FAYETTEVILLE STATE UNIVERSITY
College of Health, Science, and Technology
Department of Biological and Forensic Sciences

Bachelor of Science in Forensic Science

FORENSIC SCIENCE PROGRAM

PROGRAM GUIDE

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DEPARTMENT OF BIOLOGICAL AND FORENSIC SCIENCES

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INTRODUCTION

The study of forensic science engages students in the application of scientific principles and methods for the evaluation of evidence. The mission of the Bachelor of Science degree program in Forensic Science is to produce technically skilled and educated graduates who have a foundation in scientific and laboratory problem solving skills necessary for success in a modern crime laboratory, and who will contribute to the forensic science community. Students will receive preparation in areas such as forensic biology (serology/DNA), crime scene processing, trace evidence analysis, latent fingerprints analysis, bullet analysis, and toxicology. The program will also equip students with the knowledge and skills needed to prepare reports, documenting their findings and laboratory techniques used, and to provide expert witness testimony on specific laboratory findings. Upon completion of the Forensic Science program, graduates will be prepared to serve as forensic scientists and specialists, or to continue advanced studies in forensic science, biomedical research, medicine, and law.

Forensic Science applies scientific methodologies to the criminal justice system. The field of forensic science has received extensive exposure in recent years and is now regarded as a highly respected discipline among scientists and criminalists. Forensic science encompasses a wide array of sub-disciplines including criminology, pathology, toxicology, etc. The educational background of professionals in this field is embedded heavily in the natural and behavioral sciences such as chemistry, biology, physics, sociology, and criminal justice. An undergraduate degree in forensic science can emphasize forensic analysis from a biological or chemical approach. Forensic biology puts emphasis on the measurements and procedures used in the examination of biological evidence and the importance of the information derived from the interpretations. In contrast, forensic chemistry primarily involves analysis of chemical samples as it relates to chemical purity and substance identification.

Successful completion of the Forensic Science Program will lead to the granting of a Bachelor of Science degree in Forensic Science. Graduates of this program will be qualified to obtain entry-level positions in the selected areas of the major, or for entry into graduate or professional schools.

EDUCATIONAL OBJECTIVES

The educational objectives of the Bachelor of Science degree program in Forensic Science are consistent with the mission of Fayetteville State University and the accreditation standards of the Forensic Science Education Programs Accreditation Commission (FEPAC) of the American Academy of Forensic Sciences (www.aafs.org). Students should be able to:

- Demonstrate the knowledge and an understanding on a range of concepts and issues in forensic science.
- Show proficiency in assessing, evaluating, analyzing, and synthesizing scientific information and data interpretation from a variety of sample sources.
- Demonstrate the knowledge and techniques fundamental to the practice of forensic science.
- Demonstrate the understanding of ethical standards in the forensic science profession.

- Work cooperatively with others, while demonstrating an increasing understanding of how to be an independent learner.
- Communicate forensics knowledge in written and oral forms.

These learning objectives will be measured through the successful completion of coursework, laboratory experiences, exams, papers, and an internship/capstone as determined by the faculty responsible for teaching in the degree program.

MISSION STATEMENT OF THE FORENSIC SCIENCE PROGRAM

The mission of the Forensic Science program at Fayetteville State University is consistent with the mission and philosophy of FSU. The program provides students with a quality education through the basic liberal arts tradition and specialized professional training in forensic science. The Forensic Science Program educates and prepares students with the ability to provide quality analysis of scientific evidences through various scientific methods and principles applicable to criminal justice and the law. The B.S. Degree in Forensic Science provides students with an interdisciplinary course of study that prepares them for careers as forensic scientists, chemists, or biological scientists. In addition, the Forensic Science Program serves as a solid foundation for matriculation into graduate or professional schools.

ORGANIZATION AND STRUCTURE OF THE CURRICULUM

There are 39 credits in the University College Core which provides a strong liberal arts foundation and 83 credit hours in the Forensic Science Program's courses.

PROGRAM LOCATION AND FACILITIES

The Forensic Science program is housed in the Science and Technology Building as part of the Department of Biological and Forensic Sciences. These facilities plan to accommodate increased enrollment of the Forensic Science Program and additional new programs that are currently being developed.

ACCREDITATION

The B.S. Degree in Forensic Science at FSU is accredited under the Forensic Science Education Programs Accreditation Commission (FEPAC). The accreditation ensures that our program meets rigorous educational standards in forensic science. Fayetteville State University is the ***ONLY*** **FEPAC accredited Forensic Science Program in North Carolina.**

PROGRAM ADMISSIONS REQUIREMENTS

Admission requirements for the Forensic Science program

Admission to the Forensic Science is based upon the following.

a) Following the university policy (http://catalog.uncfsu.edu/undergraduate/academic-regulations/majors.htm), students interested in pursuing forensic science as their major

are required a minimum of 30 credit hours must be completed to declare a major. Therefore, students must submit the online "Declaration of Major" form to request admission to a degree program.

b) Cumulative GPA of 2.5 (Overall GPA of 2.5 calculated on all transferable college courses attempted at all accredited institutions of higher education as used by FSU).

TRANSFER CREDIT

A maximum of 60 hours of transfer credits will be accepted towards the Forensic Science degree. No credit will be accepted for science and mathematics courses taken more than ten (10) years earlier.

The Forensic Science Program follows FSU policy for transfer student credits as follows.

The university will accept transfer credits in accordance with the North Carolina Comprehensive Articulation Agreement (CAA) relative to the General Education transfer core; graduates with the Associate in Arts, Associate in Fine Arts, and Associate in Science degree. Transfer credit for the Applied Science degree courses, general education core courses for non-graduates, and transfer courses not originated at North Carolina Community Colleges will be awarded on a course-by-course basis. See the links for transfer students and transfer credits details;

http://www.uncfsu.edu/admissions/transfer-students

http://www.uncfsu.edu/admissions/acceptance-of-transfer-credits

Additionally, higher level STEM and forensic science course(s) can be transferred from another higher academic learning institution on a course-by-course basis at the discretion of the academic advisor and/or Program Director. Transfer students must have a grade of C or better in all transfer required courses. Moreover, transfer student will be required to submit the syllabi copies and official transcript(s) to determine the transfer credits.

ACADEMIC POLICIES AND PROCEDURES

Part-time students

The BSFS program welcomes part-time students to the program. Course schedules will be developed by students following consultation with the Program Director.

Grade Requirements

The minimum level of student competency in the Forensic Science program is established by the achievement of a grade of C or better in all required courses (Natural Science core and Forensic Science core). A student must maintain a cumulative GPA of at least 2.0 to be in good academic standing. Students who do not maintain a 2.0 will be removed from the major and must re-apply following the admission guidelines.

Background Requirements

Background checks for a career in forensic science professions are required.

Graduation Requirements

To qualify for graduation with a Bachelor of Science in Forensic Science, a student must successfully meet the following requirements.

- Successful completion of all courses outlined in the appropriate 4-year degree plan
- Grade of C or higher in all majors' courses
- Overall GPA of 2.0 or higher

Capstone Experience

Capstone Course (FORS 460): Capstone course is used to measure students' overall performance. Written tests, presentations, writing assignments, lab work & skills, data analysis and oral presentations are components of the capstone course and are used for students' evaluation and program learning outcomes.

FORENSIC SCIENCE MAJOR - DEGREE REQUIREMENTS

CURRICULUM

TOTAL CREDIT HOURS: FORESCIC SCIENCE, 122 CREDITS

Existing Required Courses for Forensic Science

Courses are numbered based on course level: 100-, 200-, 300- or 400- level courses. Courses in the upper division of the major are numbered 300 or 400. Course descriptions include credit hours, lecture hours and lab hours per week.

UNIVERSITY COLLEGE CORE CURRICULUM, 39 CREDITS

Transitional Studies - University Studies, 2 Credits

Select one option from the following: (UNIV 101 And UNIV 102) Or UNIV 110 Or UNIV 111 Or UNIV 112

Transitional Studies - Life Skills, 2 Credits

Select two credits from the following: FINC 100 Or GEOG 110 Or HEED 112 Or PEDU 101 Or PEDU 107 Or PEDU 112 Or PEDU 120 Or PEDU 122 Or PEDU 130 Or PEDU 132 Or PEDU 140

Communication Skills - Written Communication, 3 Credits

ENGL 110

Communication Skills - Oral Communication, 3 Credits

Select one from the following: BADM 215 Or SPEE 200

Information Literacy, 3 Credits
ENGL 120

Reasoning Skills - Critical Thinking, 3 Credits

PHIL 110 Or PHIL 220

Reasoning Skills - Quantitative Reasoning, 3 Credits

MATH 129

Scientific Literacy - Natural Sciences, 8 Credits

BIOL 150 And BIOL 150L And CHEM 141 And CHEM 141L

Scientific Literacy - Social Sciences, 3 Credits

Select one from the following: CRJC 210 Or ECON 211 Or ECON 212 Or GEOG 210 Or HIST 212 Or POLI 200 Or POLI 210 Or POLI 220 Or PSYC 210 Or SOCI 210

Humanities and Creative Arts, 3 Credits

Select one from the following: ART 210 Or COMM 220 Or ENGL 220 Or ENGL 223 Or ENGL 240 Or ENGL 250 Or ENGL 253 Or HIST 210 Or HUMN 211 Or HUMN 212 Or MUSI 210 Or MUSI 225 Or MUSI 260 Or PHIL 210 Or RELI 215 Or THEA 203

Global Literacy, 3 Credits

Select one from the following: CHIN 110 Or CHIN 120 Or FREN 110 Or FREN 120 Or SPAN 110 Or SPAN 112 Or SPAN 120 Or SPAN 122 Or YORU 110 Or YORU 120

Ethics and Civic Engagement, 3 Credits

Select three credits from the following: BADM 220 Or CRJC 203 Or EDUC 211 Or ENGL 232 Or ENGL 233 Or ETCE 101 Or ETCE 102 Or ETCE 103 Or ETCE 200 Or GEOG 270 Or HCM 200 Or HIST 211 Or PHIL 120 Or PHIL 212 Or PNUR 210 Or POLI 150 Or SWRK 220

PROGRAM REQUIREMENTS, 83 CREDITS

NATURAL SCIENCE COURSES, 34 CREDITS

BIOL 200 And BIOL 200L And CHEM 161 And CHEM 161L And CHEM 223 And CHEM 223L And CHEM 225 And CHEM 225L And PHYS 115 And PHYS 125L And PHYS 116 And PHYS 126L And MATH 130 And MATH 142 And STAT 202

FORENSIC SCIENCE COURSES, 49 CREDITS

BIOL 310 And BIOL 310L And BIOL/FORS 325 And BIOL/FORS 325L And BIOL 330 And BIOL 330L And BTCH 340 And BTCH 340L And BICH 411 And CHEM 311 And CHEM 311L And FORS 200 And FORS 300 And FORS 375 And FORS 400 And FORS 431 And FORS 455 And FORS 460

Bachelor of Science in Forensic Science, 122 Credits

Courses must be selected in consultation with an adviser.

Freshman Year

Fall Semester				Spring Semester			
UNIV	101	Freshman Seminar I[1]	1	UNIV	102	Freshman Seminar II[1]	1
ENGL	110	English Composition I[2]	3	ENGL	120	English Composition II[7]	3
MATH	129	Pre-Calculus I[3]	3	MATH	130	Pre-Calculus II	3
PHIL	110	Critical Thinking[5]	3	CHEM	141	General Chemistry I[4]	3
		Humanities and Creative Arts[8]	3	CHEM	141L	General Chemistry I Lab[4]	1
		PEDU/HEED Elective[6]	1	BIOL	150	Principles of Biology[4]	3
				BIOL	150L	Principles of Biology[4] Lab	1
						PEDU/HEED Elective[6]	1
			14				**16**

[1]Fulfills University College Transitional Studies - University Studies requirement. UNIV 110 required for transfer students with fewer than 30 transfer credits.
[2]Fulfills University College Communication Skills - Written Communication requirement.
[3]Fulfills University College Reasoning Skills - Quantitative Reasoning requirement.
[4]Fulfills University College Scientific Literacy - Natural Sciences requirement.
[5]Fulfills University College Reasoning Skills - Critical Thinking requirement. Not required of Transfer Students with 60 or more transfer credits.
[6]Fulfills University College Transitional Studies - Life Skills requirement.
[7]Fulfills University College Information Literacy requirement.
[8]Fulfills University College Humanities and Creative Arts requirement.

Sophomore Year

Fall Semester				Spring Semester			
PHYS	115	General Physics I[2]	3	PHYS	116	General Physics II[2]	3
PHYS	125L	General Physics Lab I	1	PHYS	126L	General Physics Lab II	1
CHEM	161	General Chemistry II	3	MATH	142	Calculus w/Analytic Geometry I	4
CHEM	161L	General Chemistry II Lab	1	FORS	200	Introduction to Forensic Science	3
SPEE	200	Introduction to Speech[1]	3	CHEM	223	Organic Chemistry I	3
		Global Literacy[3]	3	CHEM	223L	Organic Chemistry I Lab	1
			14				**15**

[1]Fulfills University College Communication Skills - Oral Communication requirement.
[2]PHYS 125 and PHYS 126 may be substituted for PHYS 115 and PHYS 116.
[3]Fulfills University College Global Literacy requirements.

Junior Year

Fall Semester				Spring Semester			
BIOL	200	Cell Biology	3	STAT	202	Basic Probability and Statistics	3
BIOL	200L	Cell Biology Lab	1	CRJC	203	Criminal Justice Ethics[3]	3
CHEM	225	Organic Chemistry II	3	FORS	325	Molecular Biology	3
CHEM	225L	Organic Chemistry II Lab	1	FORS	325L	Molecular Biology Lab	1
FORS	300	Forensic Professional Practice	3	FORS	375	Crime Scene and Latent Evid Anal	4
BTCH	340	Toxicology	3			Scientific Literacy - Social Sciences[1]	3
BTCH	340L	Toxicology Laboratory	1				
			15				**17**

[1]Fulfills University College Scientific Literacy - Social Sciences requirement.
[3]Fulfills University College History/Ethics & Civic Engagement requirement.

Senior Year

Fall Semester				Spring Semester			
BIOL	310	Genetics	3	CHEM	311	Instrumental Analysis Lecture	3
BIOL	310L	Genetics Lab	1	CHEM	311L	Instrumental Analysis Laboratory	2
BIOL	330	Microbiology/Immunology	3	BICH	411	Biochemistry I	3
BIOL	330L	Microbiology/Immunology Lab	1	FORS	431	Population Genetics	3
FORS	400	Forensic Microscopy	4	FORS	460	Capstone[1]	4
FORS	455	Forensic Biology (Serology/DNA)	4				
			16				**15**

[1]Capstone course can be substituted with internship at an approved crime lab or a research project under the supervision of FSU faculty.

FORENSIC SCIENCE MINOR FOR CHEMISTRY MAJORS

The FSP offers a Forensic Science Minor for students majoring in Chemistry. The minor will be 18 credit hours of extra courses, 10 credit hours of which are required, with 8 credit hours of elective courses. The list of courses and forensic science core courses' descriptions are given below. The minimum level of student competency in the Forensic Science Minor is established by the achievement of a grade of C or better in all minor courses. FEPAC does not accredit forensic science minors.

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Forensic Science – Minor
BS Chemistry or Material Science Majors

Course No	Course Title	Credit Hours
	CORE COURSES	
FORS 200	Introduction to Forensic Science	3 Cr
FORS 300	Forensic Professional Practice	3 Cr
FORS 400	Forensic Microscopy	4 Cr
	Sub-total	**Cr 10**
	ELECTIVES COURSES (minimum 8 credit hours)	
FORS 371	Latent Print Examination	4 Cr
FORS 375	Crime Scene & Latent Evidence Analysis	4 Cr
BTCH 340	Toxicology Lecture	3 Cr
BTCH 340L	Toxicology Laboratory	1 Cr
MATS 301	Introduction to Polymer Science	3 Cr
CHEM 311	Instrumental Analysis Lecture	3 Cr
CHEM 311L	Instrumental Analysis Laboratory	2 Cr
	Total	**18 Cr**

COURSE DESCRIPTIONS

FORS 200 Introduction to Forensic Science (3-3-0):
This course introduces the basic principles and relationships between the applications of chemistry, biology, and physics to forensic science as they relate to the criminal investigative process. The course is designed to give students insight into the many areas of forensic science and to study the newest techniques used by forensic laboratories.
Prerequisite: CHEM 141 And CHEM 141L And CHEM 161 And CHEM 161L And BIOL 150 And BIOL 150L And PHYS 115 And PHYS 125L (may be taken concurrently).

FORS 250 Crime Scene Investigation (3-3-0):
This course introduces students to the theories and practices of crime scene processing. Topics will include evidence search and recovery, documentation of the scene, collection and preservation of evidence, and evidence submission to a crime laboratory. This course will provide a brief introduction to crime scene photography and crime scene reconstruction.
Prerequisite: FORS 200

FORS 300 Forensic Professional Practice (3-3-0):
This course provides basic knowledge of quality assurance and quality control, professional certification, and membership in professional organizations. In addition, the ethical issues relating to pre-trial discovery procedures, courtroom testimony, and qualifications of expert witnesses will be presented. Lastly, the course will discuss professional development, ethical considerations for experimental designs, and technical writing.
Prerequisite: FORS 200

FORS 371 Latent Print Examination (4-3-2):
This course introduces students to the basic elements of fingerprint development and lifting from evidence found at crime scenes. Friction ridge analysis and comparison using Level I, II, and III characteristics will be covered. In addition, the use of forensic technology and databases will be introduced.
Prerequisite: FORS 200

BIOL 325/FORS 325 Molecular Biology (3-3-0)
An in-depth study of the structure, function, and biochemistry of proteins and nucleic acids. Isolation, purification and structural modification of DNA and protein in laboratory exercises will be utilized to provide an understanding of the various DNA/protein methodologies and their applicability to forensic science. This course is cross listed with BIOL 325 and BTCH 360.
Prerequisite: BIOL 200 And BIOL 200L And CHEM 223 And CHEM 223L

BIOL 325/FORS 325L Molecular Biology Lab (1-0-2)
Laboratory exercises will focus on isolation, purification, and structural modifications of DNA and proteins to provide an understanding of nucleic acids and protein methodologies and their application in research in industry. Cross listed with BIOL 325L and BTCH 360L.
Prerequisite: BIOL 200 And BIOL 200L And CHEM 223 And CHEM 223L

FORS 375 Crime Scene and Latent Evidence Analysis (4-3-2):
This course introduces students to the theories and practices of crime scene processing, and the basic elements of fingerprint development. Topics will include evidence search and recovery, documentation of the scene, collection and preservation of evidence, and evidence submission to a crime laboratory. This course will provide a brief introduction to crime scene photography, friction ridge analysis and comparison, and the use of forensic technology and databases.
Prerequisite: FORS 200

FORS 400 Forensic Microscopy (4-3-2):
This course will familiarize students with the microscopy equipment common to most modern crime labs. The course will enable students to select mode-appropriate equipment and techniques and to make basic observations of the physical and optical properties of common evidential materials. This class is an introduction to microscopic analysis, identification, and characterization of materials, such as glass, hair, fiber, paint, and soil.
Prerequisite: FORS 200 And PHYS 116 And PHYS 126L

FORS 431 Population Genetics (3-2-2):
A study of genetic and ecological forces that influence the structure of populations with two (2) hours of laboratory exercises and experimental studies. Students will evaluate the effects of random genetic drifts, mutations, natural selection, inbreeding, assortative mating, molecular evolution and quantitative/ecological genetics on populations. This course is cross listed with BIOL 431.
Prerequisite: BIOL 310 And BIOL 310L

FORS 455 Forensic Biology (4-2-4):
This course will introduce the concepts, theories, and principles used in the forensic identification of biological materials. The course will focus biological fluids confirmation and species origin such as blood, saliva, semen, as well as to determine individualization of biological fluids using DNA typing. Hands on laboratory techniques will be used to identify biological fluids for human origin. Further to process biological materials for DNA extraction, quantitation, amplification, profiling, and interpretation. The course introduces laboratory methods, techniques, and instrumentation used similar in forensic laboratories.
Prerequisite: FORS 200, FORS 300, FORS 325, FORS 325L, FORS 375 And FORS 400

FORS 460 Capstone (4-0-8):
This course will evaluate students' overall understanding and mastery of forensic science and criminal justice theories and applications of various laboratory techniques for evidence identification, application of analytical techniques, and communication skills. The course will enable students to select the most appropriate equipment and techniques to make basic observations of physical evidence and test this evidence by using the appropriate equipment and techniques of evidential materials analysis.
Prerequisite: FORS 200 And FORS 300 And FORS 375 And FORS 400 And FORS 455
Corequisite: FORS 431