

Master of Science in Forensic Science (MS FOS)

Program Assessment Plan

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Department of Sciences
John Jay College of Criminal Justice
City University of New York

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I. Introduction

a. Department Mission Statement (Ratified Nov 24, 2009)

This mission of the Department of Sciences is to provide all John Jay College students with a meaningful understanding of basic scientific principles, scientific methodologies, and to develop their quantitative and analytical reasoning skills. Furthermore, the Department seeks to:

- Present all forensic science students with a sound multidisciplinary foundation in science, to equip these students with the skills needed to pursue advanced educational opportunities, and to prepare them to become scientific professionals;
- Offer forensic science graduate students the opportunity to develop their scientific research skills and to provide them with in depth knowledge of current and cutting edge analytical techniques used by the forensic science community;
- Endow those students enrolled in the forensic science concentration of study of the Criminal Justice Doctoral program with the comprehensive theoretical background and analytical skills necessary to conduct independent research toward advancing the discipline of forensic science.

b. Program Mission Statement

The Master of Science in Forensic Science is designed to provide advanced educational opportunities for scientists, supervisors, administrators and other professionals currently employed in crime laboratories, medical examiners' offices and in such related areas as public safety, arson investigation and environmental protection. The program also prepares individuals who are interested in entering such careers. Drawing from the areas of chemistry, biology, physics and law, the program offers specializations in criminalistics, molecular biology and forensic toxicology and involves the mastery of advanced techniques for application both in the laboratory and presentation in the courts. The curriculum meets an urgent national need for broadly trained forensic scientists and research specialists.

II. Assessment Philosophy

The primary mission of Master of Science in Forensic Sciences (MS FOS) is to facilitate student success. One way to measure student success is to conduct student-learning assessment. The assessment of student learning outcomes is able to provide the fundamental data for promoting Program effectiveness and the improvement of programs and courses. Effective and valuable assessment is best attained when there is a clear definition of what the learning objectives/outcomes and the assessment cycle are. Going beyond assessment of simple acquisition of knowledge, MS FOS assesses students' mastery of subject matter and their ability to apply knowledge in the areas of Reasoning (critical thinking and creativity), Practical skills, and Communication.

MS FOS assessment is a faculty-led assessment to ensure a direct focus on learning. The assessment of student learning outcomes is ultimately the assessment of Program's capability to provide learning opportunities consistent with its mission. The data obtained from assessment is used exclusively to assess and improve teaching and learning, **not** for the evaluation of individual faculty members or students.

The program assessment is making use of surveys and interviews to collect data from all its constituents: current students, alumni, and employers.

III. Assessment Follow-up

Assessment reports are written with an emphasis on critical data analysis and a candid discussion of identified strengths and weaknesses. The outcome assessment committee reviews each report and the listed action items and refers all recommendations concerning specific courses or the overall curriculum to the individual course instructors or the MS FOS curriculum committee for follow-up. The program director will act upon concerns dealing with general issues or other John Jay College departments supporting graduate students. Assessment reports will contain a comparison to previous assessments in order to demonstrate continuous improvement.

Each updated assessment plan will contain a brief outline reviewing activities and listing the assessment reports completed under the previous plan.

IV. Program Educational Objectives/Goals

Building on the four learning goals approved by the Department of Science faculty, students in the MS FOS Program will develop a deep understanding of the physical laws that govern biology, chemistry and toxicology. The program focuses on teaching the fundamentals of science rather than on techniques that will change over time. In a profession that requires the mastering of constantly evolving techniques in the analysis of physical and biological evidence, this program gives them a unique professional advantage.

Students will enhance their skills in the following four categories:

1. Reasoning

Draw appropriate scientific conclusions from evidence and experimental data.

- Critically evaluate current biological, chemical and physical knowledge, recognize the significance of the scientific process in problem solving and develop a valid research approach
- Determine and compose appropriate conclusions based on scientific evidence

2. Knowledge

Acquire broad fundamental concepts, theories, and principles in physical and biological sciences.

- Develop a good knowledge of basic science and current scientific discoveries relevant to their study and research.
- Correctly apply information from popular media and primary scientific literature to support their perspectives and research findings.

3. Practical skills

Accrue hands-on laboratory and practical research skills, including emphasizing the role of quality assurance and objectivity in scientific data collection and how these relate to the system of professional ethics in science.

- Apply research protocols and advance experimental techniques for the analysis of biological, chemical and physical processes including using quality assurance/quality control systems.

- Design hypothesis-driven experiments and trouble-shoot or modify experimental protocols
- Use appropriate statistical analyses

4. Communication

- Develop competence in oral and written forms of scientific communication including testimony in an adversarial legal system and thesis writing.
- Use sound scientific reporting techniques

V. Five-Year Cycle of Assessment Activities --- Part I --- Review of 2009 – 2013 Activities

The following section documents the review of the previously scheduled assessment activities.

Fall 2009

- Define the mission statement of Forensic Science Major

Follow-up: no update planned right; included in assessment plan

Spring 2010

- Define the program mission statement of Master of Science in Forensic Science (MS FOS)
- Design and administer the MS FOS Exit Survey (renamed Student Satisfaction Survey)

Follow-up on mission statement: no update planned; included in assessment plan

Follow-up on current student satisfaction (exit) survey: completed

Fall 2010

- Analyze the results of Student Satisfaction Survey and compile a report
- Define the programmatic learning goals

Follow-up on 2010 student satisfaction (exit) survey report: the report is included in the 2010-2013 graduate program outcome assessment binder.

Follow-up on programmatic learning goals: the current version is included in this assessment plan. To ensure the programmatic learning goals still meet expectations, a review with MS-FOS faculty will be scheduled for 2015.

Spring 2011

- Define the course learning goals and characterize those goals to map the programmatic learning goals
- Build the thesis rubric
- Design and administer MS FOS Alumni Survey

Follow-up on course learning goals: course-by-course learning goals matrices are included in the 2010-2013 graduate program outcome assessment binder. To better align the eight to nine listed goals with the reduced list of four main programmatic learning goals a review with MS-FOS faculty will be scheduled for 2015.

Follow-up on thesis rubric: the 2011 version is included in the 2010-2013 graduate program outcome assessment binder.

Follow-up on MS-FOS alumni survey: completed

Fall 2011

- Refine the course learning goals
- Implement the assessment for the capstone of MS FOS --- Thesis
- Analyze the result and compile a report of MS FOS Alumni Survey
- Design and administer the Employer Survey

Follow-up on course learning goal refinement: no additional edits were performed.

Follow-up on thesis assessment: completed

Follow-up on MS-FOS alumni survey report: the report is included in the 2010-2013 graduate program outcome assessment binder. The summary indicates that over 95% of responding alumni are working full time and an overall positive opinion of the program.

Follow-up on employer survey: completed

Spring 2012

- Analyze assessment data and compile a report for Fall 2011 assessment ---Thesis
- Implement the capstone thesis assessment to collect more data
- Identify the assessment tools and build rubrics for track-specific courses --- FOS 710/711 (Criminalistics), FOS 725/726 (Toxicology), FOS 704/732/733 (Molecular Biology)
- Administer the Student Satisfaction Survey
- Analyze the result and compile a report of MS FOS Employer Survey

Follow-up on Fall 2011 thesis assessment report: the report is included in the 2010-2013 graduate program outcome assessment binder. The summary indicates a need to focus on reasoning and writing skills.

Follow-up on additional thesis assessment data: The small size of the program results in only a few thesis projects to be completed and submitted each semester. It was therefore decided to deviate from this plan and repeat a full thesis assessment at a later date.

Follow-up on assessment tools and rubrics for track-specific courses: this was completed for FOS725/726 (Toxicology) and FOS 740/732/733 (Molecular Biology) but not for FOS710/711 (Criminalistics). The lab report scoring rubric is included in the 2010-2013 graduate program outcome assessment binder.

Follow-up on student satisfaction (current students) survey: completed

Follow-up on employer survey report: There was only one response so no formal report was written. This survey will be changed to a 4-year schedule and repeated in 2015.

Fall 2012

- Analyze assessment data and compile a report --- thesis
- Analyze the result and compile a report of MS FOS Student Satisfaction Survey
- Implement assessment for track-specific courses --- FOS 710/726/732
- Refine the thesis rubric
- Revise the requirements for thesis

Follow-up on thesis assessment report: There was no additional thesis outcome report. It had been decided not to collect additional score sheets in Spring 2012.

Follow-up on 2012 student satisfaction survey report: the report is included in the 2010-2013 graduate program outcome assessment binder. The summary indicates several proposed action items to be completed by Fall 2014/Spring 2015.

Follow-up on implementation of assessment for track-specific courses: this was completed for FOS726 and FOS732 but not for FOS710 (Criminalistics)

Follow-up on refining thesis rubric: This was postponed to a later date.

Follow up on thesis requirement revision: the 2012 handbook was completed and posted on the MS FOS John Jay website

Spring 2013

- Analyze assessment results and prepare the reports for those track-specific courses --- FOS 710/726/732
- Refine/modify course syllabi (FOS 710/726/732)
- Provide the plan of course revision (FOS 710/726/732)
- Implement assessment for track-specific courses --- FOS 711/725/733

Follow-up on assessment reports for track-specific courses: laboratory reports had been scored for the Molecular Biology and Toxicology specialization courses, but due to the small sample size no formal reports were written.

Follow-up on refined syllabi for track-specific courses: see next follow-up.

Follow-up on course revision plan for track-specific courses: all FOS laboratory course instructors are diligent about periodically tweaking the syllabus and course content to better reflect current technologies or learning goals. Changes within a course are not subject to a formally documented process.

Follow-up on implementation of assessment for track-specific courses: this was completed for FOS725 and FOS733 but not for FOS711 (Criminalistics)

Fall 2013

- Analyze assessment results and prepare the reports for those track-specific courses --- FOS 711/725/733
- Refine/modify course syllabi (FOS 711/725/733)
- Provide the plan of course revision (FOS 711/725/733)
- Administer MS FOS Alumni Survey and Employer Survey

Follow-up on assessment reports for track-specific courses: laboratory reports had been scored for the Molecular Biology and Toxicology specialization courses, but due to the small sample size no formal reports were written.

Follow-up on refined syllabi for track-specific courses: see next follow-up.

Follow-up on course revision plan for track-specific courses: all FOS laboratory course instructors are diligent about periodically tweaking the syllabus and course content to better reflect current technologies or learning goals. Changes within a course are not subject to a formally documented process.

Follow-up on MS-FOS Alumni survey and Employer survey: due to the sudden illness of the program director these two surveys were not completed. The alumni survey will be re-scheduled for the fall of 2014. The Employer survey will be moved to a 4-year cycle and scheduled for 2015.

Spring 2014

See updated 5-year plan

Fall 2014

See updated 5-year plan

Spring 2015

See updated 5-year plan

VI. Five-Year Cycle of Assessment Activities --- Part II --- 2014 – 2019 Plan

Spring 2014

- Refine rubric if necessary and implement capstone thesis assessment
- Analyze data and compile a report for Spring 2014 capstone assessment ---Thesis
- Review, update, and administer MS FOS Student Satisfaction Survey
- Write report on MS-FOS section of college wide graduate student survey administered by the Graduate studies office
- Identify assessment tools and build rubrics for the Criminalistics courses FOS710 and FOS711

Fall 2014

- Implement assessment for the Criminalistics specialization track courses FOS710 and FOS711
- Review, update, and administer MS FOS Alumni Survey
- Collect additional data for FOS726 (Toxicology) and FOS732 (Molecular Biology)
- Analyze the results and compile a report for MS FOS Student Satisfaction Survey

Spring 2015

- Prepare analytical self evaluation based on the FEPAC standards
- Review programmatic and course learning goals
- Collect additional data for FOS725 (Toxicology) and FOS733 (Molecular Biology)
- Review, update, and administer MS FOS Employer Survey
- Analyze the results and compile a report for MS FOS Alumni Survey
- Analyze the results and compile a report on the FOS710 and FOS711 learning outcome assessment
- Analyze the results and compile a report on the FOS726 and FOS732 learning outcome assessment

Fall 2015

- Identify assessment tools and build rubrics for at least two (one offered in fall, one in spring) of the core courses (FOS705, FOS706, FOS721, FOS722 or FOS730)
- Identify assessment tools and build rubrics for one of the specialization lecture courses (FOS704 Genetics or FOS717 ID Organic Molecules)
- Analyze the results and compile a report on the FOS725 and FOS733 learning outcome assessment
- Analyze the results and compile a report for MS FOS Employer Survey

Spring 2016

- Prepare analytical self evaluation based on the FEPAC standards
- Review, update, and administer MS FOS Student Satisfaction Survey
- Implement assessment for the selected FOS Spring semester core course learning outcome assessment
- Implement assessment for the selected FOS specialization lecture course assessment

Fall 2016

- Implement assessment for the selected FOS Fall semester core course learning outcome assessment
- Analyze the results and compile a report on the selected FOS Spring core course learning outcome assessment
- Analyze the results and compile a report on the selected FOS specialization lecture course assessment
- Analyze the results and compile a report for MS FOS Student Satisfaction Survey
- Identify assessment tools and build rubrics for more of the fall core courses (FOS705, FOS706, FOS721, FOS722 or FOS730)
- Identify assessment tools and build rubrics for the other specialization lecture course (FOS704 Genetics or FOS717 ID Organic Molecules)

Spring 2017

- Prepare analytical self evaluation based on the FEPAC standards
- Review overall curriculum and programmatic and course learning goals
- Refine rubric if necessary and implement capstone thesis assessment
- Analyze data and compile a report for thesis assessment
- Review, update, and administer MS FOS Alumni Survey
- Implement assessment for the other FOS specialization lecture course

Fall 2017

- Analyze the results and compile a report for MS FOS Alumni Survey
- Analyze the results and compile a report on the selected FOS specialization lecture course assessment
- Implement assessment for the selected FOS Fall semester core course learning outcome assessment

Spring 2018

- Prepare analytical self evaluation based on the FEPAC standards
- Review, update, and administer MS FOS Student Satisfaction Survey
- Identify assessment tools and build rubrics for the laboratory courses FOS710/711, FOS725/726 and FOS732/733.

Fall 2018

- Implement assessment for the fall semester laboratory courses FOS710, FOS726 and FOS732
- Analyze the results and compile a report for MS FOS Student Satisfaction Survey

Spring 2019

- Prepare analytical self evaluation based on the FEPAC standards
- Review overall curriculum and programmatic and course learning goals
- Review, update, and administer MS FOS Employer Survey
- Implement assessment for the spring semester laboratory courses FOS711, FOS725 and FOS733
- Analyze the results and compile a report on the fall semester laboratory courses FOS710, FOS726 and FOS732

Fall 2019

- Analyze the results and compile a report for MS FOS Employer Survey
- Analyze the results and compile a report on the spring semester laboratory courses FOS711, FOS725 and FOS733

VII. Five-Year Cycle of Assessment Activities --- Part III --- 2014 – 2019 Matrix

Programmatic Assessment Plan

	2014	2015	2016	2017	2018	2019
Student Satisfaction survey Target: Actively enrolled current students	✓		✓		✓	
Alumni Survey Target: Past graduates, last 6 years only	✓			✓		
Employer Survey Target: Scientific leadership of forensic casework laboratories		✓				✓

Survey results will be analyzed carefully and used to formulate measures addressing eventual weaknesses in the program, thus leading to targeted change and overall improvement. Survey questions will be reviewed prior to each use, to not only focus on the areas emphasized by the program but also on the areas, which were revised based on previous surveys.

Curriculum Assessment Plan

	2014	2015	2016	2017	2018	2019
Graduate curriculum courses learning goals						
Use student portfolio for the course (such as exams, lab exercises, lab reports, other writing assignments or presentations)	✓	✓	✓	✓	✓	✓
Program outcome						
Capstone (thesis)	✓			✓		

Specific activities for the curriculum assessment plan (for example the choice of assessment tool: lab exercises versus writing assignments) will be chosen based on survey results, or chosen to address concerns identified by other means, for the example the thesis assessment outcome. Rubrics will be updated as needed. Data collected will be analyzed and used to improve or revise the course syllabi.