

CHEMISTRY and BIOCHEMISTRY

Professor Amudhu Gopalan, department head

Professors Arterburn, Eiceman, Gopalan, Herndon, M. Johnson, Kuehn, Lammers, Mueller **Associate Professors** Quintana, Rayson, Smirnov, Smith; **Assistant Professors** Lara, Lott, Lyons, J. Smith, Starnes, H. Wang; **Adjunct Professors** Asprey, J. Wang; **College Professors** Alexander, Boyle, Des Enfants, Dunlavy, Ewing, D. Johnson, Mahmoud, Wilkins
(505) 646-2505

DEGREE: Bachelor of Science
MAJOR: Chemistry
MAJOR: Biochemistry

DEGREE: Bachelor of Arts
MAJOR: Chemistry

MINORS: Biochemistry
Chemistry
Environmental Chemistry

A degree in chemistry or biochemistry enables a student to pursue a wide variety of careers: in research, production, sales, management, and teaching. These degrees are also an excellent preparation for professional studies in medicine, dentistry, forensics, veterinary science, optometry, pharmacology, pharmacy, and law.

Chemistry majors who have completed the requirements for the Bachelor of Science degree may receive American Chemical Society certification if they take one additional one-semester course which includes 1 credit of laboratory.

Students who complete a B.S. in Biochemistry and wish to complete the B.A. in Chemistry must complete 6 additional upper-division chemistry credits that are not counted in the B.S. in Biochemistry.

DEGREE: Bachelor of Science
MAJOR: Chemistry

Nondepartmental Requirements

(May not be taken S/U and must earn a grade of C or better.)

MATH 191, 192, Calculus and Analytic Geometry I, II.....	6
MATH 291, Calculus, and Analytic Geometry III.....	3
MATH 391, MATH 392, C S 171, or STAT 371.....	3-4
PHYS 213, 213L, Mechanics and Experimental Mechanics.....	4
PHYS 214, 214L, Electricity and Magnetism and Lab.....	4
PHYS 315, Modern Physics for Engineers.....	3

Departmental Requirements

CHEM 115, 116, Principles of Chemistry I, II, or CHEM 111, 112, 217, General Chemistry I, II, III.....	8-11
CHEM 242, Explorations in Chemistry.....	1
CHEM 313, 314, 315, Organic Chemistry I, II, and Lab.....	8
CHEM 356, Descriptive Inorganic Chemistry.....	3
CHEM 371, Analytical Chemistry.....	4
CHEM 433, 434, Physical Chemistry I, II.....	6
CHEM 435, Physical Chemistry Laboratory.....	2
CHEM 443, Senior Seminar.....	1
CHEM 452, Integrated Advanced Laboratory.....	3
CHEM 456, Inorganic Structure and Bonding.....	3
CHEM 471, Instrumental Analysis.....	4
Electives: Sufficient to bring total credits to 128, including 54 upper-division.	
Note: Students should work closely with their advisers and review carefully the prerequisites for and the sequential nature of courses required for the Bachelor of Science.	

DEGREE: Bachelor of Science
MAJOR: Biochemistry

Nondepartmental Requirements (May not be taken S/U and must earn a grade of C or better.)
BIOL 211G, Cellular and Organismal Biology.....

BIOL 211L, Cellular and Organismal Biology Laboratory.....	1
BIOL 311, General Microbiology.....	3
BIOL 311L, General Microbiology Laboratory.....	2
BIOL 305, Principles of Genetics.....	3
BIOL 377, Cell Biology.....	3
BIOL 314, 442, 451, 474, 475, 478, 479, 485, or 490.....	3
C S 110G, Computer Literacy.....	3
E ST 311G, Statistical Applications.....	3
MATH 191, 192, Calculus and Analytical Geometry.....	6
PHYS 213, Mechanics, and PHYS 214, Electricity and Magnetism, or PHYS 211, General Physics I, and PHYS 212, General Physics II, or PHYS 221, General Physics for Life Sciences I, and PHYS 222, General Physics for Life Sciences II.....	6
PHYS 213L, Experimental Mechanics, and PHYS 214L, Electricity and Magnetism Lab, or PHYS 211L, General Physics I Lab, and PHYS 212L, General Physics II Lab.....	2

Departmental Requirements

CHEM 115, 116 or CHEM 111, 112, 217.....	8-11
CHEM 313, 314, 315, Organic Chemistry I, II, and Lab.....	8
CHEM 371, Analytical Chemistry.....	4
CHEM 433 and 434, or CHEM 431 and 456, or CHEM 431 and 356.....	6
BCHE 140, Introduction to Biochemistry (S/U).....	1
BCHE 395, Introductory Biochemistry.....	3
BCHE 396, Biochemistry and Biotechnology.....	3
BCHE 397, Experimental Biochemistry.....	3
BCHE 440, Biochemistry Seminar (S/U).....	1
BCHE 494, Techniques in Genetic Engineering.....	4
Electives: One additional upper-division, 3-credit chemistry course with sufficient other courses to bring total credits to 128, including 54 upper-division.	

DEGREE: Bachelor of Arts
MAJOR: Chemistry

The Bachelor of Arts curriculum is designed to provide flexibility with less depth in chemistry, physics, and mathematics. The program may be used by students planning extensive study in other areas and requires emphasis in a second field of study.

Nondepartmental Requirements (May not be taken S/U and must earn a grade of C or better.)

MATH 191, 192, Calculus and Analytic Geometry I, II, or MATH 142, 242, Calculus for the Biological and Management Sciences I, II.....	6
PHYS 211, 212, General Physics I, II, or PHYS 221, 222, General Physics for Life Sciences I, II.....	6
PHYS 211L, 212L, General Physics Laboratory I, II.....	2
Emphasis area.....	18
(Nine credits must be upper-division. See adviser for approval.)	

Departmental Requirements

CHEM 115, 116, Principles of Chemistry I, II, or CHEM 111, 112, 217, General Chemistry I, II, III.....	8-11
CHEM 242, Explorations in Chemistry (S/U).....	1
CHEM 313, 314, 315, Organic Chemistry I, II, and Lab.....	8
CHEM 356, Descriptive Inorganic Chemistry.....	3
CHEM 371, Analytical Chemistry.....	4
CHEM 431, Physical Chemistry.....	3
CHEM 443, Senior Seminar.....	1
Six additional credits of which 3 must be numbered 300 or above. (BCHE 341 or 395 can be used for electives over 300. CHEM 310G and 342 do not count in CHEM 300 or above.)	
Electives: Sufficient to bring total credits to 128, including 54 upper-division.	

MINOR: Biochemistry

A student cannot earn a bachelor's degree in Biology or Microbiology and also earn a minor in Biochemistry.

CHEM 111, General Chemistry I, or CHEM 115, Principles of Chemistry I.....	4
CHEM 112, General Chemistry II, or CHEM 116, Principles of Chemistry II.....	4
CHEM 313, Organic Chemistry I.....	3
CHEM 314, Organic Chemistry II.....	3
BCHE 395, Biochemistry.....	3

One additional Biochemistry credit, but not including BCHE 341, Survey of Biochemistry1

MINOR: Chemistry

A student cannot earn a bachelor's degree in Biology or Microbiology and also earn a minor in Chemistry.

CHEM 111, General Chemistry I, or CHEM 115, Principles of Chemistry I4
 CHEM 112, General Chemistry II, or CHEM 116, Principles of Chemistry II4
 CHEM 211, Organic Chemistry, or CHEM 313, Organic Chemistry I.....3-4
 CHEM 314, Organic Chemistry II3
 Sufficient additional upper division CHEM/BCHE credits to bring total upper division CHEM/BCHE credits to at least 9. Recommendations are below2-6

Recommended courses for Physical/Analytical Chemistry emphases:

CHEM 356, Descriptive Inorganic Chemistry3
 CHEM 371, Analytical Chemistry4
 CHEM 431, Physical Chemistry3

Recommended courses for Biochemical emphasis:

CHEM 313, Organic Chemistry I3
 CHEM 314, Organic Chemistry II.3
 BCHE 341, Survey of Biochemistry3

The following courses do not count towards a minor: CHEM 310G, Chemistry and Society; CHEM 351, Special Topics; CHEM 442, Glass Blowing; CHEM 443, Senior Seminar; any BCHE except BCHE 341; TOX courses

MINOR: Environmental Chemistry

Students must pass the courses listed below. Check the undergraduate catalog for prerequisites.

CHEM 111, General Chemistry I, or CHEM 115, Principles of Chemistry I.4
 CHEM 112, General Chemistry II, or CHEM 116, Principles of Chemistry II.4
 CHEM 211, Organic Chemistry or CHEM 313, Organic Chemistry I; CHEM 314, Organic Chemistry II and CHEM 315, Organic Chemistry Laboratory8
 CHEM 371, Analytical Chemistry, or CHEM 471, Instrumental Methods of Analysis.4
 CHEM 422, Environmental Chemistry3
 TOX 361, Basic Toxicology3
 B.A. or B.S. majors in Chemistry or Biochemistry must pass an additional 9 credits from these courses:
 BIOL 477, Applied and Environmental Microbiology.....4
 C E 256, Environmental Science.3
 C E 355G, Technology and the Global Environment.3
 CE 356, Fundamentals of Environmental Engineering3
 CHEM 424, Soil Chemistry.3
 CHEM 451, Special Topics (as appropriate)1-3
 I E 411, Industrial Safety3

COMMUNICATION STUDIES

Professor Walter R. Zakahi, department head

Professors Goss; Hacker; Associate Professors Lindsey, Weissberg; Assistant Professors Buker, Hubbell, Messal, Morgan
 (505) 646-2801

DEGREE: Bachelor of Arts

MAJOR: Communication Studies

MINOR: Communication Studies

The communication studies program is designed to enhance students' interpersonal skills, presentational skills, and critical thinking skills. Thus the successful graduate should be able to work effectively with people, assimilate, organize and analyze information, solve problems, make effective presentations, and show potential for leadership. The program prepares students for careers in several professions, such as teaching, training and development, public relations, law, advertising and sales, government service, mediation, customer relations, human resources, international service, fund raising, and the ministry.

MAJOR: Communication Studies

In addition to completing the general education requirements of the university and the college, students majoring in communication studies are required to complete 18 credits of core COMM courses and 18 credits of COMM electives for a total of 36 credits. Any exception to these policies requires department head approval.

All COMM courses must be completed with a grade of C or better.

Communication Studies Core Courses (18 credits)

COMM 265G, Principles of Human Communication3
 COMM 285, Survey of Communication Theory3
 COMM 305, Communication Research Methods3
 COMM 370, Organizational Communication3
 COMM 376, Communication and Culture3
 COMM 384, Interpersonal Communication3

Communication Studies Elective Courses (18 credits)

To reach a total of 36 credits, students must complete successfully an additional 18 COMM credits of their choosing.

MINOR: Communication Studies

COMM 265G, Principles of Human Communication.3
 Two of COMM 370, Organizational Communication; COMM 376, Communication and Culture; and COMM 384, Interpersonal Communication.6
 Three of COMM 253G, Public Speaking; COMM 285, Survey of Communication Theory; COMM 305, Communication Research Methods; COMM 351, Persuasion Theory and Practice; COMM 353, Advanced Public Speaking; COMM 377, Conflict Management; COMM 425, Small Group Communication; COMM 435, Psychology of Human Communication; COMM 440, Political Communication; COMM 450, Technologies of Human Communication; COMM 465, Nonverbal Communication; COMM 470, Leadership Communication; COMM 475, International Communication; COMM 480, Health Communication; COMM 490, Independent Study; COMM 491, Selected Topics.....9

COMPUTER SCIENCE

Professor Desh Ranjan, department head

Associate Professors Cook, Hartley, Leung, Pontelli; Assistant Professors Bhattacharya, He, Jeffery, Pfeiffer, Pivkina, Tran; College Professor Steiner; College Assistant Professor Villaverde
 (505) 646-3723

DEGREE: Bachelor of Science

MAJOR: Computer Science

MINORS: Algorithm Theory

Bioinformatics

Computer Systems

Software Development

The undergraduate computer science program prepares students for graduate study in computer science and for employment in positions involving the design, construction, and application of computer systems. Students should review their programs of study in consultation with their advisers each semester, preferably using the most recent Undergraduate Catalog. The department also offers a minor degree, with specialized tracks in algorithm theory, bioinformatics, computer systems, and software development. For more information on the Department of Computer Science, please visit the web site www.cs.nmsu.edu.

DEGREE: Bachelor of Science

MAJOR: Computer Science

General Requirements Exception

A grade of at least C must be earned in each of the courses taken to satisfy the departmental and nondepartmental requirements. No course may