



FORENSIC SCIENCE EDUCATION PROGRAMS ACCREDITATION COMMISSION

FEPAC Computing and Information Science Technology

Call for Comments September 2015

Pursuant to the Forensic Science Education Programs Accreditation Commission (FEPAC) Policies & Procedures, Policy 4.10 Review of Standards, FEPAC is tasked to conduct ongoing and comprehensive reviews of its accreditation standards to verify they adequately evaluate educational quality and are relevant to the education needs of students seeking a career in forensic science. During a recent review of the FEPAC Digital Evidence Standards, the Commission formed a task force comprised of FEPAC Commissioner and task force leader, Jeff Salyards, PhD, MFS and digital evidence experts and educators to identify the needs of forensic digital evidence students. The task force posed the following questions:

- 1) What basic science and math classes should be the minimum requirement for this type of program (e.g., Calculus, Physics, Electronic Circuits, etc)?
- 2) What computer science classes should be the minimum requirement for this type of program (e.g., Object Oriented Programming, Data Structures and Algorithms, Intro to Operating System, etc)?
- 3) What general Forensic Science Topics should be covered through a combination of courses and contact hours (i.e., should Digital Evidence programs cover QM, other Forensic Science Disciplines like LP and DNA, and Moot Court, etc)?
- 4) What are Specific Computer Forensics/Digital Evidence subjects be covered and how would this content be best delivered? Examples include Linux-based tools like DC3DD, vendor-based industry products (like EnCase), and Information Assurance/Network Security.

In response to these questions, the task force reviewed and proposed changes to FEPAC's Standards as they apply to Computing and Information Science Technology Core Courses (Forensic Digital Evidence). The following represents the result of months of dedicated work with a comparison of the current FEPAC standards (left) and proposed changes (right):

Current	Proposed
<p>4.1 Curriculum For general forensic science programs with emphasis in chemistry, biology, or toxicology, standards 4.1.1a through 4.1.1d should be followed. For forensic science programs with an emphasis on digital evidence, standards 4.1.2a through 4.1.2d should be followed. No course may be used to satisfy more than one of the standards in 4.1.1a-d or 4.1.2a-d.</p> <p>4.1.1 General Curriculum The undergraduate program in forensic science shall offer a coherent curriculum that reflects the mission and goals of the program and provides the student with the appropriate skills requisite for the bachelor’s degree. The curriculum shall, at a minimum, ensure that each student:</p> <ol style="list-style-type: none"> 1. Obtain a thorough grounding in the natural or computer sciences; 2. Build upon this background by taking a series of more advanced science classes; and 3. Develop an appreciation of issues specific to forensic science through course work and laboratory-based instruction. <p>The following topics must be covered in the curriculum:</p> <ul style="list-style-type: none"> • Courtroom testimony • Introduction to law • Quality assurance • Ethics • Professional practice • Evidence identification, collection, processing 	<p>4.1 Curriculum For general forensic science programs with emphasis in chemistry, biology, or toxicology, standards 4.1.1a through 4.1.1d should be followed. For forensic science programs with an emphasis on digital evidence, standards 4.1.2a through 4.1.2d should be followed. No course may be used to satisfy more than one of the standards in 4.1.1a-d or 4.1.2a-d.</p> <p>4.1.1 General Curriculum The undergraduate program in forensic science shall offer a coherent curriculum that reflects the mission and goals of the program and provides the student with the appropriate skills requisite for the bachelor’s degree. The curriculum shall, at a minimum, ensure that each student:</p> <ol style="list-style-type: none"> 1. Obtain a thorough grounding in the natural or computer sciences; 2. Build upon this background by taking a series of more advanced science classes; and 3. Develop an appreciation of issues specific to forensic science through course work and laboratory-based instruction. <p>The following topics must be covered in the curriculum:</p> <ul style="list-style-type: none"> • Courtroom testimony • Introduction to law • Quality assurance • Ethics • Professional practice • Evidence identification, collection, processing

- Survey of forensic science

Normally, a topic will involve multiple class meetings and may involve multiple learning modalities, such as lectures, laboratories, and demonstrations. Evaluation of student mastery of each topic may be done through a number of modalities, but the topic material must be specifically addressed in a syllabus and assessed.

The program shall have clear procedures for assessing and documenting each student's progress toward fulfillment of these objectives.

4.1.2 General Baccalaureate Curriculum Requirements for Digital Evidence Programs

The specific curricular requirements that follow are based on the fact that most digital forensic scientists work in areas such as electronic discovery, criminal investigation, litigation support, information security, incident

response, and policy compliance. Students seeking work in alternative areas of forensic science such as drug analysis, trace analysis, firearms and toolmarks, forensic biology, or crime scene reconstruction will require other curricula or further training.

Because certain digital forensic science disciplines require more rigorous coursework than the minimum described below, particularly more computer science, mathematics and networking, the program shall ensure that its curriculum is adequate to prepare students for specialization in sub-disciplines of digital forensic science such as network forensics, audio and video forensics, mobile device forensics, anti-forensics, or malware analysis.

- Survey of forensic science

Normally, a topic will involve multiple class meetings and may involve multiple learning modalities, such as lectures, laboratories, and demonstrations. Evaluation of student mastery of each topic may be done through a number of modalities, but the topic material must be specifically addressed in a syllabus and assessed.

The program shall have clear procedures for assessing and documenting each student's progress toward fulfillment of these objectives.

4.1.2 a-d Specific Curricular Requirements for Digital Evidence Programs

The specific curricular requirements that follow are based on the fact that most digital forensic scientists work in areas such as electronic discovery, criminal investigation, litigation support, information security, incident response, and policy compliance.

In addition, the curriculum must cover the following topics related to forensic science:

- Courtroom testimony
- Introduction to law

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- Quality assurance
- Ethics
- Professional practice
- Evidence identification, collection, processing
- Survey of forensic science

Normally, a topic will involve multiple class meetings and may involve multiple learning modalities, such as lectures, laboratories, and demonstrations. Evaluation of student mastery of each topic may be done through a number of modalities, but the topic material must be specifically addressed in a syllabus and assessed.

4.1.2a Computing and Information Science and Technology Core Courses

A minimum of 24 semester hours of coursework shall include the following topics:

- Computer organization and architecture
- File systems and operating systems
- Computer networking
- Information, computer, network or enterprise security
- Programming theory and languages
- Statistics
- Data structures/database design
- Web or mobile application design and development
- Technical writing

4.1.2a Natural Science Core Courses

Mathematics: at least two courses that include any combination of the following 3-semester-hours courses:

- Business Calculus
- Calculus I
- Calculus II
- Statistics I
- Statistics II

Science Courses: at least two consecutive courses, each of which includes an associated laboratory (8-semester-hours total) in one of the following series:

- Physics I & II (Note: Calculus-based physics is preferred but not required)
- Chemistry I & II

4.1.2b Specialized Digital Forensic Science Courses

A minimum of 24 semester hours is required in digital forensic science course work that covers the following topics: identification, acquisition, authentication, examination, analysis, and reporting. Courses in computer forensics, network forensics and a capstone experience are required. Internships or independent study/research courses may be used to fulfill up to three hours of this requirement.

4.1.2c Forensic Science Courses

A minimum of 15 additional semester hours is required in courses that provide greater depth in the student's area of specialization.

- Biology I and II

4.1.2b Computer Science Courses

A minimum of 12 semester hours of coursework shall include the following course & topics:

- At least one 3 semester hour course in computer programming (acceptable languages include: Java, Python, C++, Ruby, etc)
- At least 6 semester hours in courses that cover the following topics:
 - Computer organization and architecture
 - File systems and operating systems
 - Computer networking
 - Information Assurance/network security
 - Data structures/database design
 - Web or mobile application design and development
 - Microelectronic circuits

4.1.2c Specialized Digital Forensic Science Courses

A minimum of 12 semester hours is required in digital forensic science course work that covers the following topics:

- Acquisition of data
- Network/"live" forensic analysis
- Exploitation of mobile devices
- Capstone
- Internships
- Independent study/research (6 semester hours maximum may be devoted to this topic)

4.1.2d Additional Courses

A minimum of 15 additional semester hours of advanced, upper level courses that provide greater depth in the student's area of specialization beyond an introductory level in the program are required. Additional semester hours to complete the minimum of 120 semester hours are to be defined by the individual institution.

4.2 Program Director

The program director shall be a full-time faculty member at the academic institution, appropriately qualified to meet the program's stated mission, goals, and objectives, and to provide leadership in forensic science education, research, and other scholarly activities so that students are adequately prepared for forensic science practice. The program director shall meet the following requirements:

1. Minimum of a Master's or professional degree appropriate for a forensic science program, and at least three years relevant experience as a forensic-science practitioner in an operational forensic science laboratory setting (the three years not including any training period); OR earned doctorate in an appropriate discipline, and three years experience as an academic forensic scientist that includes appropriate educational, research and service contributions to forensic science
2. Documented management experience appropriate to the duties assigned to the position.

4.1.2d Forensic Science Courses

A minimum of 6 semester hours is required in courses that provide breadth in traditional forensic sciences (e.g., DNA, Latent Prints, Trace Chemistry, Microscopy, Crime Scene Reconstruction, etc)

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2. Documented management experience appropriate to the duties assigned to the position.

FEPAC asks that you review the proposed standards and send your comments via email to Nancy Jackson, Director of Accreditation at njackson@aafs.org.