**BIOCHEMISTRY**

*Chemistry Department*

**Faculty**
Glenn Barnett (chair), James Dunne, Ashley Garr, Catherine Haustein, Neluni Perera, Jay Wackerly

**Statement of philosophy**
Housed in the chemistry department, a major in biochemistry is offered for students interested in careers straddling the more traditional fields of chemistry and biology. Students choosing this major will obtain excellent preparation for a variety of careers including biochemistry, biotechnology, pharmacology, and agricultural chemistry. A degree in biochemistry is also an excellent precursor to pre-professional programs including medicine, dentistry and optometry. A student cannot major in both chemistry and biochemistry.

The faculty strives to remain abreast of modern chemical techniques while being aware of the benefits and responsibilities of living in a technological society. Our department follows guidelines of the American Chemical Society (ACS), so biochemistry majors receive instruction comparable to that at larger institutions while benefiting from individualized attention that is the hallmark of Central College.

**American Chemical Society certification**
In addition to our regular major, we also offer an ACS certified degree designed to give excellent preparation for graduate school. What does our American Chemical Society certification mean? According to the American Chemical Society, a department that follows and meets the guidelines for certification produces graduates with the background necessary to enter graduate school or employment in which a strong background in chemistry is needed. An ACS approved department will “assure students that they have high quality programs in chemistry. For the student, a certified degree in chemistry is a valuable personal credential that serves as a national-level recognition for successfully completing a rigorous academic chemistry curriculum in an ACS-approved department...The extra rigor and additional requirements of the certified degree are valued by potential employers and graduate schools alike.” ([Undergraduate Professional Education in Chemistry Guidelines and Evaluation Procedures](http://www.acs.org), Spring 2003, American Chemical Society Committee on Professional Training)

In connection with our ACS certification, students in our department have on-line access to all American Chemical Society publications.

**Major Communication Skills**
The communications skills for the biochemistry major are evaluated as follows: In the spring of the second year (or upon declaration of the major), the department will make a preliminary judgment with respect to reading, writing and speaking skills based on lab reports, other writing assignments, class presentations and performances on skills tests such as the PSAT, ACT, URE and reading labs. Students deemed to be weak in one or more skills will be advised of the weakness and possible remedial activities. Diagnostic and self-help materials for writing skills will be made available.

**Major/Minor restrictions**
A student may not major in both biochemistry and chemistry.

**Biochemistry Major Requirements (56 credits)**

1. Complete all of the following (49 credits):
   - CHEM 131 General Chemistry (4)
   - CHEM 151 Inorganic Chemistry (4)
   - CHEM 235 Organic Chemistry I (4)
   - CHEM 236 Organic Chemistry II (4)
   - CHEM 241 Analytical Chemistry (4)
   - CHEM 320 Biochemistry (4)
   - CHEM 361 Physical Chemistry I (3)
   - CHEM 363 Physical Chemistry Lab: Kinetics (1)
   - BIOL 131 Introduction to Cells (4)
   - BIOL 221 Genetics (4)
   - MATH 131 Calculus I (4)
   - MATH 132 Calculus II (4)
   - PHYS 111 General Physics I (5)

2. Complete one of the following electives in Biology (4 credits):
   - BIOL 335 Functional Histology (4)
   - BIOL 341 Human Physiology (4)
   - BIOL 361 Microbiology (4)
3. Complete an additional biology elective from group 2 or one of the following chemistry courses (3 credits):
   CHEM 430  Advanced Organic Chemistry (3)
   CHEM 447  Instrumental Analysis (4)

Coursework required for American Chemical Society Biochemistry Certification
Note: For other ACS course options and updates to the requirements for ACS certification, please see the department chair.

1. Complete all of the above courses listed in section one for the Central College biochemistry major. (66 credits)

2. Complete the following courses:
   CHEM 362  Physical Chemistry II (3)
   PHYS 112  General Physics II (5)
   CHEM 498  Research (3 or 4)

3. Complete one of the following electives (4):
   CHEM 447  Instrumental Analysis (4)
   BIOL 335  Functional Histology (4)
   BIOL 341  Human Physiology (4)
   BIOL 361  Microbiology (4)