

We strive to present a balance between the theoretical and the practical by spending equal amounts of time in lecture and lab. Although the lower-level labs average about 20-24 students, upper-level labs are taught by experienced faculty members and typically have fewer students to ensure ample opportunity for student-faculty interaction. Our facilities are improving each year and currently house:

- DNA Sequencer
- Wireless Internet access for online searches
- Electrophoresis equipment for biochemical techniques
- Chromatographic equipment for separation and analysis
- PCR thermocyclers and related molecular biotechnology equipment
- Animal tissue culture facilities
- Gel documentation system

We continue to seek grants and outside funding to accommodate the growing needs of our departments.

THE CAMPBELL FACULTY

Our faculty's strong academic credentials are complemented by vast teaching expertise in a wide variety of subjects. During their summers, faculty members may be found actively involved in personal research, attending symposiums and colloquiums around the nation, or working on projects at other universities or in industry. As importantly, you will find faculty members are approachable, friendly and regularly available for “walk-in” discussions. Biochemistry majors are advised by both Biology and Chemistry faculty who can relate to your personal career goals.

You will also find opportunities to interact with faculty and other majors through a variety of club opportunities including the Walker Biology Club, the Pre-Medical/Allied Health Honor Society and the American Chemical Society Student Affiliate. These clubs strive to provide opportunities to keep students up-to-date with happenings in scientific circles.

For more information about the program contact:

1-800-334-4111, ext. 1730 • 910-893-1730

biochemistry@campbell.edu

THE CAMPBELL STUDENT

We are seeking students who are seriously interested in science and may have a desire to follow up with graduate school. Generally speaking, our students are well-grounded in biology, chemistry and mathematics courses (through Calculus) before arriving at Campbell. Successful students in our program usually have an SAT score above 1100, a high school unweighted GPA over 3.0 and a real aptitude for science and mathematics.

Some majors will later go on to advanced graduate degrees such as biochemistry, chemistry or medicinal chemistry; others may go on to medical school. The remainder will likely work in lab research support with the government or in private industry.



The Campbell Advantage

The Biochemistry program at Campbell seeks to prepare graduates for keeping up with the growth in our scientific community by...

- Offering a strong and competitive interdisciplinary curriculum which helps students gain understanding of both biology and chemistry.
- Providing students with a thorough understanding of the free enterprise system.
- Our dedication to providing a quality liberal arts education and our Christian Mission.

BIOCHEMISTRY: BACHELOR OF SCIENCE

Requirements for a Major in Biochemistry

MATH 160, 122, 223; PHYS 251, 252; BIOL 111, 201, 342, 350, 430, 508 and 11 semester hours of elective courses in BIOL and/or CHEM; CHEM 111, 113, 215, 227, 228, 334.

**Note: Students are required to take either BIOL 451, CHEM 451 or CHEM 452 for an additional one-semester hour.*

CURRICULUM OUTLINE

Biochemistry

FRESHMAN YEAR

<u>SEMESTER 1</u>	<u>HRS</u>	<u>SEMESTER 2</u>	<u>HRS</u>
BASIC BIOLOGY	BIOL 111 4	CELL/MOLECULAR	BIOL 201 4
GENERAL CHEMISTRY I	CHEM 111 4	GENERAL CHEMISTRY II	CHEM 113 4
CALCULUS I	MATH 122 4	CALCULUS II	MATH 223 4
ENGLISH FUNDAMENTALS	ENGL 100 3	ENGLISH COMP I	ENGL 101 3
CU WORSHIP	CUW 100 0.5	CU WORSHIP	CUW 100 0.5

SOPHOMORE YEAR

<u>SEMESTER 3</u>	<u>HRS</u>	<u>SEMESTER 4</u>	<u>HRS</u>
BIOCHEM ELECTIVE	4	ADV CELL/MOL BIOCHEM	BIOL 310 4
ORGANIC CHEMISTRY I	CHEM 227 4	ORGANIC CHEMISTRY II	CHEM 228 4
ENGLISH COMP II	ENGL 102 3	ENGLISH LITERATURE	ENGL LIT 3
WESTERN CIV I	HIST 111 3	WESTERN CIV II	HIST 112 3
LIFETIME WELLNESS	PE 185 2	SOCIAL SCIENCE ELECTIVE	3
CU WORSHIP	CUW 200 0.5	CU WORSHIP	CUW 200 0.5

JUNIOR YEAR

<u>SEMESTER 5</u>	<u>HRS</u>	<u>SEMESTER 6</u>	<u>HRS</u>
PE ACTIVITY	PE 111 1	PHYSICS II	PHYS 252 4
PHYSICS I	PHYS 251 4	GENETICS	BIOL 342 4
STATISTICS	MATH 160 3	SOCIAL SCIENCE ELECTIVE	3
FOREIGN LANG	102 3	FOREIGN LANG	201 3
ENGLISH LITERATURE	ENGL LIT 3	INTRO TO CHRISTIANITY	RELG 125 3

SUMMER SESSION HRS

MOLECULAR TECH	BIOL 508 4
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SENIOR YEAR

<u>SEMESTER 7</u>	<u>HRS</u>	<u>SEMESTER 8</u>	<u>HRS</u>
BIOCHEMISTRY I	BIOL 430 4	PHYS CHEMISTRY	CHEM 334 4
QUANT. ANALYSIS	CHEM 215 4	BIOCHEM ELECTIVE	4
RELIGION ELECTIVE	RELG 3	ART/MUSIC/THEATRE	131 3
BIOL 451	BIOL 451 3	ELECTIVE	4

TOTAL HOURS 129

English Comp – Students with an SAT verbal score below 450 will be enrolled in ENGL 100; 450-699 students will be enrolled in ENGL 101; 700 and above with at least a “B” average in high school students will be enrolled in ENGL 102.

English Literature – The ENGL LIT requirement may be satisfied by completing any two of the following literature courses: ENGL 201, 202, 203, 204 or 205, or with a 300-level Foreign LANG LIT.

Foreign Language – Students are required to pass a 201-level Foreign LANG.

Social Science – Courses that meet this requirement may be selected from CRIM, ECON, GEOG, POLS, HIST, PHIL, PSYC or SOCI.

Electives – Any course may be used for an elective; however, carefully chosen electives will allow for a minor.

SUGGESTED BIOCHEMISTRY ELECTIVES (8 credits total; only up to 4 credits of research)

BIOL 205, 250, 310, 334, 335, 441; CHEM 331.

**Candidates who are considering graduate studies are recommended to take an additional year of calculus and an additional 300 or 400 level BIOL or CHEM course as an elective.*