



NEW PROGRAM PROPOSAL FORM

Sponsoring Institution(s): Maryville University

Program Title: Forensic Science

Degree/Certificate: B.S.

Options: Chemistry Concentration

Delivery Site(s): 650 Maryville University Drive, St. Louis, MO 63141

CIP Classification: 43.0106

*CIP code can be cross-referenced with programs offered in your region on MDHE's program inventory higher.ed.mo.gov/ProgramInventory/search.jsp

Implementation Date: August 2014

Cooperative Partners: 43.0106

*If this is a collaborative program, form CL must be included with this proposal

AUTHORIZATION:

Dr. Mary Ellen Finch, VP Acad Affairs

Mary Ellen Finch 9/1/14

Name/Title of Institutional Officer

Signature

Date

Prof. Cherie Fister - Interim Dean, Arts & Sciences

314-529-9638

Person to Contact for More Information

Telephone

Missouri Department of Higher Education Proposal for New Program:

Maryville University – Forensic Science, Chemistry Concentration (Bachelor of Science)

1. New Program Proposal Form: See Form NP – attached
2. Need:
 - A. Student Demand:
 - i. Estimated enrollment each year for the first five years for full-time and part-time students (See Form SE – attached)
 - ii. Will enrollment be capped in the future?

Enrollment is expected to be fluid, so we do not foresee a need to cap enrollment in the near future. However, it would be possible that we would need to cap enrollment in introductory science courses (introductory chemistry and biology for majors and organic chemistry) until all science facilities have been renovated. For the next 3 years, we anticipate a maximum enrollment of 300 students in any given semester in general chemistry and organic chemistry courses/labs. After facilities have been renovated we should be able to serve 400 students in these sequences per semester. Currently, we can serve only 96 students in the introductory biology sequence in any given semester. After facilities renovations, we should be able to serve 210 students per semester in this sequence.

B. Market Demand:

Job Outlook for Forensic Scientists – With a bachelor's degree a forensic scientist is prepared to work in laboratory analysis or possibly crime scene investigation. According to the Bureau of Labor Statistics, www.bls.gov, job opportunities are expected to grow 6% from 2012 to 2022.

Payscale.com reports that median annual salary for a forensic scientist is between \$40,000 and \$74,000, depending on experience, www.payscale.com

Forensic scientists employed by federal agencies typically earn higher salaries than those employed by state and local agencies. See Bureau of Labor Statistics data below.

U.S. Bureau of Labor Statistics, Occupational Employment and Wages, May 2013 (19-4092 Forensic Science Technicians)

	Employment	Mean Annual Wage
National Estimates	13,430	\$57,340
Local Government	7,690	\$56,990
State Government	4,210	\$56,350
Medical/Diagnostic Labs	500	\$60,230
Federal	140	\$93,940
Architect/Engin/Related Services	140	\$59,400
Missouri Estimates	270	\$46,680
Illinois Estimates	490	\$82,110

C. Societal Need:

Forensic scientists are needed in several areas of forensics, to include crime lab work where they focus on physical and trace evidence, toxicology, DNA, and fingerprint analyses. Additionally, lab scientists are needed by society to conduct a wide variety of tests in quality control and assurance validation.

D. Methodology used to determine "B" and "C" above.

Information for Market Demand and Societal Need was gathered from various documents provided by the federal government (e.g., US Department of Labor Occupational Outlook).

3. Duplication and Collaboration

If similar programs currently exist in Missouri, what makes the proposed program necessary and/or distinct from the others at public institutions, area vocational technical schools, and private career schools?

We are aware of two four-year programs offered at other Missouri institutions; Columbia College's major in forensic science (with concentrations in chemistry or biology), and Lindenwood University's chemistry major with forensic science concentration. Neither program is accredited.

Maryville's Forensic Science major has been set up according to the guidelines provided the Forensic Science Education Programs Accreditation Commission (FEPAC, fepac-edu.org/) through the American Academy of Forensic Science (www.aafs.org). Our intention is to seek accreditation.

Does delivery of the program involve a collaborative effort with any external institution or organization?

The program will not be offered in collaboration with another institution.

4. Program Structure:

- A. See Form PS – attached
- B. See Form PS – attached
- C. See Form PS – attached
- D. See Form PS – attached
- E. See Form PS – attached
- F. See Form PS – attached
- G. See Form PS – attached

5. Financial Projections (for public institutions only): Maryville University is a private, not-for-profit institution.

6. Program Characteristics and Performance Goals: See Form PG – attached

7. Accreditation: If accreditation is not a goal for this program, provide a brief rationale for your decision.

We plan on seeking Forensic Science Education Programs Accreditation Commission (FEPAC) accreditation.

8. Institutional Characteristics: Please describe succinctly why your institution is particularly well equipped or well suited to support the proposed program.

Maryville University is one of the oldest private institutions of higher education in the region serving approximately 3500 students. It is conveniently located within 20 minutes of downtown St. Louis where the professional opportunities for internships and reciprocal relationships with corporate and non-profit partners is significant. Within the region, Maryville is known for its strong undergraduate programs. The existing programs in biology, chemistry and the health professions provide facilities and faculty expertise for the forensic science major.

9. Any Other Relevant Information: N/A

Form SE

STUDENT ENROLLMENT PROJECTIONS

Year	1	2	3	4	5
Full Time	1	5	10	15	15
Part Time	0	0	0	0	0
Total	1	5	10	15	15

Form PS

PROGRAM STRUCTURE

A. Total credits required for graduation: 128

B. Residency requirements, if any: none

C. General education: Total credits: 39

Courses (specific courses OR distribution area and credits):

INTD 101	3 cr.	2 courses from Arts & Sciences	6 cr.	Philosophy	3 cr.
ENGL 101	3 cr.	HUM 101/HIST 131	3 cr.		
ENGL 104	3 cr.	ENGL/LANG/HUM/PHIL	3 cr.		
Fine Arts	3 cr.	Am Hist or Govt	3 cr.		
Lit/Lang	3 cr.	2 Social Science courses	6 cr.		

D. Major requirements: Total credits: 77

CHEM 103	4 cr	CHEM 104	4 cr	CHEM 203	4 cr	CHEM 204	4 cr
BIOL 117	4 cr	MATH 151	4 cr	MATH 141 or 370	3 cr	PHYS 153	4 cr
PHYS 154	4 cr	MATH 152	4 cr	CHEM 301	3 cr	CHEM 353	4 cr
CHEM 410	4 cr	CHEM 431	3 cr	BIOL 118	4 cr	BIOL 260	4 cr
FRSC 151	4cr	FRSC 303 or 211	4 cr	FRSC 311	4 cr		

At least 6 cr hours from the following: CRIM 311 (3 cr); LEGL 101 (3 cr); LEGL 105 (3 cr); FRSC 350 Evidence (3 cr)

E. Free elective credits: 12 (depending on line D) (Sum of C, D, and E should equal A.)

F. Requirements for thesis, internship or other capstone experience:

None

G. Any unique features such as interdepartmental cooperation: Science and math courses only.

Form PG

PROGRAM CHARACTERISTICS AND PERFORMANCE GOALS

Institution Name Maryville University

Program Name Forensic Science, Chemistry Concentration

Date June 25, 2014

(Although all of the following guidelines may not be applicable to the proposed program, please carefully consider the elements in each area and respond as completely as possible in the format below. Quantification of performance goals should be included wherever possible.)

Student Preparation

- Any special admissions procedures or student qualifications required for this program which exceed regular university admissions, standards, e.g., ACT score, completion of core curriculum, portfolio, personal interview, etc. Please note if no special preparation will be required.

No special preparation is required beyond acceptance to the university.

- Characteristics of a specific population to be served, if applicable.

The Forensic Science major is offered for daytime students only.

Faculty Characteristics

- Any special requirements (degree status, training, etc.) for assignment of teaching for this degree/certificate.

Terminal degree (doctoral degree) is required for all courses taught in this program. Degree may be in chemistry, biology, biochemistry or have a forensic science focus. Laboratories may be taught by faculty with a master's degree or terminal degree.

- Estimated percentage of credit hours that will be assigned to full time faculty. Please use the term "full time faculty" (and not FTE) in your descriptions here.

Full time faculty will teach approximately 50% of the credit hours for the forensic science major.

- Expectations for professional activities, special student contact, teaching/learning innovation.

All full time faculty members are expected to participate in an active program of professional development which includes teaching innovation, supervision of undergraduate research, new course development, and service to department/campus/community. Maryville has a well-established Finch Center for Teaching and Learning that sponsors an annual conference on the Scholarship of Teaching and Learning. Faculty members may also choose to participate in a two-year action research project where they study their own teaching and the impact on student learning. Full time faculty members are required to advise students in their degree planning and progress. Faculty members are also involved in mentoring students in their professional development. This will involve undergraduate student research projects in the area of biology, chemistry and forensic science. Ideally some projects will focus on forensics that will be

presented at national conferences such as the annual American Academy of Forensic Science meeting or PITTCON, as well as regional meetings for the Midwest Academy of Science or the regional American Chemistry Society.

Enrollment Projections

- Student FTE majoring in program by the end of five years.

Approximately 5-8 students in each class, or 20-32 at the institution at any given time.

- Percent of full time and part time enrollment by the end of five years.

One-hundred percent full time. None part time.

Student and Program Outcomes

- Number of graduates per annum at three and five years after implementation.

Three years after implementation, we anticipate 0 graduates—it is a four-year program. Five years after implementation, we anticipate 7 graduates annually.

- Special skills specific to the program.

The curriculum for the forensic science program provides students with a solid preparation for continuing in graduate school or for direct entry into forensic science or science related fields.

The Forensic Science Program at Maryville University seeks to fulfill the mission of providing the highest quality undergraduate programs founded in the Liberal Arts and Sciences tradition. Our forensic science major strives to provide an interdisciplinary educational experience for students to develop the skills and concepts necessary to understand and appreciate many aspects of biology, chemistry, and human physiology and health. The program prepares students to engage in meaningful discourse and creative scientific inquiry, and provide responsible and effective leadership and service in their profession, their communities, and the larger society.

The program also supports Maryville's mission of integrating liberal and professional learning by providing a theoretical and practical foundation in forensic science with instruction in both traditional and laboratory settings.

Our program supports the University's goal to offer an undergraduate curriculum that prepares the student as active and enlightened participants in St. Louis and the world community.

A significant number of graduates at Maryville currently gain acceptance into medical, dental or graduate schools. Some take or continue their ongoing employment with local crime labs or labs with a focus on quality assurance and/or quality control. Some local companies that hire Maryville graduates include; Pfizer, Sigma-Aldrich, K-V Pharmaceuticals, Monsanto, and Anheuser-Busch. In addition, the local health care network provides some jobs for Maryville students and graduates including; BJC Hospitals, St. John's-Mercy Hospital, St. Luke's Hospital; St. Joseph's Hospital, SSM Health Centers, etc. Some students and graduates find work in biological and medical research institutions including the Danforth Plant Science Center, St. Louis University Medical School, and Washington University Medical School.

Students have the opportunity to perform undergraduate research with a full time faculty member at Maryville University.

- Proportion of students who will achieve licensing, certification, or registration.

Forensic science majors will not be seeking licensing, certification, nor registration affiliated with this degree.

- Performance on national and/or local assessments, e.g., percent of students scoring above the 50th percentile on normed tests; percent of students achieving minimal cut-scores on criterion-referenced tests. Include expected results on assessments of general education and on exit assessments in a particular discipline as well as the name of any nationally recognized assessments used.

Currently, the Maryville Science Programs do not use national assessment tools for courses. In the future, we hope to offer some of the American Chemical Society exams for undergraduates. In particular, the end-of-sequence exams for General Chemistry, Quantitative Analysis, and Organic Chemistry. If and when offered, we would expect the forensic science majors to have 50% of the students performing above the 50th percentile.

- Placement rates in related fields, in other fields, unemployed.

We anticipate that 90% of students desiring employment in the field, or a related field, will be able to achieve it upon graduation.

- Transfer rates, continuous study.

We anticipate 25% of our students will be transfer students to Maryville University. We do not anticipate students enrolled in the forensic science major at Maryville will transfer (as a forensic science major) to another institution. In the first few years, we expect many graduates will immediately seek employment. Within 5-10 years, we anticipate approximately 70% of our graduates will pursue post-graduate education.

Program Accreditation

- Institutional plans for accreditation, if applicable, including accrediting agency and timeline. If there are no plans to seek specialized accreditation, please provide reasons.

Our Forensic Science has been set up according to the guidelines provided the Forensic Science Education Programs Accreditation Commission (FEPAC, fepac-edu.org/) through the American Academy of Forensic Science (www.aafs.org). Maryville will complete the self-study after completing graduates from multiple years and submit it for review in either 2015 or 2016. Once complete, a site visit and review of the program will be scheduled with the governing body. The program should be accredited by 2018 if not before that time.

Alumni and Employer Survey

- Expected satisfaction rates for alumni, including timing and method of surveys.

Alumni will be surveyed electronically every five years. Our expected satisfaction rate is above 85%.

- Expected satisfaction rates for employers, including timing and method of surveys

Employers will be surveyed electronically every five years. Our expected satisfaction rate is above 85%.

UNOFFICIAL DEGREE PLANNING SHEET

T-Transfer Credit
M-Maryville Credit
Admitted

Student Name _____ I.D.# _____ Registrar Signature _____

GENERAL EDUCATION	T	M	Forensic Science with a Chemistry Concentration	83 cr.	T	M
I. Skills/Processes for Literacy (4 courses)			Required Natural Science & Mathematics Core:	35 cr.		
A. INTD 101 University Seminar (3)			CHEM 103 General Chemistry I (4) F/S			
B. ENGL 101 Composition: Theme Writing (3)			CHEM 104 General Chemistry II (4) S			
C. ENGL 104 Composition: The Essay (3)			CHEM 203 Organic Chemistry I (4) F			
D. MATH (Requirement met through the Major)			CHEM 204 Organic Chemistry II (4) S			
			BIOL 117 General Biology I (4) F/S			
II. HUMANITIES (5 courses)			MATH 151 Calculus I (4) F/S			
A. Fine Arts (1 course)			MATH 141 Elementary Statistics (3) F/S or MATH 370 Mathematics Statics I (3) (pre-requisite MATH 152)			
Art, Music, Performance, Aesthetics			PHYS 153 Calculus-Based Physics I (4) F			
B. Literature/Language (1 course)			PHYS 154 Calculus-Based Physics II (4) S			
ENGL or Foreign Language						
C. Philosophy (1 course)			Forensic and advanced science coursework:	42 cr.		
D. Humanities Electives (2 courses)			MATH 152 Calculus II (4) S			
1. HUM 101/301 or HIST 131/331			CHEM 301 Inorganic (3) S (even year)			
2. One additional elective from ENGL, The Arts/Aesthetics, Foreign Language, HUM, PHIL, REL			CHEM 320 Biochemistry (4) F			
			CHEM 353 Quantitative Analysis (4) F			
			CHEM 410 Instrumental Analysis (4) S			
III. SOCIAL SCIENCE (3 courses)			CHEM 431 Physical Chemistry I (3) F (odd year)			
A. American History or Government			BIOL 118 General Biology I (4) S			
B. Social Science Electives - 2 courses selected			BIOL 260 General Genetics (4) F			
from two of the following disciplines: ECON, GEOG, HIST, PSCI, PSYC, SOC			FRSC 151 Introduction to Forensic Science (4) F (odd year)			
			FRSC 303 Forensic Biology (4) S (odd year) or FRSC 211 Intro to Forensic Investigations (4) S (even year)			
			FRSC 311 Forensic Chemistry (4) S (even year)			
IV. Natural Science/Quantitative Reasoning						
(2 courses) Requirements met through the major.			Type of the following:	6 cr.		
			CRIM 311 Criminal Law and Procedure (3)			
V. General Education Electives (2 courses)			LEGL 101 Introduction to the Law (3)			
2 courses selected from disciplines within the College of Arts and Sciences			LEGL 105 Legal Ethics, Inter & Investigation (3)			
(Requirements met through major)			FRSC 350 Evidence (3)			
			NOTE: 116 CREDITS on this DPS			

128 Cr. Hrs. _____ Major Requirements _____ Minor Requirements _____ Last 30 hr. residency _____

UNOFFICIAL GRADUATION CHECK: When you have reached Senior Status, check with the Registrar's Office to make sure that this sheet agrees with permanent file.