Graduate Student Handbook and Research Manual
Penn State Forensic Science Program

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Purpose

To provide students enrolled in the Professional Science Master’s Program an opportunity to complete an independent research project. The research findings will be communicated in a written paper of publishable quality and will be presented orally in a public forum. Assessment will come from the student’s Principal Investigator (PI) and the committee members (CMs) involved in a student’s project. All due dates are listed in the Graduate Student Research Deadlines section below.

Mission Statement

The mission of the Forensic Science Program at Penn State is to provide a unique, holistic educational experience with opportunities for specialization through an intense, highly practical approach to forensic science education to benefit the global forensic science community and the criminal justice system. The program will provide an open, welcoming, creative, and adaptable learning environment for its students, staff, and faculty.
Ethics

Academic dishonesty includes, but is not limited to cheating, plagiarism, facilitating acts of academic dishonesty by others, unauthorized prior possession of examinations, submitting work of another person or work previously used without informing the instructor, or tampering with the academic work of other students. A student charged with academic dishonesty will be given oral or written notice by the instructor.

If students believe they have been falsely accused, they should seek an explanation through informal discussions with the instructor, department head, dean, or campus executive officer. If the instructor believes that the infraction is sufficiently serious to warrant the referral of the case to the Office of Conduct Standards or, if the instructor will award a final grade of F in the course because of the infraction, the student and faculty member will be afforded formal due process.

Code of Mutual Respect and Cooperation
For Faculty, Staff and Students in The Eberly College of Science

The Eberly College of Science is a community dedicated to personal and academic excellence. The Code of Mutual Respect and Cooperation was developed to embody the values that we hope our faculty, staff, and students possess, consistent with the aspirational goals expressed in the Penn State Principles. The University is strongly committed to freedom of expression, and consequently, the Code does not constitute University or College policy, and is not intended to interfere in any way with an individual’s academic or personal freedoms. We hope, however, that individuals will voluntarily endorse the 12 principles set forth in the Code, thereby helping us make The Eberly College of Science a place where every individual feels respected and valued, as well as challenged and rewarded.

The Eberly College of Science Code of Mutual Respect and Cooperation can be found at https://science.psu.edu/climate-and-diversity/code-mutual-respect-and-cooperation

Learning Objectives

1. Students will develop an understanding of the scientific principles of crime scene investigation and reconstruction, including evidence collection and preservation.

2. Students will receive intensive hands-on training in forensic laboratory methodologies with respect to the analysis of evidence.

3. Students will develop written communication skills for presentation of their findings in accordance with established professional guidelines.

4. Students will develop oral communication skills for discussing the scientific method in a laboratory setting and effectively testifying in a court of law.

5. Students will understand the importance of accreditation and certification in the forensic science community.
6. Students will develop an understanding of the importance of the interaction between law enforcement, scientists and the legal profession.

7. Students will develop an understanding of the importance of professionalism and ethical behavior in the forensic science community.

GRADUATE STUDENT RESEARCH REQUIREMENTS

Training

In semester 1, all students must complete mandatory bloodborne pathogens (BBP) training, Lab Safety Training, and Autoclave training. Training will be documented and filed with the Forensic Science Program Academic Program Coordinator, including any updates completed throughout the time the student is working in a Penn State lab. Additional training may be required by the University, College, Department, Program or PI.

FRNSC 894

In semester 1, students will be enrolled for one credit of FRNSC 894 (a lecture-based course on research methods). The objectives of this class include establishing expectations for graduate student research, establishing an understanding and use of the scientific method, conducting background research through the Penn State library and other online resources, conveying the proper methods of citing and referencing the literature, providing guidance for the creation of a research proposal, establishing an understanding of the ethical issues in research, and conveying methods of addressing IRB protocols when dealing with human subjects. During this course, students will formally select a PI, form a research committee, and develop a research proposal. Students are encouraged to start their research during this semester. Assessment of student performance in FRNSC 894 will be completed by the instructor of record with input from their chosen PI.

Students will continue to enroll in FRNSC 894 for research credits throughout their time in the program, but with their PI as the instructor of record (one credit in semester 2 and two credits each in semesters 3 & 4).

Guidelines and Expectations

Plans of research and workloads may vary depending on the type of research activity involved. Students joining a long-term, externally funded program may spend fewer hours in plan development but more hours working in the laboratory than those in stand-alone projects. Students entering existing research programs may be asked to begin laboratory work during semester 1.

Students are required to maintain regular contact with their PI regarding their research. The frequency of contact can vary, depending on the type of research program and the schedules of PI and student. Some PIs conduct formal research meetings once or twice per week. Other PIs meet informally or as
needed. At a minimum, students are recommended to make contact with their PI at least once every two weeks to discuss their progress. Missed deadlines or poor performance in research will be reflected in the student’s FRNSC 894 grade. Concerns from the PI and/or CMs regarding student performance must be relayed to the student as soon as possible. Students who feel their research is not being supported should contact the Forensic Science Program Director.

The schedule listed in the Graduate Student Research Deadlines section lists deadlines for completion of major milestones. Students are strongly advised to complete their work in advance of this schedule, and any of these milestones may be completed prior to the program deadline without penalty. PIs are permitted to require their students to complete these milestones earlier than the program deadlines provided that such expectations are reasonable and students are notified of any such expectations before they select their PI. All submission deadlines end at close of business (generally 16:30) for the program office.

At a minimum, students are expected to dedicate the following number of hours per week to research activities (including planning, lab work, data analysis, writing and other related activities):

- At least 5 – 8 hours per week during semesters 1 and 2
- 20 – 40 hours per week (maximum 40 hours) in the summer session between semesters 2 and 3
- At least 10 – 16 hours per week during semesters 3 and 4

Within these limits, the Graduate School and the Program allow for differences in expectations between faculty in different labs. Therefore, it is possible and acceptable that one PI may expect a greater number of hours per week than another PI. As long as the expectations fall within the above guidelines, any such variation is permissible. PI expectations should be transparent and should be discussed prior to a student selecting a PI. Ask a potential PI if they have a mentoring agreement. If they do not, the student can ask the program director to see a template of one and use it as a guideline for initial discussion(s) with a potential PI to see if the PI’s work style, expectations of the student, and intended mentoring approach is compatible with the student’s wants and needs.

Unanticipated research outcomes may make it necessary for students to work additional hours to complete their research and presentation. If this occurs, students need to meet with their PI and the Program Director to determine a corrective plan of action for reasonable completion of their research plan.

Laboratory work that has potential safety hazards will not be conducted by students during periods when the University is not in session (i.e., between semesters), without the PI present, or without prior approval from the Forensic Science Program Director if the PI will not be present. Students may enter the laboratory as necessary to monitor and maintain ongoing experiments where such activities do not expose the student to potential safety hazards.
PROGRAM EXPECTATIONS FOR GRADUATE STUDENTS:

Semester 1

During their first semester, students will be required to:

1. Attend and participate in Forensic Science Program graduate student orientation during orientation week.

2. Meet with faculty members to discuss areas of research.

3. Submit a list of two potential PIs, ranked by first and second choice to the Forensic Science Program Academic Program Coordinator. Every effort will be made to assign students their first choice of PI. While official assignment of a PI occurs during this time, students can begin communicating with a prospective PI as early as the summer before the start of the first semester.

   Students are strongly encouraged to make their interests known to prospective PIs and may reach tentative agreement on assignments with them. However, assignments are not official until program notification of PI assignment.

4. Continue to work with the PI throughout the remainder of the semester to complete the semester requirements.

5. Submit a Research Committee form, identifying the members of their research committee to the Forensic Science Program Academic Program Coordinator. The committee shall be comprised, at a minimum, of the PI and two members. The two members may be faculty from Penn State (including Forensic Science Program faculty) or scientists/professionals from outside the university who have relevant knowledge and experience. At least one of the committee members must be from outside of the program. The student can work with a “co-PI”, but the principal PI must be full-time faculty in the Forensic Science Program. When possible or practical, all committee members should participate in project design. A copy of the research guidelines should be provided by the student to all committee members so they are aware of their roles and responsibilities. The research committee selection form is due by end of finals in semester 1 or the FRNSC 894 grade will be deferred (DF). Information about deferred grades can be found here: https://gradschool.psu.edu/graduate-education-policies/gcac/gcac-400/gcac-401-grading-system/

6. Submit a draft of the research proposal to the committee members. This will require submitting draft proposals to the PI well in advance of the due date (see schedule in subsequent pages). Students are strongly encouraged to work with the PI to establish a schedule for this process. The research proposal should reflect reasonable expectations and indicate that updates on research progress will be monitored throughout the duration of the project. The research proposal draft is due to committee members by end of finals semester 1 or the FRNSC 894 grade will be deferred (DF). Students may be asked to show proof (email) that the proposal was sent.
 Semester 2

During their second semester, students will be required to:

1. Submit the Proposal Approval form to the Forensic Science Program Academic Program Coordinator once all committee members have approved the proposal. Proposal Approval forms should ideally be submitted no later than week 12 of the semester; if forms are not submitted by the end of finals week, a DF grade will be given until the form is received and no FRNSC 894 research funds will be released. No research funds may be spent until the final research proposal form is signed by all committee members and submitted to the program office.

2. Be enrolled in one credit of FRNSC 894 (Research). The student’s PI will be the instructor of record for this course. An assessment of student performance will be conducted by the PI, and when possible, with feedback from the CMs.

3. Communicate research progress to all CMs, in writing and at least once per semester. This should include requests made by the student for feedback and/or assistance from CMs. Fulfilling this requirement will be monitored by the PI.

4. Provide a presentation of their research to graduate program applicants during recruitment weekend in February.

5. Begin to purchase materials and develop a schedule to execute their plan of research.

6. Attend a graduate student research administrative meeting with the program staff. This meeting will discuss upcoming deadlines, as well as purchasing, billing, and travel requirements.

Summer Session

1. Research should continue during the summer session (Mid-May to Early August) between the first and second years. The dates of the required research follow the dates of the regular 13-week summer session classes. Although continuing students are permitted in the lab between semesters with permission from their PI, this work obligation is limited to the regular summer session, beginning on the first day of class and ending on the last day of final exams for the regular summer session.

2. Students will be required to work a minimum of 20 hours per week (up to 40 hours maximum) as graduate research assistants. No more than 20 hours of work per week may be assigned to a student that is not directly related to the student’s graduate research; any such work should be related to research/academic/scholarly activities. Students may use the remaining time on their own research but should not exceed 40 hours per week.

3. Students should be permitted up to one week (5 business days) of vacation during the summer session if they choose to request such vacation. This is in addition to any break
taken before summer session begins or after summer session ends. Students should coordinate their vacation schedule with their PI in advance.

4. Graduate Orientation Week: Students will provide a tour of forensic facilities and participate in the Research Roundtable during the incoming student orientation. The orientation takes place Wednesday – Friday the week before Fall semester begins. Vacations should ideally be planned to allow for rising second years to attend.

Semester 3

During their third semester, students will be required to:

1. Enroll in 2 credits of FRNSC 894. An assessment of student performance will be conducted by the PI with feedback from the CMs.

2. Communicate progress with their committee members and ask for feedback/assistance at least once during the semester.

3. Attend a graduate student research administrative meeting with the program staff. This meeting will discuss upcoming deadlines, as well as purchasing, billing, and travel requirements.

Semester 4

During their fourth semester, students will be required to:

1. Enroll in 2 credits of FRNSC 894. An assessment of student performance will be conducted by the PI, with feedback from the committee members.

2. Submit a final draft of the research paper to the committee.

   The format of the research paper should follow the guidelines of a relevant journal such as the Journal of Forensic Sciences (https://onlinelibrary.wiley.com/page/journal/15564029/homepage/forauthors.html) or Forensic Science International: Genetics (https://www.elsevier.com/journals/forensic-science-international-genetics/1872-4973/guide-for-authors). Consult with the PI throughout the semester to complete this requirement.

3. Submit the final research paper to the PI and other committee members.

4. Must ensure that a Research Paper Approval form has been approved by their PI and all committee members and submitted to the Forensic Science Program Academic Program Coordinator. This approval form must be completed and filed with the Program prior to the due date unless an extension has been approved by the PI and Program Director. If edits are required by a CM, the student is responsible to follow up and ensure that issues are addressed to obtain approval by the deadline. The research paper approval form must be
submitted by end of week 15 of the semester or the student will not receive approval to graduate. A student may submit the paper for publication in a peer-reviewed scientific journal with the approval of the PI.

5. Present the research findings orally in a public forum attended by fellow graduate students, undergraduate students, faculty, and staff. The PI and CMs must have attended the presentation and/or viewed a recording of the presentation. At least two CMs (including the PI) should attend the oral presentation. Following the public presentation, a question-and-answer session will occur. Students are also encouraged to communicate their research at a professional conference.

6. Must ensure that the Research Presentation Approval form has been approved by their PI and all committee members and submitted to the Forensic Science Program Academic Program Coordinator. The research presentation approval form must be submitted by end of week 15 of the semester or the student will not receive approval to graduate.

7. Communicate progress with their committee members and ask for feedback/assistance at least once during the semester.

8. Attend a graduate student research administrative meeting with the program staff. This meeting will discuss upcoming deadlines, as well as purchasing, billing, and travel requirements.

STUDENT EXPECTATIONS OF GRADUATE PROGRAM

Program Support for Graduate Students

To the best of the Forensic Science Program’s ability, graduate students will be provided with the following support:

1. A suitable space in which to perform the research.

2. Equipment, supplies, and reagents necessary to complete the research successfully.

3. Funding support to conduct research.

4. A portion of the funds needed for students to travel to at least one professional conference to communicate their research findings in the form of a poster or platform/oral presentation.

PI Support for Graduate Students

To the best of their ability PIs will support graduate students by:
1. Being available to meet at least once every two weeks to discuss research progress. The format of the meeting (e.g., in-person, Zoom, email) will be determined by the PI, but will include feedback and address questions beyond the scope of a status report.

2. Responding to questions, requests, or approvals within 48 hours. Students who do not receive a response should reach out again after 48 hours before contacting the Program Office.

3. Monitoring purchases and providing assistance with maintaining budgets.

4. Providing feedback on research progress beyond the FRNSC 894 grade and explaining areas for improvement as a researcher, at least once per semester.

Important University Policies for Graduate Students can be found at:

https://gradschool.psu.edu/graduate-student-life/important-policies-for-graduate-students/

FILING A COMPLAINT OR RAISING PROGRAM CONCERNS

Complaints and concerns from our students are taken very seriously. If you have a complaint or concern directly relating to the instruction provided by the Forensic Science Program, you are encouraged to express that concern at any time to any member of the faculty and staff.

If you do not wish to raise the complaint with the faculty or staff directly involved, you are encouraged to report it to the program Director via email or in person. Your issue will be documented, and the Director will attempt to resolve the complaint to the best of their ability. If it is a faculty or staff complaint, the Director will address the issue with that individual staff or faculty member to find a resolution. Curricular or academic complaints will be handled as makes the most sense, be it during PIM, program meeting, committee meeting, etc. You will be informed when your complaint has been addressed – ie. the staff or faculty member in question was spoken to, the issue was added to a meeting agenda and discussed, etc..

For non-urgent issues or general feedback, you can leave comments on your SRTEs or the Exit Survey taken during your final semester.

If you have a complaint that you wish to raise beyond the confines of the program, you have the right to file a complaint or concern with the University. You can go to https://gradschool.psu.edu/current-students/ and click the link for Avenues to Address Graduate Student Concerns, https://gradschool.psu.edu/graduate-student-life/avenues-to-address-graduate-student-concerns/. You can also register a general complaint or concern with Student Affairs, https://studentaffairs.psu.edu/support-safety-conduct/victim-survivor-support-advocacy/reporting-options, as well as call the Penn State Hotline (number on the page) to immediately report misconduct concerns. You will find also links for several resources on campus if the complaint is more specific in nature, perhaps having to do with race, gender, sexual orientation, etc.
There is a link and phone number provided for the Office of Research Protections for research misconduct concerns.

Eberly College also has at least one ombudsman available within each department to assist students with conflict resolution and to help provide in-person support and resources. You can find the names of the current ombudsmen by searching the Eberly College website. Any of the listed people are fine to approach; you do not have to approach only those from BMB.

**GRADUATE STUDENT RESEARCH DEADLINES**

Note: All submission deadlines end at close of business for the Forensic Science Program Office (generally 16:30). Students are strongly advised to complete their work in advance of this schedule.

**Semester 1**

**Orientation Week:**
- Attend and participate in Forensic Science Program graduate student orientation.
- Case Notes Documentation and Evidence Handling Training
- Bloodborne Pathogen, Lab Safety and Autoclave Safety Training.
- Any additional training required by the University, College, Department, Program or PI

**Full Semester:**
- Enroll in FRNSC 894 for 1 credit (First semester: lecture-based course with a single faculty member)
- Work at least 5-8 hours per week on 894 seminar and research combined.
- Work with your PI to establish a research committee, develop a research proposal with input from the committee members, and possibly start doing experiments in the lab

**End of 3rd Week:**
- Meet with faculty members to discuss research interests and opportunities.

**End of 4th Week:**
- Submit names of two potential PIs (ranked) to the Forensic Science Program Academic Program Coordinator.

**End of 5th Week:**
- Program assigns PI to the graduate student

**End of 10th Week:**
- Submit names of research committee members via committee selection form to the Forensic Science Program Academic Program Coordinator. Failure to submit this form by the end of the semester will result in a DF grade in FRNSC 894.

**Last Day of Finals:**
- Submit draft of research proposal to the committee members, requesting a response no later than Jan 31. Failure to send the proposal by the end of the semester will result in a DF grade in FRNSC 894. Students may be asked to show proof (email) that the proposal was sent.
Semester 2

Full Semester:
   Enroll in FRNSC 894 for 1 credit (research credit with your PI)
   Work at least 5-8 hours per week on research.
   Communicate progress to all committee members at least once per semester.
   Begin to purchase materials and develop a schedule to execute the plan of research.

End of 1st Week:
   Attend graduate student research administrative meeting with program staff

January 31:
   Initial responses from committee members are due.

Recruitment Weekend (Typically mid-February):
   Oral presentation of research goals and progress to graduate program applicants.

End of Week 12:
   Final proposal is completed and committee members have approved. Submit the Research Proposal Approval form to the Forensic Science Program Academic Program Coordinator after signed by all committee members. Failure to submit the form by the end of the semester will result in a DF grade in FRNSC 894. Furthermore, no research funds will be released and no research purchases can be made until the research proposal approval form is signed by all committee members and submitted to the program office.

End of Finals:
   Meet with PI to assess and document progress.

Summer

Summer Session (Mid-May to Early August. The regular PSU 13-week summer session dates):
   Work a minimum of 20 hours per week and no more than 40 hours per week on research. One week (5 business days) vacation permitted upon request.

Orientation Week (Last week of summer break)
   Facilities tour and Research Roundtable with incoming graduate students (2nd years)

Semester 3

Full Semester:
   Enroll in FRNSC 894 for 2 credits (research credits with your PI)
   Work at least 10-16 hours per week on research
   Communicate progress to all committee members at least once per semester

End of 1st Week:
   Attend graduate student research administrative meeting with program staff
Semester 4

Full Semester:
- Enroll in FRNSC 894 for 2 credits (research credits with your PI)
- Work at least 10-16 hours per week on research
- Communicate progress to all committee members at least once per semester

End of 1st Week:
- Attend graduate student research administrative meeting with program staff

End of 6th Week:
- Submit a draft of the research paper to the PI

End of 7th Week:
- Contact the Forensic Science Program Academic Program Coordinator to schedule research presentation date/time

End of 10th Week:
- Submit a revised draft of the research paper to the committee members

End of 12th Week:
- Committee members will respond to research paper draft

End of Second Week in April:
- Present the research findings orally in a public forum attended by the PI, committee members, fellow graduate students, undergraduate students, faculty and staff.

End of 14th Week:
- Submit a final draft of the research paper to the committee members.

End of 15th Week:
- Submit Research Presentation Approval form (signed by PI and all committee members) to the Forensic Science Program Academic Program Coordinator.
- Submit Research Paper Approval form (signed by PI and all committee members) and a copy of the final research paper to the Forensic Science Program Academic Program Coordinator.
- Failure to submit both completed forms will result in a DF grade in FRNSC 894 and the student will not be approved to graduate at the end of the spring semester. This may delay graduation until the summer or fall.