Program Approval

I. General Information

A. Institution Fort Hays State University

B. Program Identification

Degree Level:	Bachelors
Program Title:	Criminalistics
Degree to be Offered:	Bachelor of Science in Criminalistics
Responsible Department or Unit:	Criminal Justice Program
CIP Code:	43.0402
Modality:	Face-to-face with program specific courses offered online
Proposed Implementation Date:	August 1, 2024

Total Number of Semester Credit Hours for the Degree: 120 Credit Hours

II. Clinical Sites: Does this program require the use of Clinical Sites? No

III. Justification

The Departments of Criminal Justice, Chemistry, Biology, and Geosciences propose to develop an interdisciplinary Bachelor of Science in Criminalistics to sustain the workforce needed in the area of forensic science and crime scene investigation. Much of the academic analysis concerning the criminal justice system's use of scientific evidence examines the accuracy of analytical techniques, or more rarely, the use of scientific tests and forensic evidence in criminal cases. These are important areas of study, with relevance for both academics and criminal justice professionals. However, to take advantage of emerging bodies of work, criminal justice agencies must employ individuals trained in the natural sciences that also have expertise and understanding of how the criminal justice system works.

For example, scientific evidence must abide by the standards established by *Daubert v. Merrell Dow Pharmaceuticals* (1993). In this decision, the U.S. Supreme Court ruled that any scientific or forensic evidence submitted to the court must meet four criteria for admission to court, which expanded the Federal Rules of Evidence. The first criterion is that the expert (i.e., the person testifying as to what the physical evidence and/or analysis means) has scientific and/or technical knowledge that is relevant to the jury or judge's decision-making process. The second criterion is that expert testimony is based on facts or data. The third and fourth criteria are the most relevant for this degree proposal. The expert must show 3) that the analysis they are presenting is based on reliable methodology and 4) that the expert has reliably applied those methodologies to the facts of the case. Because of the requirements of forensic evidence being that the investigator has knowledge of and experience in applying reliable principles and methods in obtaining, analyzing, and interpreting that evidence, it is crucial that individuals working within the criminal justice field are proficient in the natural sciences in addition to being knowledgeable in criminal investigation procedures.

Three public institutions within Kansas have degree programs that feature similar goals to the proposed program:

1. Emporia State University currently offers a Master of Science (M.S.) forensic science program. Representatives from that program have expressed interest in developing an articulation with FHSU to give students an opportunity to pursue their MS after completing the BS in Criminalistics at FHSU.
2. Wichita State University (WSU) has a Bachelor of Science (B.S.) forensic science program.

3. Washburn University (WU) offers three degrees with similar goals, including a B.S. in forensic chemistry, B.S. in forensic biology, and Bachelor of Criminal Justice (B.C.J.) in forensic investigations.

The standout difference of the proposed BS in Criminalistics program at FHSU is its curricular focus on criminal justice and chemistry (24 and 23 credit hours, respectively). This proposed program is also unique in its concentration options for students to choose between Forensic Chemistry, Forensic Biology, or Crime Mapping & Spatial Analysis.

The fact these varied Criminal Justice programs exist within Kansas speaks to the need for natural scientific expertise within the legal field. Indeed, this need is made explicit in the National Academy of Science's report (2009) to the U.S. Senate concerning the state of forensic science and its use within the American criminal justice system and how it could be improved. A significant hindrance to improving the accuracy of scientific evidence collection, analysis, and interpretation is the lack of trained individuals to aid criminal justice actors in this endeavor.

The FHSU Chemistry department offers a Forensic Science concentration available to students within its ACS (American Chemical Society) certified B.S. Chemistry program. This existing program focuses more on the chemistry discipline, particularly the analytical chemistry branch, and exposes students on the use of the different instrumental methods commonly employed in forensic analysis. This program concentration is geared towards applications of general quantitative/qualitative chemical analysis, lab techniques, sample preparation, methodology, statistical evaluation of data and sensitivity/selectivity in instrumental analysis. However, it does not emphasize how evidence is used within the criminal justice system, or how to interpret evidence and analyses in a legal context.

The proposed Bachelor of Science in Criminalistics will borrow from how Chemistry has created the Forensic Science concentration but will also incorporate a more structured foundation in criminal justice which complements the existing chemistry program. Specifically, Criminalistics students will take classes in criminology, ethics within the criminal justice system, criminal investigations and crime analysis, criminal law and court procedure, and criminal justice administration and processes, in addition to basic and intermediate chemistry courses in the core program. Additionally, students will select a specific concentration that includes advanced courses in chemistry, biology, or geosciences.

IV. Program Demand:

Market Analysis

A recent report developed for FHSU by Hanover Research, *Market Opportunity Scan: Bachelor's and Master's Degree Programs*, highlights fields of study for program development (2019). The plan makes four recommendations to the university in developing a Strategic Enrollment Plan: 1) develop new programs or specialization areas; 2) target emerging fields aligned with strengths and priorities; 3) customize/refine established fields to attract students; and 4) avoid declining fields with limited employment prospects. Data accompanying the report indicates a labor demand for criminal justice careers in law enforcement administration, counterterrorism, homeland security, crisis management, and criminology. In addition, data indicate career fields in the natural sciences, including chemistry, biology, and the geological/earth sciences are either established or emerging. According to these findings, this program proposal targets emerging and established fields to develop a new program with areas of specialization that will prepare students for careers with a high growth labor demand.

Agencies hiring for applicants in these positions will seek candidates with a strong criminal justice core, supported by a scientific concentration, indicating direct alignment with the proposed BS in Criminalistics. Additionally, a BS in Criminalistics will professionalize law enforcement

investigations to increase likelihood of successful prosecution for those cases where forensic evidence exists. Given the combined issues of rapid scientific advancement, perceptions of police illegitimacy and ineffectiveness, and local fiscal issues dominating the conversation, providing law enforcement personnel with the tools necessary to identify evidence, interpret the results, and testify in court. This is crucial for not only law enforcement and prosecution across the state of Kansas but especially in the rural areas of the state where agencies must wait for commuting specialist investigators in the field to arrive on-scene to collect and analyze evidence, then return to testify at trial. Graduating students with a background in scientific evidence collection and forensic science will make them more marketable and a greater asset for agencies that will benefit from their academic expertise. Based on the program of study described below, students will receive instruction in their scientific discipline of choice that is then grounded in a foundational understanding of the criminal investigation process, criminal law and procedure, and the use of data within criminal justice agencies. This knowledge will equip them with the skills necessary to recognize evidence in the field, its implications to prosecution and defense, and the ethical issues therein.

V. Projected Enrollment for the Initial Three Years of the Program

Year	Headcount Per Year		Sem Credit Hrs Per Year	
	Full- Time	Part- Time	Full- Time	Part- Time
Implementation	5	3	140	42
Year 2	10	6	295	89
Year 3	15	9	460	138

Projected enrollment includes five additional full-time and three part-time students during years 2 and 3 added to the previous year's enrollment. The program is projected to reach 25 students within year 4 following implementation. Full-time credit hours based on number of hours per semester/year included in recommended path to degree (Section VII. B), including 28 for year 1; 31 for year 2; and 33 for year 3. Part-time credit hours based on half the hours per semester of a full-time student (e.g., 14 hours rather than 28 hours per student for the first year).

VI. Employment

State and federal law enforcement agencies routinely employ criminalists and forensic scientists. The Kansas Bureau of Investigation (KBI) has laboratories located in Great Bend, Kansas City, Pittsburg, and Topeka. According to the State of Kansas employment website (Kansas.gov, n.d.), the KBI has forensic laboratories for chemistry, biology, toxicology, firearms/toolmarks, and latent prints. In addition to entry level forensic scientists, there are also opportunities for advancement to Forensic Scientist II, III, and IV. Minimum qualifications for the Forensic Scientist I, as posted on the same website, is a bachelor's degree in a relevant field of work, such as biology, chemistry, or forensic science. Like Kansas, the Colorado and Oklahoma Bureaus of Investigation, Missouri Highway Patrol, and the Kansas City, Missouri Police Department currently have openings for Forensic Scientist or Criminalist, with all states requiring a Bachelor of Science in chemistry or relevant discipline.

The Federal Bureau of Investigation (FBI) is currently hiring for a Forensic Chemist. According to the FBI website (FBI, n.d.), candidates must have completed a bachelor's degree, completing at least 30 hours in chemistry. Additionally, as noted on the USAJOBS website (usajobs.gov, n.d.) the FBI promotes forensic scientists to special agents, technically trained agents, and other positions where employees must use the advanced skill sets. As agents, these positions need awareness of criminal justice procedures in addition to scientific knowledge to prepare testimony for court proceedings.

Gray Associates, Inc., a software firm focused on academic program evaluation, conducted a market economy study for FHSU in March 2022 regarding job forecasts in the forensic science area. The report referenced postings for career opportunities that align with a Bachelor of Science in Criminal Justice and in Criminalistics, including:

- Custom Protection Officer,
- Lab Technician,
- Director of Communications,
- Cyber Threat Intelligence Analyst,
- Police Officer,
- Investigator, including of Network Services, Special Intelligence, and others
- Intelligence Analyst,
- Chief of Police,
- Cyber Forensic Analyst,
- Cyber Threat Intel Analyst,
- Forensic Research Scientist, and others.

Agencies hiring applicants in these positions will seek candidates with a strong criminal justice core, supported by a scientific concentration.

VII. Admission and Curriculum

A. Admission Criteria

Admission criteria for the Bachelor of Science in Criminalistics will align with the current admission requirements by FHSU for each of the following groups, including: 1) freshmen (under 21 years of age) who are Kansas or Non-Kansas residents, homeschooled, or obtained a GED; 2) transfer students with at least 24 credit hours, or under the age of 21 and fewer than 24 credit hours; or 3) adult learner requirements.

B. Curriculum

Students who earn a Bachelor of Science in Criminalistics degree will complete the program core and an elective concentration of their choice. The core provides students with both foundational and upper-division criminal justice material relevant to understanding how the criminal justice system functions, how cases move through the criminal justice system, how the investigative process functions, causes of crime, and ethics as related to issues of crime and justice. In addition to these courses, students will take foundational courses in Chemistry, as well as the Chemistry Department's CHEM 382 Introduction to Forensic Science. The proposed program core (listed below) will ensure that Criminalistics students understand 1) crime and criminal behavior, the organization of the criminal justice system, and the investigative process, and 2) a strong foundation in chemistry.

Additionally, most of the program core (as well as the Crime Mapping & Spatial Analysis concentration through Geosciences, in particular) can be completed entirely online. This will benefit those students who are already professionals in the field who wish to increase their marketability and skill set within their current agency. Science-specific courses that require a lab component can be offered as intensive two-week courses during the summer to increase accessibility for students who are not able to attend on-campus during the traditional fall and spring semesters.

Building on the major core requirements, Criminalistics students will choose from one of three concentrations to complete program hours. These are Forensic Chemistry (26 hours), Forensic Biology (27 hours), and Crime Mapping & Spatial Analysis (30 hours). Each concentration takes advantage of existing FHSU courses taught by current faculty across campus, with a focus on providing students with both a foundation of natural science practicum and theory, as well as on how forensic and/or geographic evidence from that discipline is used within

criminal proceedings. Finally, the Criminalistics degree, including the core and concentration, can be completed within the 120-hour requirement of KBOR.

The proposed program will pursue accreditation by the American Academy of Forensic Sciences. Additional information regarding accreditation standards is available at the following website: https://www.aafs.org/sites/default/files/media/documents/2021%200924%20FEPAC%20Standards_0. pdf.

Forensic Chemistry Concentration Requirements
General Education Requirements: 30 credit hours for first time freshmen or transfer students beginning fall 2023 (the natural and physical sciences discipline area can be fulfilled through the B.S. in Criminalistics core curriculum)..
Program Core Requirements: 47 credit hours Program
Concentration Requirements: 26 hours
Electives: 17 hours
Program Hours: 120 credit hours

The proposed B.S. Criminalistics – Forensic Chemistry concentration program is designed so that the FHSU Chemistry Department can seek certification through the American Chemical Society (ACS) – Committee on Professional Training (CPT) program, at a future time. The B.S. Chemistry program offered at FHSU currently has this certification. The ACS is the largest professional network for chemists. Thus, this program concentration can enjoy the benefits available to regular chemistry programs as provided by ACS. In spring 2022, ACS piloted an electronic badging program to certified graduates which can be used on LinkedIn profiles or other social media sites and are electronically linked to the standards that a student must meet in order to receive a certified degree. Benefits and additional information on ACS-CPT certification process can be accessed through https://www.acs.org/content/acs/en/education/policies/acs-approval-program.html.

Forensic Biology Concentration Requirements
General Education Requirements: 30 credit hours for first time freshmen or transfer students beginning fall 2023 (the natural and physical sciences discipline area can be fulfilled through the B.S. in Criminalistics core curriculum).
Program Core Requirements: 47 credit hours
Program Concentration Requirements: 27 hours
Electives: 16 hours
Program Hours: 120 credit hours

Crime Mapping & Spatial Analysis Concentration Requirements
General Education Requirements: 30 credit hours for first time freshmen or transfer students beginning fall 2023 (the natural and physical sciences discipline area can be fulfilled through the B.S. in Criminalistics core curriculum).
Program Core Requirements: 47 credit hours Program
Concentration Requirements: 30 hours
Electives: 13 hours
Program Hours: 120 credit hours

The program core and requirements listed for each concentration can be found in Appendix A: *BS Criminalistics Concentration Requirements*.

An example of a recommended path to program completion for students seeking a BS in Criminalistics, Chemistry concentration, together with the Kansas Board of Regents systemwide general education program, follows:

Year 1: Fall **SCH = Semester Credit Hours**

Course #	Course Name	SCH….
	***English Discipline Area	3
	***Math & Statistics Discipline Area	3
CHEM 120/120L	***University Chemistry I with Lab (Meets Natural and Physical Sciences Discipline Area)	5
CRJ 200	Criminology	3
	Total Hours	14

Year 1: Spring

Course #	Course Name	SCH….
	***English Discipline Area	3
	***Social & Behavioral Sciences Discipline Area	3
CHEM 122/122L	University Chemistry II with Lab	5
CRJ 210	Criminalistics (New Course)	3
	Total Hours	14

Year 2: Fall

Course #	Course Name	SCH….
	***Communication Discipline Area	3
	***Arts & Humanities Discipline Area	3
CHEM 304/304L or CHEM 340/340L	Essentials of Organic Chemistry or Organic Chemistry I	5
CRJ 245	Criminal Justice Ethics	3
	Total Hours	14

Year 2: Spring

Course #	Course Name	SCH….
	***Social & Behavioral Sciences Discipline Area	3
	***Arts & Humanities Discipline Area	3
CHEM 342/342L	Organic Chemistry II with Lab	5
CHEM 382	Intro to Forensic Science	3
CRJ 307	Administration of Justice Systems	3
	Total Hours	17

Year 3: Fall

Course #	Course Name	SCH….
	***Institutionally Designated Area	3
CHEM 350/350L	Chemical Analysis with Lab	5
CRJ 331	Criminal Law & Procedure	3
CRJ 355	Criminal Investigation	3
	Elective	3
	Total Hours	17

Year 3: Spring

Course #	Course Name	SCH….
	***Institutionally Designated Area	3
CHEM 360/360L or CHEM662	Essentials of Biochemistry with Lab	5
CRJ 350	Drugs & Society	3
	Elective	3
	Elective	2
	Total Hours	16

Year 4: Fall

Course #	Course Name	SCH….
CHEM 656/656L	Instrumental Analysis with Lab	5
CRJ 600	Internship	3
CRJ 395	Crime Analysis	3
CRJ 390	Sex Crimes	3
	Total Hours	14

Year 4: Spring

Course #	Course Name	SCH….
CHEM 666 or student selected chem lecture course	Inorganic Chemistry or student selected chem lecture	3
CHEM 634L or student selected chem lab course	Advanced Physical and Inorganic Lab or student selected chem lab	2
	Elective	3
	Elective	3
	Elective	3
	Total Hours	14

*** KBOR Systemwide General Education requirement

Total Number of Semester Credit Hours.....120

VIII. Core Faculty

Note: * Next to Faculty Name Denotes Director of the Program, if applicable FTE: 1.0
FTE = Full-Time Equivalency Devoted to Program

This program will not require a director, and no additional faculty positions are requested, as all course requirements for this interdisciplinary program (except two) are currently taught as part of existing programs. The new course that will be developed by the Criminal Justice Program (CRJ 210 Criminalistics) will replace an existing course that will be discontinued (CRJ 330 Culture and Crime). The new course that will be developed by the Department of Biology (BIOL 685 Microbiology) will be taught by an existing faculty position specialized in this area. The names of department chairs representing criminal justice, chemistry, biology, and geosciences are included for reference as well as current department faculty who may or will teach courses in the existing programs with concentrations for the Bachelor of Science in Forensic Science. Because FHSU has moved to a professional advising model, effective Fall 2022, no faculty will be assigned to advising; however, one faculty member from criminal justice, chemistry, biology, and geosciences will be assigned as a program

mentor.

Faculty Name	Rank	Highest Degree	Tenure Track Y/N	Academic Area of Specialization	FTE to Proposed Program
Criminal Justice Faculty					
Tamara Lynn, Department Chair	Associate Professor	PhD	Y	Criminal Justice, Generalist	0.125
Ziwei Qi	Assistant Professor	PhD	Y	Criminal Justice, Theory and Ethics	0.125
Morgan Steele	Assistant Professor	PhD	Y	Criminal Justice, Policing and Quantitative Methods/Crime Analysis	0.50
April Terry	Associate Professor	PhD	Y	Criminal Justice, Theory	0.125
Troy Terry	Instructor	MLS	N	Criminal Justice, Generalist	0.125
Chemistry Faculty					
Arvin Cruz, Department Chair	Associate Professor	PhD	Y	Instrumental Analysis/Physical-Inorganic Chemistry	0.125
Margaret Braasch-Turi	Instructor/Assistant Professor	PhD	Y	Organic Chemistry	0.125
James Balthazor	Associate Professor	PhD	Y	Biochemistry & Molecular Biophysics	0.125
Krisztina Bencze	Assistant Professor	PhD		Biochemistry/General Chemistry	0.125
Edwin Olmstead	Assistant Professor	PhD		Analytical & Inorganic Chemistry	0.125
Steve Reed	Instructor	MS	N	General Chemistry	0.125
Masakatsu Watanabe	Assistant Professor	PhD		Physical Chemistry & General Chemistry	0.125
Biology Faculty					
Tara Phelps-Durr Department Chair	Professor	PhD	Y	Plant Molecular Biologist Molecular Biology, Genetics	0.125
Claudia Carvalho	Lecturer	PhD	N	Microbiology	0.50
Medhavi Ambardar	Assistant Professor	PhD	Y	Human Physiology	0.125
Eric Gillock	Professor	PhD	Y	Virology, Bacteriology, Molecular Biology	0.125
Chris Bennett	Professor	PhD	Y	Human Anatomy	0.125

David Tarailo	Instructor	PhD	N	Human Anatomy	0.125
Geosciences Faculty					
Todd Moore Department Chair	Associate Professor	PhD	Y	Geosciences	0.125
Keith Bremmer	Assistant Professor	PhD	Y	Human Geography	0.125
Richard Lisichenko	Professor	PhD	Y	Geographic Information Systems (GIS)	0.125
Tom Schafer	Associate Professor	PhD	Y	Physical Geography, Cartography	0.125

IX. Expenditure and Funding Sources *(List amounts in dollars. Provide explanations as necessary.)*

A. EXPENDITURES	First FY	Second FY	Third FY
Personnel – Reassigned or Existing Positions			
Faculty	$0	$0	$0
Administrators *(other than instruction time)*	$0	$0	$0
Graduate Assistants	$0	$0	$0
Support Staff for Administration (*e.g., secretarial*)	$0	$0	$0
Fringe Benefits *(total for all groups)*	$0	$0	$0
Other Personnel Costs	$0	$0	$0
Total Existing Personnel Costs – Reassigned or Existing	$0	$0	$0
Personnel – New Positions			
Faculty	$0	$0	$0
Administrators *(other than instruction time)*	$0	$0	$0
Graduate Assistants	$0	$10,000	$10,000
Support Staff for Administration (*e.g., secretarial*)	$0	$0	$0
Fringe Benefits *(total for all groups)*	$0	$0	$0
Other Personnel Costs	$0	$6,846	$6,983
Total Personnel Costs – New Positions	$0	$16,846	$16,983
Start-up Costs - One-Time Expenses			
Library/learning resources	$0	$0	$0
Equipment/Technology	$0	$0	$0
Physical Facilities: Construction or Renovation	$0	$0	$0
Program Marketing	$7,500	$5,000	$5,000
New Course Development	$6,000	$0	$0
Total Start-up Costs	$13,500	$5,000	$5,000
Operating Costs – Recurring Expenses			

Supplies/Expenses	$3,000	$3,000	$3,000
Library/learning resources	$0	$0	$0
Equipment/Technology	$0	$0	$0
Travel	$0	$0	$0
Total Operating Costs	$3,000	$3,000	$3,000
GRAND TOTAL COSTS	$16,500	$24,846	$24,983

B. FUNDING SOURCES *(projected as appropriate)*	Current	First FY (New)	Second FY (New)	Third FY (New)
Tuition / State Funds & Student Fees	$5,081	$33,686	$70,982	$110,683
Other Sources				
GRAND TOTAL FUNDING		$33,686	$70,982	$110,683

C. Projected Surplus/Deficit (+/-) (Grand Total Funding *minus* Grand Total Costs)		$17,186	$46,136	$85,700

X. Expenditures and Funding Sources Explanations

A. Expenditures

Personnel – Reassigned or Existing Positions

All core faculty are currently employed by Fort Hays State University in the College of Arts, Humanities, & Social Sciences or the College of Science, Technology, & Mathematics. Faculty in the College of Arts, Humanities, & Social Sciences already teach the existing courses in the proposed interdisciplinary program except for one new course that will be developed specific to criminal justice (CRJ 210 Criminalistics). Faculty in the College of Science, Technology, & Mathematics already teach the existing courses in the proposed program except for one new course that will be developed specific to biology (BIOL 685 Microbiology). Because program courses are currently offered as part of existing programs, minus the two newly created courses, and as part of faculty's teaching responsibilities in their respective units, there is not an increased percent of effort on faculty time (except for the potential of increased class size). Faculty expenses are calculated at a rate of 0.125 except for the two faculty (criminal justice and biology) who will be teaching a newly created course, with their rate calculated at 0.50. The university will not incur additional personnel costs related to existing positions for implementation of the new program as these expenditures are already in place for existing programs. In addition, it is not anticipated that program courses will reach capacity in the first three years of the program; therefore, no additional new faculty lines are required.

Personnel – New Positions

The only new position proposed for this major is a Graduate Assistant (GA) specific to forensic science beginning in year 2 of the program. Funding includes an annual $10,000 stipend ($5,000/semester) and tuition for nine credit hours per semester at the average rate of on-campus and online tuition. Tuition is calculated with a 2% increase over the previous year for year 3.

Start-up Costs – One-Time Expenses
We request a marketing budget for years one through three to promote the new program, with a preliminary request of $7,500 for year one and $5,000 each for years two and three. An exact budget will require an assessment by University Marketing. This funding is requested from the College of Arts, Humanities, & Social Sciences, the College of Peter Werth College of Science, Technology, and Mathematics, and through the Strategic Enrollment Plan. In addition to marketing, we request $6,000 to develop the two new courses at a rate of $3,000 per course.

Operating Costs – Recurring Expenses
The chemistry and biology departments request additional funds to cover consumables such as lab supplies, chemical reagents, personal protective equipment (PPE) and equipment upgrades.

B. Revenue: Funding Sources

Projected tuition and fees are calculated using undergraduate resident/regional tuition (in which FHSU offers in-state tuition to residents from Kansas and 13 other states) to align with the proposed curriculum map (28 credit hours year 1 plus 2% increase over current year; 31 hours year 2 plus 2% increase over year one; and 33 hours year 3 plus 2% increase over year two). The AY 2022-2023 cost per undergraduate credit hour for Kansas/Regional residents is $181.46. Tuition/fees are calculated each year with the projection of five new full-time students and three new part-time students enrolling each year for the first three years. The program will be supported by the base tuition and fees generated. No other funding sources will be necessary.

C. Projected Surplus/Deficit

Project Surplus	
Year 1	$17,186
Year 2	$46,136
Year 3	$85,700
Total	$149,022

XI. References

Douglas H. Ubelaker (2012). *Forensic Science: Current Issues, Future Directions*. John Wiley & Sons, Inc.

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USAJOBS.GOV (n.d.). *Forensic Science*. https://www.usajobs.gov/Search/Results?k=forensic%20science

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Appendix A: *BS Criminalistics Concentration Requirements*

Bachelor of Science Criminalistics Concentration Requirements

Bachelor of Science in Criminalistics – Core Requirements	
CHEM 120/120L	University Chemistry I + Lab (5) (Meets general education Natural Scientific Lecture and Lab mode of inquiry)
CHEM 122/122L	University Chemistry II + Lab (5)
CRJ 200	Criminology (3)
CRJ 210*	Criminalistics (3)
CRJ 245	Criminal Justice Ethics (3)
CHEM 304/304L or CHEM 340/340L	Essentials of Organic Chemistry + Lab (5) or Organic Chemistry I + Lab (5) for chemistry concentration
CRJ 307	Administration of Justice Systems (3)
CRJ 331	Criminal Law & Procedure (3)
CRJ 355	Criminal Investigation (3)
CHEM 360/360L or CHEM 662/662L	Essentials of Biochemistry + Lab (5) or Biochemistry I + Lab (5) for chemistry concentration
CHEM 382	Introduction to Forensic Science (3)
CRJ 395	Crime Analysis (3)
Either:	
CRJ 499	Capstone Seminar in Criminal Justice (3)
CRJ 600	Internship (3)
Total Core Hours	**47 hours**

*The is one of two courses that will be created for the Bachelor of Science in Criminalistics with the second course created for the biology concentration.

Forensic Chemistry Concentration Courses (26 hours)	
CHEM 342/L	Organic Chemistry II + Lab (5)
CHEM 350/L	Chemical Analysis + Lab (5)
CHEM 656/L	Instrumental Analysis + Lab (5)
CRJ 350	Drugs & Society (3)
CRJ 390	Sex Crimes (3)
One of the following:	
CHEM 352/352L	Environmental Chemistry + Lab (5)
CHEM 666 & CHEM 634L	Inorganic Chemistry (3) + Advanced Physical and Inorganic Laboratory (2)
CHEM 664/L	Biochemistry II + Lab (5)
CHEM 430/430L	Survey of Physical Chemistry + Lab (5)
Potential Career:	Crime lab analyst Forensic lab analyst/pathologist Quality investigator scientist Chemical safety officer Pharmaceutical chemical methods lab development scientist
Real World Applications:	Forensic evidence recovery/research/molecular testing
	Instrumental methods of chemical analysis
	Qualitative and quantitative chemical analysis

Forensic Biology Concentration Courses (27 hours)	
BIOL 180/180L	Principles of Biology + Lab (4)
BIOL 240/240L	Microbiology for Allied Health + Lab (4)
BIOL 325/325L	Genetics + Lab (4)
BIOL 345/345L	Human Anatomy + Lab (4)
BIOL 346/346L	Human Physiology + Lab (4)
BIOL 685**	Molecular Biology (4)
One of the following:	
CRJ 350	Drugs & Society (3)
CRJ 375	Serial Predators (3)
CRJ 390	Sex Crimes (3)
Potential Career:	DNA analyst Deputy Coroner
Real World Applications:	Identification of unknown individuals through DNA, biometrics or friction ridge impressions (e.g., fingerprints)

**BIOL 685 is the second course that will be developed for the program; however, it is specific to the biology concentration and will have no impact on core requirements or the chemistry and geosciences concentrations

Crime Mapping & Spatial Analysis Concentration Courses (30 hours)	
GSCI 240	Intro to Geographic Information Systems (GIS) (3)
GSCI 360	Intermediate GIS (3)
GSCI 290	Cartography (3)
GSCI 330	Remote Sensing Concepts (3)
GSCI 603	Urban Geography (3)
GSCI 630	Geostatistics and Spatial Data Analysis (3)
GSCI 625	Advanced GIS (3)
GSCI 655	GIS Programming (3)
CRJ 275	Crime & Society (3)
SOC 384	Social Problems (3)
Potential Career:	Crime data analyst
Real World Applications:	Identifying the spatial patterns of crime incidents Geographic profiling