



### **B41 Implementing Independent Research Projects in a Graduate Forensic Science Degree Program**

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After attending this presentation, attendees will understand the problems involved in implementing a program of independent research projects as required by the Forensic Science Education Programs Accreditation Commission (FEPAC). These problems include obtaining adequate resources (such as instrumentation, reagents, and samples) and recruiting external members of research committees.

This presentation will impact the forensic science community by showing the value to the forensic science field of independent research projects conducted by graduate students in forensic science degree programs and by encouraging forensic science practitioners to participate in such research projects as principal investigators or as members of research committees.

One of the accreditation requirements of FEPAC for forensic science graduate degree programs is that each student successfully complete an independent research project. Successful completion entails writing a publishable manuscript reporting the student's research results and a public presentation of the results before the student's research committee. The research committee has to have a minimum of three members, one of whom must be from outside the forensic science program. Studies validating existing analytical methods for use in a particular laboratory are excluded as acceptable research projects.

While few forensic science laboratories conduct research (the overwhelming majority being casework laboratories), future forensic analysts benefit from conducting successful research projects. First of all, research projects provide opportunities for students to gain greater experience in the operation of analytical instruments and in the interpretation of results. Research projects also hone problem-solving skills. Finally, the required manuscript and oral presentation before a committee of experienced scientists gives the students further experience with communicating scientific ideas, experience which is directly applicable to report writing and courtroom testimony.

At The George Washington University, the Department of Forensic Sciences has had to deal with a number of issues in establishing a viable master's-level research program as a part of its Master of Forensic Science (MFS) degree program. First, it was realized that students need to start on a research project early in their degree programs. This allows time for the student to recover from delays resulting from such events as instrument breakdowns or failure of a series of experiments. One particularly vexing delay has proven to be obtaining Institutional Review Board (IRB) approval for projects involving human research (which means most forensic molecular biology projects). Students conducting research in federal government laboratories have also been shut out of these laboratories during government shutdowns.

To insure that projects move along in a timely manner, the department has developed a form on which the MFS student outlines the proposed research project, detailing the experiments to be performed, proposed data analysis, a timeline for conducting the experiments and reporting the results to the student's research committee, and a list of assets required to complete the project (such as instruments, reagents, and samples). This proposal is submitted to the student's research committee for revision and final approval. The department has been able to recruit research committee members from other departments within the University and also from state and federal laboratories in the Washington, DC, area.

Because each year the department has a large number of MFS students who require research projects, it has been difficult to find enough viable projects and sufficient resources for conducting them. Some students have been able to conduct their research in one of the federal government laboratories in the Washington, DC, area. Senior scientists in these laboratories have been willing to serve as principal investigators/mentors for the students. Their laboratories benefit, of course, by having students carry out research that the laboratories otherwise lacked the manpower to accomplish. Departmental resources have also had to be devoted to support student research projects. Departmental faculty members are actively seeking external funding for research; however, under the best of circumstances only a fraction of the MFS students will have external support for their research. The large number of MFS students conducting research has also required full-time faculty of the department to serve on multiple research committees.

As discussed above, FEPAC requirements that graduate forensic science students conduct independent research projects enhance the educations of the students, but present the directors of the graduate degree programs with a number of ongoing challenges involving availability of resources and personnel.

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#### **FEPAC, Forensic Science Research, Forensic Science Education**