

January 7, 2013

To: ROBERT H. RICE, Political Science Program Chairs

From: RACHAEL GOODHUE, Graduate Council Chair



Re: FORENSIC SCIENCE GRADUATE PROGRAM M.S. DEGREE REQUIREMENTS

Enclosed is a copy of the Forensic Science M.S. graduate program degree requirements as approved by Graduate Council on December 7, 2012. These degree requirements are now the official requirements for the Forensic Science Graduate Program and will be posted on the Office of Graduate Studies program webpage:

http://www.gradstudies.ucdavis.edu/programs/program_detail.cfm?id=45

Thank you for your efforts on behalf of graduate education.

/vm

Enclosure

c: Graduate Program Staff Deborah Roberts

**FORENSIC SCIENCE GRADUATE GROUP
MS DEGREE REQUIREMENTS**
**Revised: List previous year(s) and current revision date:
Revised June 21, 2007**
Graduate Council Approval: December 7, 2012

Master's Degree Requirements

1) Admissions requirements:

Consideration for program admission requires a bachelor's degree in an appropriate scientific field. Additional requirements are three letters of recommendation, official transcripts, TOEFL or IELTS score (if applicable) and Office of Graduate Studies online application with fee by the stated admission deadline. A minimum GPA of 3.0 is required and a minimum Technical GPA of 3.00 is required based on the applicant's technical (science and math) courses. GRE scores are not required but may be used in borderline cases. Admissions decisions are made on a case-by case basis. Meeting some or all of these criteria does not guarantee admission, but merely eligibility. The decision to recommend admission to the Dean of Graduate Studies will be made by the Program Admissions Committee on the basis of available space and the competitiveness of applicants compared to the eligible pool.

a) Prerequisites:

In addition to the admission requirements stated above, applicants are expected to have the minimum equivalent of the following UC Davis courses:

MAT16A/B/C	Calculus	9 quarter units
PHY7A/B/C	Physics	12 quarter units
CHEM 2A/B/C	General Chemistry	9 quarter units and 6 lab units
CHE 118A/B	Organic Chemistry	6 quarter units and 2 lab units

b) Deficiencies:

Deficiencies in some of the above undergraduate courses may be made up during the first year of graduate studies. These courses do not count toward the MS degree. A grade of B or better is required in these courses.

2) M.S. Plan I and Plan II

Plan I. This thesis based plan requires 54 units of graduate and upper division courses (the 100 and 200 series only). No more than 12 units of 100 series courses in a relevant scientific field may be used for the degree. At least 30 of the 42 units must be graduate work in the major field. This plan requires 36 units of course work/seminars and 18 units of FOR299 research.

Plan II. This plan requires 54 units of graduate and upper division courses, of which at least 36 units must be graduate courses in the major field. No more than 12 units of 100 series courses in a relevant scientific field may be used for the degree. This plan requires 48 units of course work/seminars and 6 units of FOR299 research.

A final committee examination in the major subject is required of each candidate, and the student is expected to complete an appropriate capstone project approved by the major professor and the capstone committee. No thesis is required.

The Master's program for both Plan I and Plan II has two tracks. The DNA track focuses on biology and DNA courses. The Criminalistics track focuses on chemistry related courses. The student in one track is not precluded from taking elective courses in the other track. The program curriculum is also designed to meet the accrediting standards of the Forensic Science Education Programs Accreditation Commission (FEPAC).

3) Course Requirements - Core and Electives (total # units)

This program accepts both full time (12 units) and part time students (less than 12 units). Courses that fulfill any of the program course requirements may not be taken S/U unless the course is normally graded S/U.

Revised Curriculum effective September 2013

Plan	Plan I	Plan II
Total Units	54 units	54 units
Thesis	Required	No
Capstone	No	Yes
Comprehensive Exam	No	Yes - Oral Examination (by student's committee)
Course Units	33 units	45 units
Seminar Units	3 units	3 units
Research Units	18 units	6 units
	Plan I Specifics	Plan II Specifics
Core Required Courses all students	12 Units FOR200 Fundamentals Concepts of Forensic Science (3) FOR210 Personal Identification and Analytical methods (3) FOR212 Scientific Evidence (3) FOR240 Homicide Crime Scene Investigation (3)	12 Units FOR200 Fundamentals Concepts of Forensic Science (3) FOR210 Personal Identification and Analytical methods (3) FOR212 Scientific Evidence (3) FOR240 Homicide Crime Scene Investigation (3)
Core Track Required Courses	9-12 Units DNA Track (12 units) FOR278 Molecular Techniques (3) FOR280 Forensic DNA Analysis (3) Any 200 Genetics/bioinformatics course (3) FOR289 Survey of Forensic Sciences ¹ (3) OR Criminalistics Track (9 units) FOR205 Microscopy Microanalytical methods (3) FOR220 Analysis of Toxicants (3) FOR207 Advanced Spectroscopy (3) or equivalent	9-12 Units DNA Track (12 units) FOR278 Molecular Techniques (3) FOR280 Forensic DNA Analysis (3) Any 200 Genetics/bioinformatics course (3) FOR289 Survey of Forensic Sciences ¹ (3) OR Criminalistics Track (9 units) FOR205 Microscopy Microanalytical methods (3) FOR220 Analysis of Toxicants (3) FOR207 Advanced Spectroscopy (3) or equivalent
Required Laboratory courses if student has no prior lab experience	DNA Track: FOR281 Principles & Practical DNA Typing (3) Criminalistics Track: FOR221L Forensics Science Instrumental Lab (2)	DNA Track: FOR281 Principles & Practical DNA Typing (3) Criminalistics Track: FOR221L Forensics Science Instrumental Lab (2)
Elective Courses	Electives Courses to fulfill 33 course units requirement (from any of the following) FOR215 Forensic Arson and Fire	Electives Courses to fulfill 45 course unit requirement (from any of the following): FOR215 Forensic Arson and Fire

	Investigation (3) FOR221L Instrumental Laboratory (2) FOR268 Forensic Statistics (3) FOR263Forensic Computer Investigation (3) FOR281 Principles and Practices of Forensic DNA Typing (2) FOR293 Research Methods in Forensic Science (2) Other Campus Elective Options ANG111 Molecular Biology Laboratory Techniques (4) ANG212. Sequence Analysis in Molecular Genetics (2) CHE115 Instrumental Analysis (4) CHE205 Symmetry, Spectroscopy, and Structure (3) CHEM217 X-Ray Structure Determination (3) CHE219 Organic Spectra (4) CHE240 Adv. Analytical Chemistry (3) CHE241C Mass Spectrometry (3) EME298 Impact Biomechanics and Design of Crash Protection Systems (4) EMS182 Failure Analysis (4) EMS230 Electron Microscopy ETX102B Quantitative Analysis of Environmental Toxicants (5) ENT158 Forensic Entomology (3) FPS161 Structure and Properties of Fibers (3) FPS161L Textile Chemical Analysis Lab (1) MCB120L Biochemistry Lab (6) MCB162 Human Genetics (3) MAE161 Combustion and the Environment (4) MAE217 Combustion (4) MCB221C Molecular Biology (4) Other courses as approved by the Graduate Advisor	Investigation (3) FOR221L Instrumental Laboratory (2) FOR268 Forensic Statistics (3) FOR263Forensic Computer Investigation (3) FOR281 Principles and Practices of Forensic DNA Typing (2) FOR293 Research Methods in Forensic Science (2) Other Campus Elective Options ANG111 Molecular Biology Laboratory Techniques (4) ANG212. Sequence Analysis in Molecular Genetics (2) CHE115 Instrumental Analysis (4) CHE205 Symmetry, Spectroscopy, and Structure (3) CHEM217 X-Ray Structure Determination (3) CHE219 Organic Spectra (4) CHE240 Adv. Analytical Chemistry (3) CHE241C Mass Spectrometry (3) EME298 Impact Biomechanics and Design of Crash Protection Systems (4) EMS182 Failure Analysis (4) EMS230 Electron Microscopy ETX102B Quantitative Analysis of Environmental Toxicants (5) ENT158 Forensic Entomology (3) FPS161 Structure and Properties of Fibers (3) FPS161L Textile Chemical Analysis Lab (1) MCB120L Biochemistry Lab (6) MCB162 Human Genetics (3) MAE161 Combustion and the Environment (4) MAE217 Combustion (4) MCB221C Molecular Biology (4) Other courses as approved by the Graduate Advisor
Seminars Units	3 Units	3 Units
	2 - FOR290 Seminars 1 - XXX290 Seminar session (a seminar session in another group/department)	2- FOR290 Seminars 1 - XXX290 Seminar session (a seminar session in another group/department)
Research Units	18 Units	6 Units
	FOR299 Research in Forensic Science	FOR299 Research in Forensic Science

Note 1: In lieu of FOR289, a DNA track student can take both FOR205 and FOR220. FOR289 **should not** be taken by students in the Criminalistics track as it will result in some duplication of subject matter.

Summary: Per UC regulations, students cannot enroll in more than 12 units of graduate level courses (200) or more than 16 units of combined undergraduate and graduate level (100, 200, 300) courses per quarter. Please note that electives are chosen with the approval of the graduate adviser and/or major professor.

4) **Special requirements:** All candidates are expected to present their theses or capstone results to faculty and students during a FOR290 seminar either in the Spring or the Fall quarter.

5) **Forensic Science Graduate Group Committees:**

- a. **Admissions Committee Recruitment and Fellowships:** The Committee shall process all applications for admission to graduate study in Forensic Science, inviting review of applications by members of the Group usually from those persons designated as graduate advisers. Once the completed application, all supporting material, and the application fee have been received, the application will be submitted to the Admissions Committee. The Admissions Committee consists of the chair, five members from the graduate group faculty and one student. Based on a review of the entire application, a recommendation is made to accept or decline an applicant's request for admission. That recommendation is forwarded to the Dean of Graduate Studies for final approval of admission. Notification of admissions decisions will be sent by Graduate Studies. Applications are accepted using the Office of Graduate Studies online application with fee by the stated admission deadline of February 1 for priority enrollment with a final deadline March 1 of the year for the new cohort entering the Fall of that year.
- b. **Committee on Education Policy:** The Committee on Education Policy consists of the chairperson and at least two (2) more voting members appointed by the chairperson of the committee. In addition, one representative of the graduate students in Forensic Science serves on the Committee. The functions of the Committee shall include consideration of graduate course offerings in Forensic Science and recommendations regarding academic quality of the graduate program in Forensic Science.
- c. **Thesis Committee or Comprehensive Examination Committee:** Thesis Committee: The student, in consultation with his/her major professor and graduate advisor, nominates three faculty to serve on the thesis committee. These nominations are submitted to the Office of Graduate Studies for formal appointment in accordance with Graduate Council policy. The major professor may serve as chair of the thesis committee. The Comprehensive Examination Committee will be structured the same as a thesis committee and will follow the same qualification rules as established by the Office of Graduate Studies for thesis committees.

6) **Advising Structure and Mentoring:**

- a. **Graduate Group Advisers:** Each graduate advisor shall evaluate the transcripts of incoming students, establish a program of study which satisfies the requirements of the Group, and shall advise graduate students within his/her jurisdiction in accordance with the regulations of the Office of Graduate Studies and the Group. The graduate advisor, who is appointed by Graduate Studies, has signature authority from Graduate Studies, is a resource for information on academic requirements, policies and procedures, and registration information. Only the graduate advisors, who hold appropriate University titles and the graduate group chair, will make decisions on courses, curriculum, and individual students' programs relative to core courses, background courses, and remedial courses.

- b. **Major Professor:** The major professor is the faculty member who supervises the student's research progress and provides guidance in selecting and developing thesis level research projects. The major professor may serve as the chair of the thesis Committee.
- c. **Major Professor Assignments:**
- i. **Each full-time student** will select a major professor by the end of the third quarter. A student who does not have a major professor by that time will be assigned, one, by the chair of the graduate group, to help formulate the research topic.
 - ii. **Each part-time student** will have selected a major professor before completing **85%** of the course work. A student who does not have a major professor by that time will be assigned one, by the chair of the graduate group, to help formulate the research topic.
 - iii. **Graduate Program Staff:** The forensic science program staff assists students with identifying a major professor, identifying appointments, fiscal issues, Graduate Studies policies and deadlines and general university policies. The Mentoring Guidelines can be found in the graduate student handbook and it can be obtained from the program's web site at <http://forensicscience.ucdavis.edu>. Once at this site, the students select the category "students" and enter a password.

7) **Advancement to Candidacy:**

Every student must file an official application for Candidacy for the Degree of Master of "Forensic Science" after completing one-half of the course requirements and at least one quarter before completing all degree requirements; this is typically the 4th quarter. The Candidacy for the Degree of Master form can be found online at: <http://www.gradstudies.ucdavis.edu/forms/>. A completed form includes a list of courses the student will take to complete degree requirements. If changes must be made to the student's course plan after s/he has advanced to candidacy, the graduate adviser must recommend these changes to Graduate Studies. Students must have their graduate adviser and thesis committee chair sign the candidacy form before it can be submitted to Graduate Studies. If the candidacy is approved, the Office of Graduate Studies will send a copy to: the appropriate graduate staff person and the student; the thesis committee chair will also receive a copy, if applicable. If the Office of Graduate Studies determines that a student is not eligible for advancement, the department and the student will be told the reasons for the application's deferral. Some reasons for deferring an application include: grade point average below 3.0, outstanding "I" grades in required courses, or insufficient units.

8) **Comprehensive Examination and/or Thesis Requirements:**

a) **Thesis Requirements (Plan I):**

Thesis committee meetings: The candidate and major professor should meet at least once a year with the other members of the thesis committee to discuss progress and any changes in research objectives.

Thesis: Research for the Master's thesis is to be carried out under the supervision of a

faculty member of the program and must represent an original contribution to knowledge in the field. The thesis research must be conducted while the student is enrolled in the program. The thesis is submitted to the thesis committee at least one month before the student plans to make requested revisions. All committee members must approve the thesis and sign the title page before the thesis is submitted to Graduate Studies for final approval. Should the committee determine that the thesis is unacceptable, even with substantial revisions; the program may recommend the student for disqualification from the program to the Dean of Graduate Studies.

The thesis must be filed in a quarter in which the student is registered or on filing fee. Instructions on preparation of the thesis and a schedule of dates for filing the thesis in final form are available from Graduate Studies; the dates are also printed in the UC Davis General Catalog and in the Class Schedule and Registration Guide issued each quarter. A student must have a GPA of at least 3.0 for the M.S. degree to be awarded.

Thesis Format: It is highly recommended that the thesis be completed in the format suitable for journal submission to the journal recommended by the chair of the thesis committee.

b) **Comprehensive Examination (Plan II):**

Fulfillment of the Comprehensive Examination is the last requirement of the M.S. Plan II. Students may take the comprehensive oral examination once they have advanced to candidacy. However, it is important that the capstone requirement be completed at or near the end of the coursework for the Master's degree; for most students, the exam is taken at the end of the 6th quarter.

The comprehensive examination requirement includes both the submission of a technical report to the Comprehensive Examination committee (see section 5) and passing a one-hour oral exam administered by that same committee. The technical report is to be written under the direction of a faculty mentor, who must be a member of the graduate program. The technical report can be an extensive review of the literature in a focused subject area, a report on developing a validation method for new instrumentation or any other technical report deemed suitable by the committee.

The scope of the oral exam is the candidate's coursework as well as the project work.

The Exam committee's unanimous vote is required to pass a student on the exam. If a student does not pass the exam, the committee may recommend that the student be reexamined one more time, but only if the graduate adviser concurs with the committee. The second exam must take place within one quarter of the first exam. The format of the second exam is the same as that of the first exam and may include the submission of an amended version of the report. The examination may not be repeated more than once. A student who does not pass on the second attempt is subject to disqualification from further graduate work in the program.

Once passed, the Master's Report Form is signed by the group's graduate adviser and then forwarded to the Office of Graduate Studies. The deadlines for completing this requirement are listed each quarter in the campus General Catalog (available online at the website of the Office of the Registrar or from the Bookstore). A candidate must be a registered student or in Filing Fee status at the time the program submits the form, with the exception of the summer period between the end of the Spring Quarter and the

beginning of Fall Quarter. The program must file the report with Graduate Studies within one week of the end of the quarter in which the student's degree will be conferred.

- 9) **Normative Time to Degree:** For full-time students the normative time to a degree is 3 years. For part-time students the normative time to a degree is 5 years. After this deadline has passed, the student must obtain the recommendations of the major professor and the graduate advisor to continue in the program.

10) **Typical Time Line and Sequence of Events:**

The following are typical time lines for the course presentations and degree progress. Because of alternate year classes, there may be some changes:

Year One	Fall	Winter	Spring
	FOR200-Fundamentals F.S. FOR240-Crime Scene FOR290-Seminar	FOR210 Principles of I.D. FOR212 Scientific Evidence XXX290 Seminar	FOR240-Crime Scene FOR290-Seminar ETX102B Quant Toxicants
Track courses	FOR220- Analysis Toxicants	FOR280- Forensic DNA FOR287- Survey For. Sci.	FOR205-Microscopy
Year Two	Fall	Winter (advancement to MS candidacy)	Spring
	FOR218-Tech Writing FOR284-Non-Human DNA	FOR215- Arson Invest. FOR268-Forensic Statistics FOR283-Forensic Biology	FOR207- Spectral Analysis FOR293- Research Methods
Track Courses	FOR278- Molecular Tech. FOR221L-Instrumental lab	XXX Genetics-Bio Info	FOR281- DNA Lab

- 11) **Sources of funding:** The Forensic Science program is a self-supporting program and receives no fiscal support from UC Davis or from the State of California. All students are expected to pay the prescribed self-supporting unit based tuition. Financial aid (loans) is available at the UC Davis Financial Aid office. Depending on available grants, some students may be selected to work on funded research projects where they will receive fee remission and a stipend as Graduate Student Researcher (GSR).

12) **PELP, In Absentia and Filing Fee status.**

Information about PELP (Planned Educational Leave), In Absentia (reduced fees when researching out of state), and Filing Fee status can be found in the Graduate Student Guide: <http://www.gradstudies.ucdavis.edu/publications/>. Be aware that the filing fee status is currently limited to one quarter and is used for students to complete their thesis draft. Failure to submit the thesis in time will require the student to seek re-enrollment in the program.