Program Approval

I. General Information

A. Institution - Wichita State University

B. Program Identification

Degree Level:	Master's
Program Title:	Forensic Firearms
Degree to be offered:	Master of Science
Responsible Department or Unit:	School of Criminal Justice
CIP Code:	43.0408
Modality:	Multiple (Traditional Classroom Instruction, Hybrid, and Online
Proposed Implementation Date	Fall 2025

Total Number of Semester Credit Hours for the Degree: 30

II. Clinical Sites: Does this program require the use of Clinical Sites? **Yes.**

The proposed Master of Forensic Firearms degree may require field work associated with the course work, depending upon a student's track within the program. For entry-level trainees, the field work will provide apprenticeships and mentoring to eventually become a certified firearm examiner. Clinical sites may include, but will not be limited to, the following:

- ATF Forensic Crime Intelligence Lab the Wichita State University Campus
- County and State Forensic Labs, including:
  - KBI Forensic Lab in Shawnee County
  - Sedgwick County Regional Forensic Science Center
  - Johnson County Criminalistic Forensic Laboratory
- National Firearms Examiner Academy (NFEA), currently offered in Ammendale, MD

III. Justification

Wichita State University (WSU) and the Fairmount College of Liberal Arts and Sciences request the Kansas Board of Regents approval for a Master of Science in Forensic Firearms degree. The MS degree will be housed within WSU's School of Criminal Justice. Founded in 1934, the Criminal Justice program is the second-oldest program of its type in the United States.

Over the last several years, WSU has placed an emphasis on increasing education and training for law enforcement agencies.[1] Forensic firearms, which is a discipline of forensic science focused on analyzing evidence from firearms that may have been used in a crime, has been a critical area of emphasis. WSU has received funding from the federal government to develop training and education that focuses on crime gun intelligence and firearms and toolmark identification as an applied forensic science discipline.

This funding has helped the University continue to build relationships with federal, state, and local law enforcement agencies. For example, since late 2019, WSU's campus has housed the Wichita Crime Gun Intelligence Center (CGIC), which enables the Wichita Police Department to collect cartridge casings from crime

[1] In addition to the proposed Master of Science in Forensic Firearms, WSU is also submitting for program approval of a Master of Science in Forensic Biology.

scenes and test-fired firearms and submit to the National Integrated Ballistic Information Network (NIBIN) through the Integrated Ballistics Identification System (IBIS). In turn, the relationships have provided WSU students applied learning opportunities and future career paths.

In addition, WSU has been working with the Bureau of Alcohol, Tobacco, Firearms and Explosives (ATF) for nearly a decade. ATF opened a Crime Gun Intelligence Center of Excellence on WSU's Campus in 2023 (*ATF Press release*. ATF, 2023, May 8). The ATF is currently in the process of building a forensic laboratory on WSU's campus (Communications, 2023, March 17). Several other federal, state, and local law enforcement agencies are also looking at establishing a footprint on WSU's campus – illustrating that these groups recognize the value of establishing a partnership with a forward-thinking university like WSU to address gaps in workforce training and education.

The proposed MS degree will help address a growing need for more professionals in forensic firearms. This need is addressed in more detail below in **Section IV(B) (Program Demand)**. The proposed program will address the need by offering three tracks, each of which is designed to attract, educate, and train a certain stakeholder group. The three tracks are introduced in this section and explained in further detail below in **Section VII (Admission and Curriculum)**.

- *Traditional Track* – The *Traditional Track* is aimed at traditional graduate student pursuing an MS degree. Its objective is to increase the number of graduate students with awareness about forensic firearms. The proposed degree will enable a student with an undergraduate degree in criminal justice, forensic science, or related field to immediately pursue an MS degree and gain foundational knowledge about firearms and toolmarks. In turn, the foundational knowledge will provide the graduate student with an on-ramp for entering a forensics laboratory and eventually becoming a firearms examiner.

- *Trainee Track* – The *Trainee Track* is aimed at entry-level trainees currently working in an established firearms section within Federal, state, and local law enforcement agencies. Trainees will also participate in a nationally recognized training program as part of the MS degree they are pursuing at WSU. **Section VII (Admission and Curriculum)** provides further details on the nationally recognized training programs.

- *Firearms Examiner Track* – The *Firearms Examiner Track* is aimed at individuals that are already recognized as firearms examiners because they fulfill certain educational and experience requirements. The proposed program will provide additional education that complements their professional work. For example, the curriculum includes courses relating to ethics, quality assurance, research and writing, and criminal law that will supplement the existing knowledgebase and skillset for a firearms examiner, increasing overall effectiveness within the profession. **Section VII (Admission and Curriculum)** provides further details on the educational and experience requirements necessary to be recognized as a firearms examiner.

IV. Program Demand

A. Surveys

The School of Criminal Justice administered a formal survey of current students at Wichita State University, as detailed below.

- Number of surveys administered: Survey distributed to students enrolled in the School of Criminal Justice.
- Number of completed surveys returned: ……. 64____
- Percentage of students interested in program: … 54 of the 64 students identified the MS in Forensic Firearms as an item of their interest. Of the 54 students, 41 students (74.5%) expressed interest. The

strongest interest came from the students majoring in Criminal Justice. 83% (n=15/18) expressed their interest in the new degree program. Surveyed. While over half (n-8/14) of the forensic science students indicated interest. 81% of the remaining students, 26 students, expressed interest in the proposed degree.

In addition, WSU's Midwest Criminal Justice Institute (MCJI) conducted an informal survey to gauge the interest of individuals currently working as trainees and firearms examiners. The Midwest Criminal Justice Institute (MCJI) is located within Wichita State University's Industry and Defense Programs (IDP) division. Headquartered on the Innovation Campus, MCJI serves as a centralized hub for engaging and connecting with law enforcement and safety partners at Federal, state, and local levels.

Working with partners, MCJI contacted more than 200 individuals that have already completed a nationally recognized training program in the field of firearms forensics. More than half of these individuals expressed an interest in pursuing the proposed MS degree at WSU.

B. Market Analysis

Forensic crime labs perform a variety of forensic analyses on physical evidence collected in criminal investigation. Throughout the United States, there are approximately 320 publicly funded forensic crime laboratories and multi-lab systems supporting federal, state, and local criminal justice agencies. In 2020, these laboratories received more than 3 million requests for service (Publicly funded Forensic Crime Laboratories, 2020).

Firearms and toolmarks analysis are a core function performed by crime labs. There has been a significant increase in forensic firearms evidence submissions to crime labs, which resulted in a notable backlog increase of 97% from the year 2014 through the year 2020. The Consortium of Forensic Science Organizations (CFSO) noted in a letter to the President of the United States that the demand for forensic firearms professionals exceeds the trained workforce. "[T]here has been an alarming decrease in the number of trained forensic firearms examiners. As a result, local, county, state, and tribal crime laboratories cannot keep up with the upsurge of new cases and influx of firearms submitted for examination. Backlogs of evidence items to exam have increased dramatically" (**Whitehouse, 2022).** The CFSO noted in a separate letter that "[t]here is a significant and growing workforce shortage of firearm/toolmark examiners in the United States forensic science community. A critical need for trained firearms/toolmark examiners has developed due to the retirement of current firearms examiners, along with a dramatic and continuing increases in cases submitted to crime laboratories" (**Thecfso, 2022).**

Although there are other programs in the United States with components relating to forensic firearms, as illustrated in the table below, WSU is a unique place to address the workforce and training issues identified above because of its strong relationship with Federal, state, and local law enforcement agencies.

College	Program Name	Brief Description
Virgina Commonwealth University	Forensic Firearms Identification Training	This cohort-based noncredit certificate program is directed by the VCU Department of Forensic Science. The 18-month program accepts participants through an application process and is delivered through six modules using a combination of teaching/training modalities. It is designed to be an external training resource to firearms sections/units within crime laboratories and aims to provide quality training to entry-level trainees already hired by a crime laboratory unit. The objective of the training is to produce bench-ready firearm analysts in the area of microscopic comparisons of firearm-related evidence.

Oklahoma State University	M.S. in Forensic Sciences - Arson, Explosives, Firearms and Toolmarks Investigation	The OSU School of Forensic Sciences offers a master's degree in forensic sciences with a specialization in arson and explosives investigation. This non-thesis track offers graduate-level education for law enforcement and military investigators working in the field of explosives and fire investigation.
Syracuse University	Certificate of Advanced Study in Firearm and Tool Mark Examination	This 12-hour certificate is intended both for students who wish to become firearm and toolmark examiners and for newly hired examiners in need of training. A great need exists for training of firearm and toolmark examiners. Even after a candidate is hired into such a position, training of two years or more is typically needed before the new examiner can work independently on casework. This training comes at great expense, particularly to smaller agencies, where efficiencies associated with the simultaneous training of multiple candidates cannot be achieved. This CAS, while not intended to fulfill all the required training, can provide a useful start and/or supplement.

V. Projected Enrollment

The Initial Three Years of the Program of Wichita State University will see the projected enrollment in the first year is 24 students these will be in the cohort of students who have

Year	Headcount Per Year		Sem Credit Hours Per Year	
	Full- Time	Part- Time	Full- Time	Part- Time
Implementation	24	0	432	0
Year 2	50	0	930	0
Year 3	60	0	1020	0

Student Enrollment Explanation

1. Implementation Year (N=24):
   - Admitted Students: 24-student Examiner's Track, this group will have the NFTE training.

2. Year 2 (N=50):

   - 24 New Students will be admitted into the Examiner's Track
   - 10 Traditional Students will be admitted to the 30 hour full degree program, and
   - 16 students in the Trainee Track will be admitted

3. Annual Admission Numbers (N=60):
   - 24 Examiner's Track students will be admitted
   - 10 Traditional Students will be admitted to the 30-hour full degree program

- 10 Traditional Students will continue into their second year
- 16 students in the Trainee Track will be admitted

VI. Employment

Forensic firearms is a discipline of the broader forensic science category. The Bureau of Labor Statistics (BLS) projects 14% employment growth for forensic science technicians between 2023 and 2033, which is much faster than average and corresponds to approximately 2,500 annual job openings (U.S. Bureau of Labor Statistics, 2024, August 29). Nationally, the number of jobs for forensic science technicians in 2023 was 18,600. The median yearly pay for forensic science technicians was $64,940 in 2023, with the highest 10% earning around $107,490 **(U.S. Bureau of Labor Statistics, 2024a, April 3).**

VII. Admission and Curriculum

A. Admission Criteria

In developing the admission criteria for the Master of Forensic Firearms degree program, Wichita State relied upon input from three primary sources: (1) faculty members and instructors; (2) industry partners; and (3) the document entitled the *Minimum Education Requirements for Firearm and Toolmark Examiner Trainees*. The guidelines in the foregoing document were developed by the Firearms & Toolmarks Subcommittee of the Organization of Scientific Area Committees (OSAC) for Forensic Science (**NIST, 2020, March).** The National Institute of Standards and Technology (NIST) established OSAC for Forensic Science in 2014.

General Admission Requirements

An applicant pursuing the proposed MS degree must meet the following general admission requirements:

- A bachelor's degree in forensic science, a natural science field of study, or criminal justice from a regionally accredited institution or a foreign university with substantially equivalent bachelor's degree requirements. If the bachelor's degree is in criminal justice, WSU reserves the right to evaluate individual coursework or other experience to ensure that the applicant has sufficient scientific background to be able to successfully complete the proposed MS degree.
- A 3.000 GPA or higher in the applicant's undergraduate work.
- Three letters of recommendation, preferably from professors and/or supervisors familiar with the applicant's academic/technical ability, work ethic, and skills.
- Statement of purpose describing the applicant's career goals and how the MS degree will help support those goals.
- Resume/CV/providing a description of experience or qualifications in support of the applicant's admission.

In addition to the general admission requirements, an applicant must also meet any additional track-specific requirements identified below.

Admission Criteria Specific to the Traditional Track

An applicant pursuing the *Traditional Track* of the proposed MS degree will be required to complete all 30 credit hours of coursework at WSU. Specific details relating to the curriculum for Traditional *Track* are provided in further detail below in **Section VII(B) (Curriculum).**

Admission Criteria Specific to the Trainee Track

An applicant pursuing the *Trainee Track* of the proposed MS degree will be required to complete 18 credit hours of coursework at WSU and to participate in a nationally recognized training program in the field of firearms forensics for an additional 12 Credit for Prior Learning (CPL) credit hours, for a grand total of 30 credit hours. To qualify for the *Trainee Track*, the applicant must be employed full-time in an established firearms section within a federal, state, or local law enforcement agency and be working underneath the guidance of an experienced firearm and toolmark examiner. Specific details relating to the curriculum for the Trainee Track are provided in further detail below in **Section VII(B) (Curriculum).**

Admission Criteria Specific to the Firearms Examiner Track

An applicant pursuing the *Firearms Examiner Track* of the proposed MS degree will be required to complete 18 credit hours of coursework at WSU and to have previously completed a nationally recognized training program in the field of firearms forensics for an additional 12 Credit for Prior Learning (CPL) credit hours, for a grand total of 30 credit hours. To qualify for the *Firearms Examiner Track*, the applicant must have completed the nationally recognized training program and subsequently worked at least 3 months in an established firearms section within a federal, state, or local law enforcement agency. Specific details relating to the curriculum for the Trainee Track are provided in further detail below in **Section VII(B) (Curriculum).**

B. Curriculum

Curricula for the various tracks within the proposed MS degree are listed below. As detailed below, the *Trainee Track* and the *Firearms Examiner Track* for the proposed MS degree enable an applicant to receive 12 Credit for Prior Learning (CPL) credit hours for completion of a nationally recognized training program in the field of forensic firearms. Providing a pathway for an applicant to receive credit for knowledge and expertise acquired through a nationally recognized training program is consistent with KBOR's practice of enabling "postsecondary institutions to award academic credit for a student's knowledge and expertise acquired through life and professional experience" (Credit for prior learning, Home (n.d.).

The nationally recognized training program in the field of forensic firearms must meet certain guidelines to qualify as Credit for Prior Learning for the 12 credit hours. WSU will put together a committee to determine whether a program should receive the designation of being a nationally recognized training program in the field of forensic firearms. The committee will meet on at least a biennial basis and will include the input of faculty members and instructors, industry partners, and federal, state, and local agency laboratories. At each meeting, the committee should perform the following tasks: (1) verify that a training program previously designated as a nationally recognized training program should continue to receive that designation; and (2) identify any additional training programs that should receive the designation.

During implementation of the proposed MS degree, only the National Firearms Examiner Academy (NFEA) will receive the designation as a nationally recognized training program in the field of forensic firearms. To date, more than 200 individuals have successfully completed the NFEA program. The NFEA was opened in 1999 as a collaboration between ATF's National Laboratory Center, the Association of Firearm and Tool Mark Examiners (AFTE), and a private consultant. The NFEA is currently the only national training program to provide a standardized training curriculum for education in firearms forensics (*National Firearms Examiner Academy*. ATF, n.d.).

In making the determination to designate the NFEA as a nationally recognized training program in the field of forensic firearms, WSU evaluated the program's curriculum and other hands-on training. In general, the NFEA is divided into four phases, which are briefly outlined below:

- **PHASE I** – A four-month period to complete reading and researching pre-course assignments as provided by the academy staff.
- **PHASE II** – A 17-week instructional session that is very content-intensive and includes in-depth

instruction and practical exercises related to firearms and toolmarks examinations.

- **PHASE III** – A four-month period doing work within a firearms section of a federal, state, or local agency laboratory. The phase includes a research project and simulated firearms and toolmark cases.
- **PHASE IV** – A two-week session including a mock trial and presentation of completed research project.

Consistent with KBOR's most recent guidance on CPL (*Kansas Credit for Prior Learning Guidelines: A Best Practices Guide for Assessing Prior Learning at Public Postsecondary Institutions*, updated on November 2024), **Attachment A** provides a course-by-course analysis establishing that learning from the NFEA is equivalent to the learning outcomes in the postsecondary course for which CPL is being awarded.

Traditional Track

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

Course #	Course Name	SCH
FS 740	Introduction to Firearms and Toolmark Examinations	3
FS 742	History of Firearm Examination	3
FS 744	Modern Firearm: Manufacture and Operating Systems	3
FS 746	Advanced Analysis of Firearms and Toolmarks Examination	3
	Total	**12**

Year 1: Spring

Course #	Course Name	SCH
FS 747	Advanced Analysis of Firearms and Toolmarks II	3
FS 748	Court Testimony for Firearm and Tool Mark Examiners / Research	3
FS703	Ethics Professional Responsibility and Quality Assurance in FS	3
	Total	**9**

Year 2: Fall Courses

Course #	Course Name	SCH
FS 704	Forensic Science Research Methods	3
FS 706	Criminal Law for Forensic Scientists	3
FS 749	Forensic Validation and Laboratory Techniques	3
	Total	**9**

Total Number of Semester Credit Hours ……...… 30

Trainee Track

Curriculum for the *Trainee Track* consists of two components: (1) coursework at WSU ("Coursework Component"); and (2) participation in a nationally recognized training program for CPL credit hours ("Training Program Component"). Although the Coursework Component is presented below as occurring before the Training Program Component in this document, a specific order is not necessarily required. The order in which a student completes the two components will depend upon scheduling of courses and the ability to participate in a nationally recognized training program.

Coursework Component

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

Course #	Course Name	SCH
FS 747	Advanced Analysis of Firearms and Toolmarks II	3
FS 748	Court Testimony for Firearm and Tool Mark Examiners / Research	3
FS 703	Ethics Professional Responsibility and Quality Assurance in FS	3

Graduate Electives for the students in the Trainee Track to substitute for FS 747 and FS 748 these will be determined by the student and the graduate coordinator of the program to match student need and desired focus within the field of forensic firearms.	6
	Total 9

Year 2: Fall

Course #	Course Name	SCH
FS 704	Forensic Science Research Methods	3
FS 706	Criminal Law for Forensic Scientists	3
FS 749	Forensic Validation and Laboratory Techniques	3
		Total 9

Total Number of Semester Credit Hours ……...… 18

Training Program Component

Within the *Trainee Track*, an applicant will also participate in a nationally recognized training program in the field of forensic firearms. Upon completion of the training program, the applicant will receive 12 Credit for Prior Learning (CPL) credit hours. An individual within the *Trainee Track* cannot complete the proposed MS degree until after completion of the training program and WSU awarding the CPL hours.

Students in the Trainee Track will enroll in ALLA 781 (zero credit applied learning course), during the completion of the NFEA training program. Once the student has completed the NFEA training the student will submit proof of the completion of the NFEA, to receive the CPL credit hours will be awarded for the following courses:

Course #	Course Name	SCH
FS 740	Introduction to Firearms and Toolmark Examinations	3
FS 742	History of Firearm Examination	3
FS 744	Modern Firearm: Manufacture and Operating Systems	3
FS 746	Advanced Analysis of Firearms and Toolmarks Examination	3
		Total 12

A course-by-course analysis establishing that learning from the nationally recognized training program is equivalent to the learning outcomes in the postsecondary course is provided in **Appendix A**.

Firearms Examiner Track

Curriculum for the *Firearms Examiner Track* consists of 18 hours of coursework at WSU and 12 CPL credit hours awarded for previous participation in a nationally recognized training program.

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

Course #	Course Name	SCH
FS 747	Advanced Analysis of Firearms and Toolmarks II	3
FS 748	Court Testimony for Firearm and Tool Mark Examiners / Research	3
FS 703	Ethics Professional Responsibility and Quality Assurance in FS	3
Graduate Electives for the students in the Trainee Track to substitute for FS 747 and FS 748 these will be determined by the student and the graduate coordinator of the program to match student need and desired focus within the field of forensic firearms.		6
		Total 9

Year 2: Fall

Course #	Course Name	SCH
FS 704	Forensic Science Research Methods	3
FS 706	Criminal Law for Forensic Scientists	3
FS 749	Forensic Validation and Laboratory Techniques	3
	Total	**9**

Total Number of Semester Credit Hours ……...… 18

CPL credit hours will be awarded for the following courses:

Course #	Course Name	SCH
FS 740	Introduction to Firearms and Toolmark Examinations	3
FS 742	History of Firearm Examination	3
FS 744	Modern Firearm: Manufacture and Operating Systems	3
FS 746	Advanced Analysis of Firearms and Toolmarks Examination	3
	Total	**12**

A course-by-course analysis establishing that learning from the nationally recognized training program is equivalent to the learning outcomes in the postsecondary course is provided in **Appendix A**.

VIII. Core Faculty:

The proposed Forensic Firearms degree will need a coordinator for the program and adjuncts who are currently working for the Department of Alcohol, Tabaco, Firearms and Explosives to provide instruction in the proposed program. The core faculty for the Master of Forensic Firearms will continue to build the program's curriculum, policies, procedures and documentation for accreditation.

Parts of the program will be taught online. However, because of the applied learning characteristics of the proposed program there will be lab requirements for several courses. The teaching methods will be a combination of traditional classroom instruction with other classes using hybrid teaching options. Several instructors will be experts from the ATF as well as research advisors, this will support the applied learning needed in this proposed program. This will also support the curriculum / teaching needs and the program. The School of Criminal Justice currently has nine faculty members, and their expertise would support the new degree program.

Faculty Name	Rank	Highest Degree	Tenure Track Y/N	Academic Area of Specialization	FTE to Proposed Program	FTE Salary
New Hire Year 2 of the program	Professor / Coordinator	Ph.D. Criminal Justice	Y	Natural Sciences Firearm Examiner	1.0	Salary: $75,000 Fringe: $22,500

Use of Adjuncts from ATF as specialist in the field	Affiliated ATF	PhD or MS forensic biology Adjunct	N	Forensic Sciences / Biology / Chemistry / or Natural Sciences	Per 3 credit class Adjunct Pay	4 classes per year x $4,000 per class $16,000 per year
New Hire Admin Support	Staff		N	Shared position with the Master of Forensic Biology	.5	Salary $17,500 Fringe: $5,000
Andrea Bannister	Professor and Chairperson	PhD in Criminal Justice	Y		0.1	Salary: $14,400 Fringe: $4,400

IX. Expenditure and Funding Sources

A. Expenditures	**First FY**	**Second FY**	**Third FY**
Personnel – Reassigned or Existing Positions			
Adjunct Faculty ATF – FB Trainers	$16,000	$16,000	$16,000
Existing Faculty reassigned x1 .1 = .1	$14,400	$14,400	$14,400
Fringe Benefits (total for existing faculty)	$4,400	$4,400	$4,400
Total Existing Personnel Costs – Reassigned or Existing	$34,800	34,800	34,800
Personnel – New Positions			
Faculty (Program Coordinator of (FF)	$75,000	$75,000	$75,000
NTT Educators			
Graduate Assistants			
Support Staff for Administration (Graduate Staff Assistant)			
Fringe Benefits (total for all groups)	$22,500	$22,500	$22,500
Total Existing Personnel Costs – New Positions	$97,500	$97,500	$97,500
Personnel – New Position Administrative Support			
Administrators Advising Dual Advisor	$17,500	$17,500	$17,500
Fringe Benefits	$5,000	$5,000	$5,000
Other Personnel Costs	$0	$0	$0
Total Personnel Costs–New Positions	$22,500	$22,500	$22,500
Operating Costs – Recurring Expenses			
Supplies/Expense (Cards Letter Head Advertisement and Swag)	$5,000	$5,000	$5,000
Library/Learning Resources			
Equipment/Technology			
Other			

Total Operating Costs	$5,000	$5,000	$5,000
Grand Total Costs	$159,800	$159,800	$159,800
B. FUNDING SOURCES	1st FY 24 inaugural students NFEA	2nd FY 24 new students NFEA+16 training and 10 regular 30 hour students	3rd FY 24 new students NFEA+16 training and 10 continuing and 10 new regular track students
Graduate Tuition/State Funds ($338.87)	$146,392	$315,149	$345,647
Mandatory Student Fees $22.33 credit hr	$9,647	$20,767	$22,777
LAS Student Fee $8.21 credit hr	$3,547	$7,635	$8,374
Student Support Fees	$35,633	$74,235	$81,659
Grand Total Funding	$195,219	$417,786	$458,457
C. Projected Surplus/Deficit (+/-)	**$35,419**	**$257,986**	**$298,657**

X. Expenditures and Funding Sources Explanations

A. Expenditures

Personnel – Reassigned, Existing, & New Positions
Current instructors will be from the School of Criminal Justice, as well as new hires and ATF trainers will instruct courses in the proposed MS in Forensic Firearms program. The additional cost will be one new tenure track faculty member who will serve as the program director, one Non-Tenure Track faculty instructor, four ATF adjuncts per year are projected, along with a required (FEPAC accreditation standards) administrative assistant for the program.

The director and NTT faculty members will have the primary responsibilities of for teaching, advising, administering the scheduling of courses, and recruitment and retention of students.

Mentoring of the Capstone Research projects will fall upon both the program faculty along with the applied learning opportunities offered through the ATF labs and the center for excellence.

B. Revenue: Funding Sources

The MS in Forensic Firearms program will be funded from two sources: (1) tuition and state funds; and (2) and student and lab fees.

The tuition and state funds generated are calculated using WSU's graduate tuition rate for in-state residents, $338.87 per credit hour. In the first fiscal year of the program, there will be 24 Examiner's Track students taking a total of 18 credit hours. In the second fiscal year of the program, there will be 24 Examiner's Track students taking a total of 18 credit hours, 10 Year One Traditional Track students taking a total of 21 credit hours and 16 students in the Training Track taking 18 hours (930 hours). In the third fiscal year of the program, there will be 24 Examiner's Track students taking 18 credit hours, 10 Year One Traditional Track students taking 21 credit hours, 10 Year Two Traditional Track students taking 9 credit hours, and 16 students in the Training Track taking 18 hours (1,020 hours).

The student and lab fees are calculated as follows:

- Mandatory Student Fees = $22.33 per credit hour

- College of Liberal Arts and Sciences Course Fee = $8.21 per credit hour
- Student Support Services Fee = $742.35 per semester when a student is taking 9 or more credit hours.

C. **Projected Surplus/Deficit**

Given the anticipated costs and revenue, the program is expected to have a small surplus for the first year after implementation but expects to see a larger surplus by the second and third years. Surplus funds generated by the program will be utilized to help improve the overall student experience at WSU and provide additional support to ensure continued growth for the School of Criminal Justice.

XI. References

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Association of Firearm and Toolmark Examiners (AFTE) Standards for Firearms, Toolmarks, and GSR/Distance: https://afte.org/afte-certification/certification-program, underneath Section II (Qualifications)

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Attachment A

A Course-by-Course Analysis of the Forensic Firearms Courses and the NFEA Training Modules

	WSU Course Title	**Brief Course Description**	**Cr. Hrs.**	**Learning Objectives**	**NFEA Modules**
FS703	Ethics, Professional Responsibility, & Quality Assurance in Forensic Science	Course will cover professional responsibility and quality assurance considerations in forensic science work. Topics include professional conduct subject to ethics, the importance of using valid scientific work, bias, and the efforts to maintain high standards of quality assurance through laboratory accreditation. Emphasis is placed on the professional demands of handling evidence, as well as the history of various domestic and international forensic DNA testing standards.	3		n/a
FS704	Forensic Science Research Methods	Course is designed to use applications of basic laboratory methods for the research of forensic science topics, with an emphasis on scientific writing, experimental design, data collection, evaluation and analysis, communication skills, and critical thinking and publication review. The course will also incorporate teachings relating to forensic validation and statistical applications in biology.	3		n/a
FS706	Criminal Law for Forensic Scientist	This course discusses aspects of criminal law relevant for forensic scientists. It reviews major US Supreme Court rulings related to forensic science, including Brady, Daubert, and Fry. The course also includes a discussion of when and how lab tests can be used in a case, courtroom demeanor, and	3		n/a

		testimony techniques and pitfalls. Special emphasis is given to the laws affecting evidence, courtroom procedure, ethics, and professional responsibilities of the forensic expert. Students will receive an applied learning opportunity through a moot court exercise.			
FS740	Introduction Into Firearms Identification	Provides a comprehensive overview of firearms examination, focusing on both theoretical knowledge & practical skills...curriculum is composed of the fundamentals of forensic firearms & toolmark examinations and serves as the basis for the student trainee, under supervision, to develop into a qualified firearms examiner.	3	• Laboratory and Firearms Safety Guidelines • Interpret the scope of work and responsibilities of firearms examiners. • Identify and differentiate between class, subclass, and individual characteristics on fired ammunition components. • Demonstrating use of microscopic comparisons of fired bullets and classify the results. • Use common terminology related to toolmark identification effectively. • Understand and apply toolmark examination protocols. • Operate and utilize equipment used in toolmark examination. • Apply techniques for restoring obliterated markings on firearms and ammunition.	G (partial)
FS742	History of Firearm Examination	An in-depth exploration of the principles and practices essential to forensic firearms identification. Students will gain a comprehensive understanding of the processes involved in the manufacture of modern firearms—from firearms factory tours and including the application of serial numbers. The course covers the historical development, fundamental principles, and current advancements in firearms identification.	3	• Identify the key figures and evolutionary phases in the history of firearms identification… • Describe the development of muzzle-loading firearms and the history of black powder. • Describe the origins and purposes of rifling. • Analyze the advancements in firearms identification and examination equipment. • Utilize the correct terminology within the firearm and toolmarks forensic discipline. • Contextualize the development of firearms identification within the broader history of forensic science and criminal investigation.	B C

FS744	Modern Firearm: Manufacture & Operating Systems	Provides an in-depth exploration of the manufacture, mechanisms, assembly, and operation of modern firearms. Students will gain comprehensive knowledge of various firearm types, components, mechanisms, and the principles behind their operation. The course is designed to equip students with the technical expertise necessary for forensic analysis and firearms examination.	3	• Identify and describe the key components, mechanisms, operations of firearm types to include: o Revolvers—single and double action, o Derringers and single-shot handguns, o Single and double action pistols, o Simple and delayed blowback guns, o Shotguns—single shot, pump, and recoil operated, o Rifles—pump, lever, and bolt action, o Semi-automatic gas-operated rifles. • Analyze the manufacturing processes involved in the production of modern firearms. • Demonstrate proficiency in the assembly and disassembly of various firearms. • Evaluate the operational principles of firing mechanisms, safety features, and ballistic performance. • Apply forensic techniques to examine and interpret firearm-related evidence. • Conduct detailed examinations of firearm malfunctions and their causes. • Develop skills in the documentation and reporting of forensic findings related to firearms.	E F
FS746	Analysis of Firearms and Toolmarks Examination	This course delves into the forensic analysis of firearms and toolmarks, providing students with the skills and knowledge necessary to perform detailed examinations and comparisons. The course covers the examination of fired bullets, microscopic comparisons, fired shotshell projectiles, general rifling characteristics, toolmark examinations, and distinguishing between class and subclass.	3	• **Perform detailed examinations** of fired bullets and shotshell projectiles. • **Conduct microscopic comparisons** to identify and differentiate toolmarks. • **Understand and apply general rifling characteristics** in forensic analysis. • **Distinguish between class, subclass, and individual marks** in toolmark examinations. • **Apply best known non-match (KNM) concepts** in forensic investigations. • **Utilize** common terminologies accurately and understand the range of conclusions in forensic examinations.	I J (partial)

FS747	Advanced Analysis of Firearms and Toolmarks Examination II	This advanced course delves into the forensic analysis of firearms and toolmarks, providing students with the skills and knowledge necessary to perform detailed examinations and comparisons. The course covers the examination of fired bullets, microscopic comparisons to include 3d topography and virtual comparison microscopy (VCM), individual marks, and best known non-match (KNM) concepts, and common range of conclusions.	3	This course is a continuation of FS 746 and builds upon the skills and outcomes of that course. By the end of this course, students will be able to further: • **Perform detailed examinations and microscopic comparisons** of firearms and tool marked materials. • **Explain the theoretical foundations and principles of KNM and VCM**. • **Apply and demonstrate proficiency of VCM techniques in forensic analysis** through use of VCM software as compared to microscopic examination. • **Evaluate the reliability and validity of KNM and VCM methods** assessing the strengths and limitations of KNM and VCM examinations. • **Conduct independent research using KNM and VCM** that incorporates KNM and VCM methodologies. • **Integrate KNM and VCM into broader forensic science practices** • **Stay updated with advancements in KNM and VCM methods and concepts** through review of recent literature and emerging trends within both fields.	K L M (partial)
FS748	Court Testimony for Firearm & Tool Mark Examiners / Research Project	This course provides an in-depth examination of the role of forensic experts in the courtroom, specifically focusing on firearm and toolmark examination. Students will explore the legal and scientific principles underpinning the admissibility of forensic evidence, with a particular emphasis on the Daubert decision and other relevant legal precedents. The course will also cover strategies used by opposing counsel to challenge the credibility and reliability of expert testimony.	3	• **Understand the Daubert Standard**: Analyze the implications of the Daubert decision on the admissibility of forensic evidence in court. • **Legal Precedents**: Identify and discuss key legal precedents that impact the acceptance of firearms and toolmark testimony. • **Expert Testimony**: Develop skills to effectively present and defend forensic findings in a courtroom setting. • **Cross-Examination Tactics**: Recognize and counteract common tactics used to discredit expert witnesses.	R (partial)

		Additionally, students will research and produce a technical research paper or project.		• **Ethical Considerations**: Evaluate the ethical responsibilities of forensic experts in providing testimony. • **Produce an article** (paper) suitable for technical publication such as the AFTE Journal or similar scientific journal along with 30-to-45-minute oral presentation on the research topic which addresses unanswered or previously unaddressed questions within the field of firearm and toolmark examination.	
FS749	Forensic Validation & Laboratory Techniques	Exploration of laboratory skills, and the validations used within the forensic science laboratory emphasizing the critical skills and standards necessary for professional practice. Aligned with the Organization of Scientific Area Committees (OSAC)..., this course covers essential topics such as documentation, laboratory skills, communication skills, examiner proficiency testing, validation processes, quality assurance, analytical procedures, reporting, peer reviews, and analytical standards.	3	• **Attention to Detail**: Demonstrate meticulous observation, documentation, and measurement skills essential for forensic analysis. • **Laboratory Skills**: Exhibit proficiency in using various laboratory instruments and techniques, ensuring accurate and reliable results. • **Interpersonal Communication Skills**: Effectively communicate findings and collaborate with law enforcement, legal professionals, and other scientists. • **Proficiency Testing**: Understand and apply proficiency testing to ensure the accuracy and reliability of forensic analyses. • **Validation Processes**: • **Developmental Validation**: Conduct and evaluate developmental validation studies to establish the efficacy of new forensic methods. • **Internal Validation**: Perform internal validation to confirm that established methods work reliably within a specific laboratory setting. • **Quality Assurance Training**: Implement and adhere to quality assurance protocols to maintain high standards in forensic laboratory operations. ISO accreditation and implementation. • **Analytical Procedures**: Apply standard analytical procedures and techniques to analyze forensic evidence accurately. • **Reports and Reviews**: Prepare clear, concise, and comprehensive forensic reports and conduct peer	n/a

				reviews to ensure the integrity of findings. • **Analytical Standards**: Adhere to established analytical standards and guidelines to ensure consistency and reliability in forensic analyses.	

Note: Per WSU College of Liberal Arts & Science's policy, students pay for CPL on a course-by-course basis by first contacting the program director.