Certificate in Forensic Chemistry

I. Overview and rationale

The primary objective of the Forensic Chemistry Certificate is for students to allow students to be introduced to the portfolio of knowledge and experiences through courses in analytical methodologies that will enable them to tackle problems in forensic chemistry, environmental chemistry, and other areas of chemistry. Other objectives include providing:

- a theoretical understanding of major concepts in Forensic Chemistry,
- a range of practical skills in Forensic Chemistry, and
- knowledge and skills applicable to academia, industry, and government.

The goal of the program is the successful placement of graduates into relevant jobs and to enable career advancement for chemists already employed.

The program in Forensic Chemistry includes core requirements in current topics in forensic chemistry; applied biopharmaceutics; data analysis; law, ethics, and policy; and toxicology. Attendance is required at annual symposia where leaders in the field of forensic science present on current topics and developments in the field of forensics and forensic chemistry. Many courses in the program are conducted as hands-on training in a modular, forensic chemistry laboratory. An independent project is assigned that will generate knowledge with the goal of developing advanced forensic skills, enabling program graduates to effectively work in and be leaders of the discipline of forensic chemistry. All students are required to complete a forensic chemistry internship.

The PSM in Forensic Chemistry degree program can be completed in 4 - 5 semesters which includes one summer semester. Among the working professionals who are seeking advancement and career mobility, a 4 - 5 semester training is often not feasible, and the interest in a shorter 1 - 2 semester certificate program has been requested.

The Steering Committee has therefore considered a shorter, transcripted certificate program, which could be completed in 1-2 semesters, serving the working professionals who need academic credentials for career advancement.

II. Relationship of Proposed Program to others in the College or University

The certificate will provide advanced academic credentials for the working professional seeking training beyond the baccalaureate degree. The certificate will be transcripted requiring the completion of up to and no more than 13 credits from the list of core classes in the current curriculum of the PSM in Forensic Chemistry. It will also be a means for training of students who are unable to complete the rigors of a 4 - 5 semester degree program, in 1 - 2 semesters.

The Certificate in Forensic Chemistry program will provide a mechanism to obtain a certificate in 1 - 2 semesters or for the part time student, the time required to complete 12 credits of core classes, with a GPA of 3.0. The classes will be taught by the same faculty as in the PSM in Forensic Chemistry program, as students will be taking the same core classes as the PSM in Forensic Chemistry students without committing to a capstone project or a graduate degree requiring 30 credits. The Certificate in Forensic Chemistry program will credential future leaders in the field through a curriculum chosen according to the student’s interest.
III. **Curriculum:**
Below is the list of core course which a student may take to complete the certificate in Forensic Chemistry. Student advising will be provided to meet the specific interests for each student.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 5102</td>
<td>Data Analysis and Evidence</td>
<td>2</td>
</tr>
<tr>
<td>CHEM 5108</td>
<td>Investigative Chemistry</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 8001</td>
<td>Leadership, Law and Ethics in Forensic Science</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 8107</td>
<td>Advanced Forensic Chemistry*</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 8310</td>
<td>Special Topics in Analytical Chemistry (two terms/two topics)</td>
<td>6</td>
</tr>
<tr>
<td>CHEM 8601</td>
<td>Analytical Separations</td>
<td>3</td>
</tr>
</tbody>
</table>

*Special Topics CHEM 8107 may be replaced by any Graduate Chemistry course recommended by the Advisor.

IV **Impact on Faculty and Students**
This will not impact faculty or require new faculty.

V **Impact on Resources**
This program is a tuition generating program and will contribute to the revenue stream already generated by the parent program.

VII **Assessment**
A formal assessment will be conducted after the certificate has run for one or two years.

VIII **Summary of Peer or Aspirant Programs**
A graduate certificate in Forensic Chemistry is offered in a few universities a link and text of 12 such programs is provided in Appendix A.

IX **Implementation**
Pending approval, the certificate program is ready for a start date of Fall 2020.

X **Process for Proposal Development**
The certificate program was developed by the Steering Committee based on reflection of graduate outcomes, conversations with students and the Committee’s observations of student progress. The focus of developing this program was to provide a mechanism for students to succeed who, for various reasons whether financial, academic or work related could not continue in the program.
APPENDIX A

12 Universities offering Forensic Certificates

Text taken from sponsored link below:
https://www.forensicscolleges.com/blog/resources/graduate-certificate-programs-for-forensics

George Washington University
A graduate certificate in forensic investigation, accredited through the AAFS. The program requires five classes of core work (15 credits) and one elective class at three credits for an 18-credit program. Students can later use their credit hours to complete a master's degree in forensic science with a concentration in crime scene investigation.

Iowa State University
The certificate program is interdisciplinary and helps students learn about research and development and the technologies and science important to counter-terrorism. To complete the certificate, students need to take 12 credits, 10 of which can be selected from a broad list of classes including issues in crime and justice or principles of toxicology. A one-credit course that includes an off-campus seminar and another one-credit course of independent study rounds out the school’s certificate program.

UMass Lowell (online)
Two core classes are required as are two electives that include options such as criminological theory, sex crimes and offenders and victimology.

Mercyhurst University
The program, which is accredited by the AAFS, gives students the opportunity to expand their learning beyond the undergraduate level into areas that interest them. The five-course program is particularly geared at helping students who want to complete the master’s degree in forensic and biological anthropology at the school to fill in their learning gaps.
University of Florida
These include forensic drug chemistry, forensic death investigation, forensic DNA and serology, forensic toxicology, and veterinary forensic sciences. Most of the certificates can be completed entirely online and require students to do 15 credits of coursework.

National University
NU offers a graduate certificate in forensic and crime scene investigations. Seven courses, comprising 31.5 quarter units are required for the certificate and include digital evidence, forensic pathology and law and criminal procedure.

Iona College
Students are required to take five three-credit classes, several of which include advanced criminology, profiling violent crimes and victimology. The certificate is designed for students who have careers in forensic science in mind or who are already working in the field.

University of New Haven
These certificates may be perfect for people who want to enroll in a short course of learning at the graduate level. The school’s forensic science/advanced investigation certificate, for instance, is 18 credits in total and entails completion of four required classes, such as advanced investigation and survey of forensic science. Students also take two elective courses.