

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

be counted as satisfying both a departmental and a nondepartmental requirement. No course taken to satisfy either a departmental or a nondepartmental requirement may be taken S/U.

Departmental Requirements (54-56 credits)

C S 171, Algorithmic Computation.....	4
C S 271, Introduction to Object-Oriented Programming.....	4
C S 272, Introduction to Data Structures.....	4
C S 273, Machine Programming and Organization.....	4
C S or MATH 278, Discrete Structures.....	4
C S 370, Compilers and Automata Theory.....	4
C S 371, Software Development.....	4
C S 372, Data Structures and Algorithms.....	4
C S 448, Senior Project, or C S 449, Senior Thesis.....	4
C S 471, Programming Language Structure 1.....	3
C S 473, Architectural Concepts 1.....	3
C S 474, Operating Systems 1.....	3
Two of the following: C S 451, 461, 475, 476, 481, 482, 484, 485, 491.....	6*
One of the following: C S 451, 461, 475, 476, 482, 484, 485, 491, or MATH 291, 377, 430, 454, 480, or E E 464, 465, 466, 467, or BIOL 111G/111L, 211G/211L, or CHEM 111, 112, 114, or PHYS 216/216L.....	3-5*

Nondepartmental Requirements (29-31 credits)

COMM 253G, Public Speaking, or COMM 265G, Principles of Human Communication, or HON 265G, Principles of Human Communication.....	3
ENGL 218G, Technical and Scientific Communication, or ENGL 311G, Advanced Composition, or ENGL 318G, Advanced Technical and Professional Communication.....	3
MATH 280, Introduction to Linear Algebra, or MATH 480, Vector Spaces and Matrix Algebra.....	3
MATH 191-192, Calculus and Analytic Geometry I, II.....	6
One of the following: MATH 331, 332, 377, 392, 430, 431, 454, 455.....	3*
STAT 470, Probability: Theory and Application, or STAT 371, Statistics for Engineers and Scientists I.....	3-4
Two lab science courses: PHYS 215/215L and one of the following: ASTR 110G, BIOL 111G/111L, 211G/211L, or CHEM 111, 112, 114, or PHYS 216/216L.....	8-9*

*A course can satisfy only one requirement.

A Suggested Plan of Study for Students

The following plan applies to students who qualify to take Math 191.

Freshman Year (30 credits)

C S 171, Algorithmic Computation.....	4
C S 272, Introduction to Data Structures.....	4
C S 278, Discrete Structures.....	4
ENGL 111G.....	4
Foreign Language 111-112.....	8
Historical Perspectives**.....	3
MATH 191, Calculus I.....	3

Sophomore Year (34 credits)

C S 271, Object Oriented Programming.....	4
C S 273, Machine Programming.....	4
C S 371, Software Development.....	4
Liberal Studies***.....	3
Social Analysis**.....	3
Foreign Language 211-212.....	6
MATH 192, Calculus II.....	3
MATH 280 or Math 480.....	3
PHYS 215.....	3
PHYS 215L.....	1

Junior Year (32 credits)

C S 370, Compiler Construction.....	4
C S 372, Data Structures.....	4
C S 471, Programming Languages I.....	3
C S 473, Architectural Concepts I.....	3
Computer Science Elective*.....	3
COMM 265G.....	3
Human Thought and Behavior**.....	3
ENGL 218G or 318G, Technical Writing.....	3
STAT 371 or 470.....	3

Viewing a Wider World**.....	3
------------------------------	---

Senior Year (33 credits)

CS 448: Senior Project.....	4
CS 474 - Operating Systems I.....	3
Computer Science Elective*.....	3
CS / MATH / EE / Science Elective* (upper division).....	3
Math elective* (upper division).....	3
ASTR 110G or BIOL 111G/L.....	4
Literature or Fine Arts**.....	3
Viewing a Wider World**.....	3
Upper division electives to bring total upper division to 54.....	3-8
Additional electives as needed to bring total credits to 128.....	

* See Lists Above

** University General Education Requirements

*** See the College Degree Requirements at the beginning of the Arts and Sciences section of this catalog.

Students planning to undertake graduate work in computer science are encouraged to consult with their adviser regarding the possibility of taking other computer science electives to satisfy their departmental requirements.

MINOR: Algorithm Theory (22-23 credits)

C S 171, Algorithmic Computation.....	4
C S 272, Introduction to Data Systems.....	4
C S 278, Discrete Mathematics for Computer Science; or any of MATH 278, Discrete Mathematics for Computer Science; MATH 279, Introduction to Finite Mathematics; or MATH 330, Discrete Mathematics.....	3-4
C S 370, Compilers and Automata Theory.....	4
C S 372, Data Structures and Algorithms.....	4
Appropriate advanced upper division Computer Science or Mathematics course approved by Computer Science undergraduate advisor.....	3

MINOR: Bioinformatics (26-27 credits)

BIOL 211 and BIOL 211 L, Cellular and Organismal Biology.....	4
C S 171, Algorithmic Computation.....	4
C S 272, Introduction to Data Structures.....	4
C S 370, Compilers and Automata Theory, or C S 371, Software Development.....	4
C S 372, Data Structures and Algorithms.....	4
C S 486, Bioinformatics.....	3
One of: C S 461, Logic Programming; CS 482, Database Management Systems I: CS 491, Parallel Programming; BIOL 305, Principles of Genetics; CHEM 433, Physical Chemistry I; MATH 331, Introduction to Modern Algebra; MOLB 470, Bioinformatics and Genome Analysis; or PHYS 315, Modern Physics.....	3-4

MINOR: Computer Systems (25-26 credits)

C S 171, Algorithmic Computation.....	4
C S 271, Introduction to Object-Oriented Programming, or C S 272, Introduction to Data Structures.....	4
C S 273, Machine Programming and Organization, or CS/EE 363, Computer System Architecture.....	4
C S 278, Discrete Mathematics for Computer Science; or any of MATH 278, Discrete Mathematics for Computer Science; MATH 279, Introduction to Finite Mathematics; or MATH 330, Discrete Mathematics.....	3-4
C S 370, Compilers and Automata Theory, or C S 371, Software Development.....	4
C S 473, Architectural Concepts I, or C S 474, Operating Systems I.....	3
C S 476, Computer Graphics I, or C S 484, Computer Networks I, or C S 491, Parallel Programming.....	3

MINOR: Software Development (21-23 credits)

C S 171, Algorithmic Computation.....	4
C S 271, Introduction to Object-Oriented Programming, or C S 272, Introduction to Data Structures.....	4
C S 278, Discrete Mathematics for Computer Science; or any of MATH 278, Discrete Mathematics for Computer Science; MATH 279, Introduction to Finite Mathematics; or MATH 330, Discrete Mathematics.....	3-4
C S 371, Software Development.....	4
Two of: C S 370, Compilers and Automata Theory; CS 451, Functional Programming; CS 461, Logic Programming; CS 474, Operating Systems I; CS 475, Artificial Intelligence I; CS 476, Computer Graphics I; CS 482,	

Database Management Systems I; CS 484, Computer Networks I; CS 485, User Interface Design; and/or CS 490, Parallel Computing.....6-7

Note: A student cannot earn more than one of these minors unless he/she passes at least 6 credits in the second minor beyond the requirements of the first minor. The maximum number of these minors that a student may earn is two. Most courses for the minors listed above have prerequisites. Please check the undergraduate catalog for individual course prerequisites.

Students interested in pursuing a computer science minor are encouraged to pick up more information at the departmental office.

CRIMINAL JUSTICE

Associate Professor Peter Gregware, department head

Professors Mays, Winfree; *Associate Professor* Bond-Maupin, Gray, Maupin; *Assistant Professors* Bejarano, Crowley *Assistant College Professors* Akins, DiMatteo
(505) 646-3316

DEGREE: Bachelor of Criminal Justice

MINORS: Forensic Science
Security Technology and Intelligence Studies

The criminal justice degree plan is broadly interdisciplinary in nature embracing the study of the humanities, law, natural, behavioral and social sciences. The curriculum seeks to balance theoretical inquiry with applied knowledge.

Students are prepared for careers in law enforcement, corrections, probation and parole, work with juveniles, and the related fields of forensics, security, and intelligence. Graduates have also been successful in law school and graduate programs in criminal justice. The undergraduate major consists of at least 36 credits in the major field, 21 of which must be numbered 300 or above (excluding C J 393, Internship in Criminal Justice).

The department offers two minors. The first is a minor in Security Technology and Intelligence Studies offered in conjunction with the Department of Engineering Technology. It consists of eighteen credits of approved course work in criminal justice and engineering technology. The second is an interdisciplinary minor in Forensic Sciences. Students interested in either of these minors should consult with the department head.

DEGREE: Bachelor of Criminal Justice

Lower Division (100- and 200-level) Departmental Requirements

C J 101, Introduction to Criminal Justice.....	3
C J 205, Criminal Law I.....	3
C J 210, American Law Enforcement Systems.....	3
C J 230, Introduction to Corrections.....	3
C J 250, Courts and the Criminal Justice System.....	3

NOTE: Prior to enrolling in upper division courses, lower division courses must be completed or final courses must be in progress.

Upper-Division (300- and 400-level) Departmental Requirements:

One course from the following: C J 300, Introduction to Criminal Justice Research; GOVT 300, Introduction to Public Administration; PSY 310, Experimental Methods; SOC 352, Social Research: Methods; SWK 467, Social Work Research I.....	3
C J 301, Advanced Research Methods (or any statistics class).....	3
C J 449, Senior Seminar.....	3
Criminal Justice electives: 4 upper-division criminal justice courses (not to include C J 393, Internship in Criminal Justice, or any criminal justice required course).....	12

Nondepartmental Requirements

Students seeking the BCJ degree must complete the College of Arts and Sciences second language requirement (see second language requirement under "College Degree Requirement" section of this catalog) and two Viewing

a Wider World courses, one each from two different colleges other than the College of Arts and Sciences.

A student must earn a C or better to receive credit for any departmental and nondepartmental requirement for the BCJ degrees.

General Electives: Sufficient to bring the total credits to 128, including 54 upper-division credits.

Minor: Forensic Science

Forensic Science is the application of principles and techniques of scientific analysis in a legal context. Forensic scientists study physical evidence to resolve issues involving criminal investigations, environment analyses and similar areas of research.

A student must pass 18 credits with a grade of C or higher from the following curriculum to earn the Forensic Science minor. No courses may be taken S/U. Students must take at least 6 credits from departments outside their major(s). At least 9 credits in any minor must be upper division. Courses marked with *asterisks* have prerequisites, and students should check the catalog to ensure that they have taken prerequisites before enrolling in these courses. Students must register in the minor before enrolling in any upper division Criminal Justice courses.

The following curriculum represents minimum requirements for a minor. Students interested in a career in Forensic Science are encouraged to take additional courses from those listed below.

I. CORE COURSES: Five credits from among the following courses: C J 306, Criminal Procedure; C J 321, Criminal Investigation; C J 424, Forensic Law; and/or TOX 453, Regulatory Toxicology

II. TRACKS: Students must complete 9 credits from ONE of the following tracks; (A) Laboratory Analysis, (B) Human Forensic Analysis, or (C) Forensic Psychology.

TRACK A. Laboratory Analysis (9 credits from the following):

*BIOL 221/221L, General Microbiology/Lab, or *BIOL 311/331L, General Microbiology/Lab; *BIOL 330, Comparative Anatomy and Embryology; *BIOL 354/354L, Physiology of Humans; *BCHE 395, Biochemistry; *BCHE 396, Biochemistry and Biotechnology; *CHEM 371, Analytical Chemistry; *CHEM 421, Instrumental Analysis; *TOX 361, Basic Toxicology; *TOX 423, Environmental Toxicology; PHYS 211/L, General Physics I/ General Physics Lab.....4

Honors, Special Topics, or Independent Studies course if approved by Academic Head, Department of Criminal Justice

TRACK B. Human Forensic Analysis (9 credits from the following):

Required Class: ANTH 430, Human Osteology and Forensic Anthropology.....3
Take 6 credits from: ANTH 315, Introduction to Archeology; ANTH 355, Physical Anthropology; ANTH 388, Archeology Field School; ANTH 430, Human Osteology and Forensic Anthropology; ANTH 451, Practical Forensic Anthropology (1 credit); *BIOL 330, Comparative Anatomy and Embryology; ANTH 477, Fauna Analysis.....6

Honors, Special Topics, or Independent Studies courses if approved by Academic Head, Department of Criminal Justice.

TRACK C. Forensic Psychology (9 credits from the following):

Required Class: *PSY 330, Psychology and the Law.....3

3 credits from EACH of the following 2 areas:

(C1) Principles of Behavior: *PSY 317; Social Psychology; *PSY 321, Personality; *PSY 324, Sexual Behavior; *PSY 358, Individual and Group Differences; *PSY 376, Evolutionary Psychology

(C2) Psychological Treatment: *PSY 302, Abnormal Psychology; *PSY 303, Community Psychology; *PSY 362, Behavior Modification; *PSY 374, Psychopharmacology and Toxicology; *PSY 445, Clinical Psychology

III. ADDITIONAL COURSE

Complete one course from areas I or II above not already completed, or Honors, Special Topics, or Independent Studies course if approved by Academic Head, Department of Criminal Justice.

MINOR: Security Technology and Intelligence Studies

A student must pass 18 credits with a grade of C or higher as outlined below. No courses may be taken S/U. A student must register in the minor before enrolling in any upper division Criminal Justice courses.

1. All students must complete the following: ET/ICT 456, Analysis of Physical Security Systems.....3