

CHEMISTRY & BIOCHEMISTRY

Halenz Hall, Room 225
269-471-3247 or 471-3248
chemistry@andrews.edu
www.andrews.edu/chem/

Faculty

D. David Nowack, *Chair*
Ryan Hayes
Getahun Merga
Desmond H. Murray
David W. Randall

Academic Programs	Credits
BS: Chemistry BS: Chemistry (Approved by the American Chemical Society (ACS) Committee on Professional Training) BS: Biochemistry (Approved by the American Chemical Society (ACS) Committee on Professional Training)	

BS: Biochemistry (34)

Major Requirements: Core plus BCHM422, 430.

Cognate Courses: BIOL165, 166; MATH191(or 195), 192; PHYS141, 142 (or PHYS241, 242, 271, 272); and two courses selected from BIOL371, 372; FDNT485; ZOOL315, 464, 465.

Students desiring a career in biochemistry might be better served by pursuing the ACS Bachelor of Science degree in biochemistry, but the Bachelor of Science degree in biochemistry can be strengthened by the addition of CHEM415, 440, and 495.

to convey an appreciative understanding of the nature of chemistry and how it is applied to our daily lives. Topics of consumer chemistry to be studied will be selected from fuels, energy, polymers, fertilizers, pesticides, food and food additives, household cleaners, cosmetics and personal care chemicals,

Minor in Chemistry (20)

CHEM131, 132, 231, 232, 241, 242, plus 4 credits of majors level chemistry or biochemistry.

Graduate Program

The Department of Chemistry & Biochemistry collaborates in offering the MS: Mathematics and Science with the departments of Mathematics, Biology, and Physics. See the program description under Mathematics and Science, p. 174.

Courses (Credits)

See inside front cover for symbol code.

BCHM120 § (4)

Introduction to Biological Chemistry

A survey of major concepts in biochemistry such as structures of biological molecules, their functions, energy metabolism, regulation of biochemical pathways; for nursing, dietetics, and allied health students. Weekly: 3 lectures, 1 recitation, and a 3-hour lab. Not applicable towards a major or minor in chemistry or biochemistry. Prerequisite: CHEM110. *Spring*

BCHM421 t (4)

Biochemistry I

Study of the fundamental principles of enzyme kinetics and mechanisms based on the structure and chemistry of biomolecules including amino acids, carbohydrates, lipids, proteins, nucleotides, nucleic acids, and biological membranes. Weekly: 4 lectures. Prerequisite: CHEM232. *Fall*

BCHM422 t (3)

Biochemistry II

Continuation of BCHM421 including selected topics of hormone and regulatory biochemistry, the study of the four primary neurotransmitter systems and an overview of selected human pathologies emphasizing cancer biochemistry and biology. Weekly: 3 lectures. Prerequisite: BCHM421. *Spring*

BCHM430 t § (1)

Biochemistry Lab

Introduction to quantitative and qualitative methods for the isolation, purification and identification of biological materials and applications of enzyme kinetics. Weekly: 4 hours of lab. Prerequisite: BCHM421 and registration in BCHM422. *Spring*

CHEM100 § (4)

Consumer Chemistry

A one-semester course primarily for non-science majors presenting an introduction to fundamental concepts of chemistry

CHEM474 (2)
Advanced Topics in Organic Chemistry
 Study of the principles of modern synthetic organic chemistry with applications from one or more of the following areas: natural product, medicinal, or polymer chemistry. Weekly: 2 lectures. Prerequisite: CHEM232. *Fall*

CHEM475 t (2)
Advanced Topics in Physical Chemistry
 Advanced study of molecular spectroscopy, statistical thermodynamics, chemical dynamics, or the application of quantum mechanics. Prerequisites: CHEM432 or CHEM431 and permission of the instructor.

CHEM495 t (1-4)
Independent Research
 An opportunity for chemistry and biochemistry majors to gain research experience by joining with a faculty member in study of an area of special interest.

Graduate

CHEM530 (2-4)
Topics in Teaching Chemistry
 Each time the course is offered, it treats one of the following areas:

- **Concepts in Chemistry**
 Fundamental ideas of chemistry
- **Demonstrations**
 Simple experiments which illustrate chemical principles
- **Problem-Solving Strategies**
 Exploration into the mental processes and logic behind problem-solving.

None of the above areas are to occur twice in one student's program. Prerequisite: CHEM232. Repeatable to 6 credits.

CHEM540 (2-4)
Topics in Chemistry
 Independent readings to be chosen in consultation with the instructor. A written report and an oral presentation covering the materials read are required. A minimum of 60 hours of work is required for each credit. Prerequisite: CHEM431. Repeatable to 6 credits.

COMMUNICATION

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Faculty

Delyse E. Steyn, *Chair*
 Patrice Jones
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 Desrene L. Vernon

Emerita
 Luanne J. Bauer

Academic Programs	Credits
BA: Communication	38
International Communication	59
Communication Management	59
Media Technology	59
BA: Journalism	38
Media Studies	59
BA: Public Relations	38
International Public Relations	59
BFA: Bachelor of Fine Arts	
Electronic Journalism	75-77
BS: Communication Arts	
Secondary Education	36-38
Minor in Communication Studies	20
Minor in Journalism	20
Minor in Media Studies	20
Minor in Public Relations	20
MA: Communication	
Interdisciplinary Program	40-43
Emphasis Programs	40
Graduate Certificate Program	12

Mission

The Department of Communication creates and fosters a diverse, Christian learning community dedicated to producing professionals of distinction committed to global service.

"Communicating for community" reflects the vision of the programs offered by the Department of Communication.

Communication is all about connection—successfully sharing messages and meaning. Communication competence is critical to being an effective leader. Lee Iacocca, chairman and CEO of Chrysler Corporation, said, "the most important thing is to be heard."

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