

**John Jay College of Criminal Justice Master of Science in Forensic Science Program
Outcome Assessment**

Spring 2014 Alumni Survey Report

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BACKGROUND

Of the 99 Masters in Forensic Science (MS FOS) alumni contacted, 26 alumni (26.2%) responded to the online survey conducted in fall of 2014. Eighteen out of the 26 (69.2%) alumni indicated that they would like to be contacted with news and announcements about the Forensic Science Program and agreed to have their name and current job listed on the Department of Sciences bulletin board.

The majority of the respondents (58.3%, n = 14) were female. 87% (n = 21) of the respondents were Caucasian, 8.3% (n = 2) were Asian, and 4.1% (n= 1) were of black/African American and Hispanic/Latino origin, respectively.

Table 1: Survey Respondents' Graduation Year

year graduated	# of students graduated that year	# of students included in survey
2003	17	1
2004	19	1
2005	11	1
2006	8	1
2007	14	4
2008	16	4
2009	11	2
2010	13	2
2011	14	1
2012	10	3
2013	15	4
2014	10	1

Table 1 shows the distribution of graduation years for 25 of the 26 participants, one person did not provide the information.

80% (n = 20) of the alumni completed the Criminalistics specialization. 16% (n = 4) and 8% (n= 2) completed the Forensic Toxicology and Molecular Biology specializations, respectively.

Program Response

While the response rate preferably should have been higher than 26%, the total number of participants was 26, which is a sufficient sample size for a survey. This is also an increase compared to the last survey in 2011 and shows that there is still an interest in staying connected to John Jay College. With four graduates each, years 2007, 2008 and 2013 had the highest number of respondents. The program will continue to collect valid alumni email and contact information for future surveys. We have created a Facebook page for prospective and current students, as well as alumni to expand our engagement with these audiences.

Of the survey participants, the vast majority, 80% chose the criminalistics specialization. This is a slight reduction compared to the 2011 results of 91%. In the Fall of 2008 a new curriculum establishing three specializations- Criminalistics, Forensic Toxicology and Molecular Biology- was implemented in response to advances in the field. The pre-2008 curriculum was criminalistics oriented offering a single course in forensic toxicology and in molecular biology. The first cohort of students completing the MS FOS degree under the new curriculum with the triple tracking system graduated in 2010.

PROFESSIONAL DEVELOPMENT

First Employment after Graduation

76% (n = 19) of the alumni indicated that their first job after graduation was related to forensic science. 24 % (n = 6) of the alumni indicated that their first job was not related to forensic science. One alumnus did not reply.

The majority of the alumni (96%) were employed full-time after graduation. 4% worked part-time.

These 26 respondents were employed by public laboratories (New York City Police Department, NYC Office of Chief Medical Examiner, Orange County Crime Lab, and the FBI Laboratory), private laboratories (NMS Labs, Microtrace, Core Pharma, Purdue Pharma, LP) and universities (McMaster University, Weill Cornell Medical College, and John Jay College of Criminal Justice CUNY). Graduates were employed as research associates, chemists, criminalists, research chemists, forensic scientists, microscopists, toxicologists, lab techs, teaching faculty and consultants. Table 2 contains a list of employers and positions.

Table 2. Employer and title of first job after graduation

<u>Name of Business/Organization</u>	<u>Position</u>
McMaster University	Research Associate
CorePharma	Chemist III
New York City Police Department Laboratory	Criminalist IB, III and undefined (n=4)
Orange County Crime Lab in Santa Ana, CA	Forensic Scientist (n=2)
Global Systems Technologies, Inc.	Research Chemist
McCrone Research Institute	Microscopist
Microtrace LLC	Research Microscopist
NYC Office of Chief Medical Examiner	Criminalist IV, II, I and undefined (n=6)
Purdue Pharma, LLP	Research Scientist
AFTS Labs	Toxicologist I
FBI Laboratory	Visiting Scientist
LM Orthodontics	Orthodontic Assistant
NMS Labs	Lab Support Specialist II
Weill Cornell Medical College	Lab Tech in Microscopy Core
John Jay College of Criminal Justice-CUNY	College Laboratory Technician and substitute (n=2)

Figure 1 below shows the salary distribution of the survey participants.

What was your salary at your first job after graduation?

Answered: 22 Skipped: 4

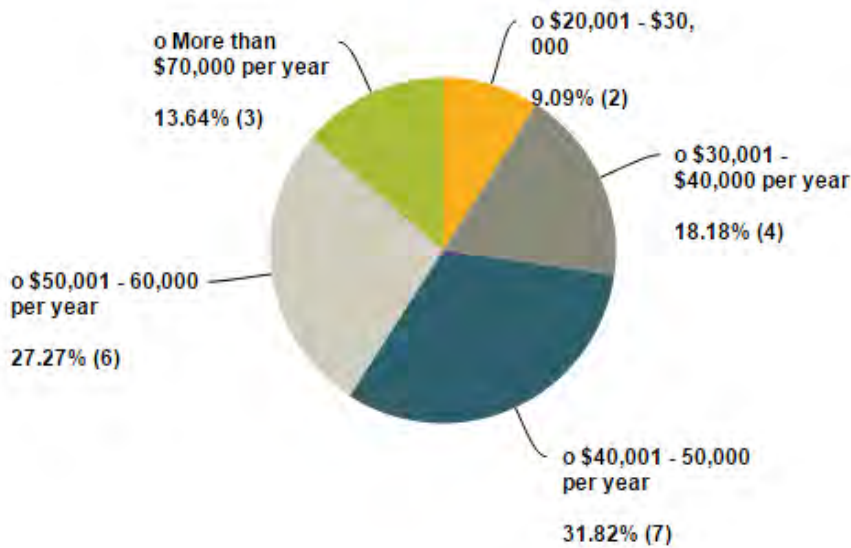


Figure 1. MS FOS graduates' salary at the first job after graduation.

Only 20 of the 26 original survey participants answered the salary question. None of the alumni reported earning less than \$20,000. Similar to 2011, the largest cohort is in the \$40,001-\$50,000 range, but there is a reduction from 57% in 2011 to 31.8% in 2014. There was an increase of forensic scientists reporting higher salaries: \$50,001-\$60,000, 27.3% up from 4.8% and more than \$70,000, 13.6% up from 9.5%. This change may have been caused by contract based salary increases for entry level positions over the last four years.

Figure 2 below depicts the responses to the time spent prior to starting the first job after graduation.

As in 2011, a large percentage of the alumni (36% or 9) indicated that they secured their first job within three months after graduation, but in 2014 most of the participants (40% or 10) continued in a job they had before graduation. This number had been 6 (29%) in 2011. 20% or 5 searched for 4 – 8 months and one person for more than 18 months.

How long did it take you to find your first job after graduation?

Answered: 25 Skipped: 1

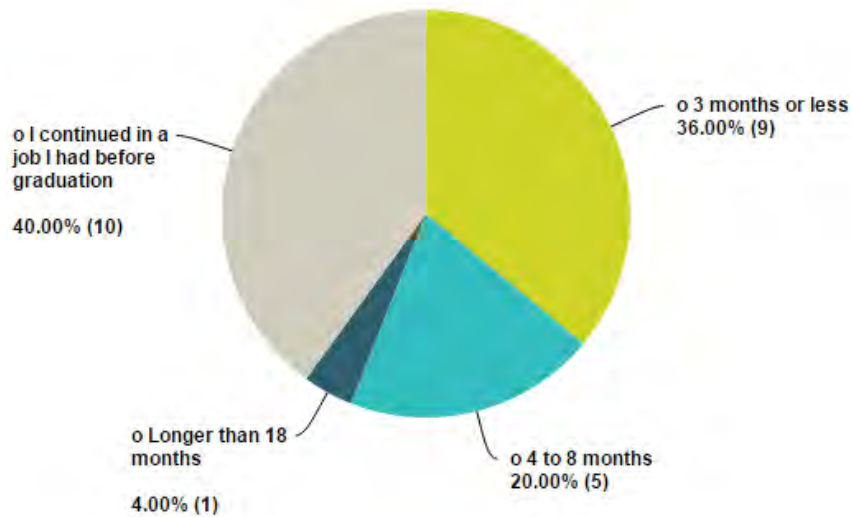


Figure 2. Length of time to find the first job after graduation

Current Employment

52% or 13 responded that their current job is different from their first position after graduation, while 44% or 11 are still in the same position. This is a shift from 2011 where 31.8% had changed jobs and 68% were in the same position. See Table 3 for a list of current employers.

Table 3. Employer and title of current new position

Name of business/organization:	Position
CorePharma	Supervisor
Advanced Clinical	Operations Associate
United States Secret Service	Forensic Document Examiner
Robbins Geller Rudman & Dowd LLP	Lawyer
West Virginia University	Assistant Professor
Office of Chief Medical Examiner	Criminalist III and undefined
Washington DC Department of Forensic Sciences	Forensic Scientist/Quality Assurance Specialist and Division Director
Smiths Detection	Applications Manager - Americas, Chem/Bio
Waters Corporation	Field Service Engineer
New York Police Department Laboratory	Criminalist III and undefined

Figure 3 below shows salary levels for current employment provided by 13 participants.

What is the salary at your current job?

Answered: 13 Skipped: 13

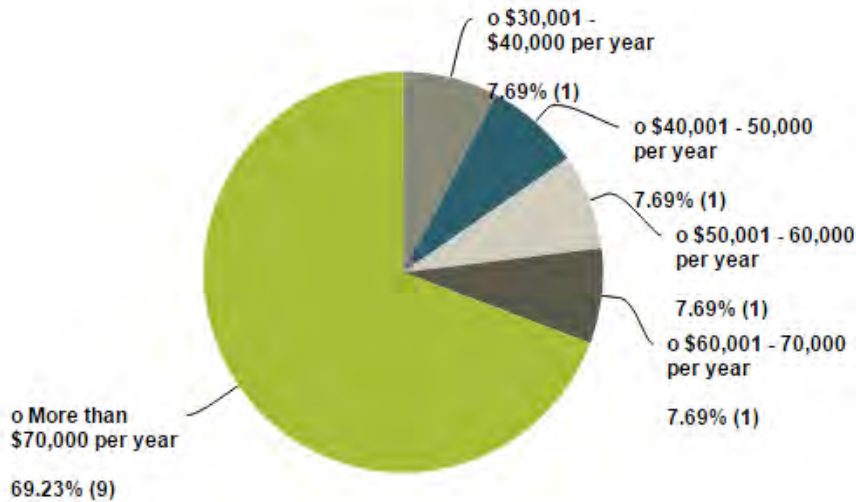


Figure 3. MS FOS alumni salary at the current position

Salaries in current positions were higher than those at the first job after graduation. None of the respondents reported earning less than \$30,000. As in 2011 the majority of survey participants (69.2% or 9) earned more than \$70,000 per year (see figure 3). One individual each (7.7%) earned \$30,001-40,000, \$40,001-50,000, \$50,001-60,000 or \$60,001-70,000. This increase can be explained by promotions to higher level positions.

The same 13 responded about their current job in relation to forensic science. As in 2011, 69.2% or 9 reported a forensic job and 30.8% or 4 a different field.

Only eight participants explained why they are not working in the forensic field or not working at all. Results are displayed in Figure 4. For three it was a deliberate decision, one was self-employed and the remaining four could not find an adequate position in a forensic science lab. Participants were also asked about their job satisfaction.

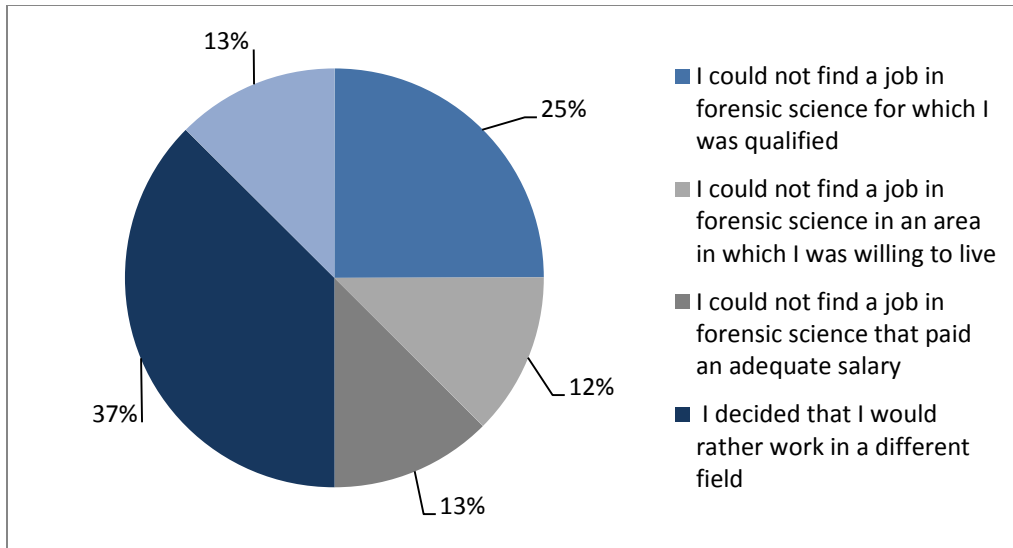


Figure 4: Reasons for current job not being related to forensic science

As can be seen in Figure 5 the level of job satisfaction was mostly high, with the exception of salary, where 7 out of 24 (79%) were dissatisfied or very dissatisfied and opportunities for advancement where 9 out of 24 were dissatisfied or very dissatisfied. 2 out of 24 (37.5%) were not satisfied with the location of their employment. In 2011 all six work characteristics including opportunities to use skills, level of intellectual challenge and nature of work had several “dissatisfied” or “very dissatisfied” replies. This means that the current survey participants are experiencing a slightly higher level of job satisfaction.

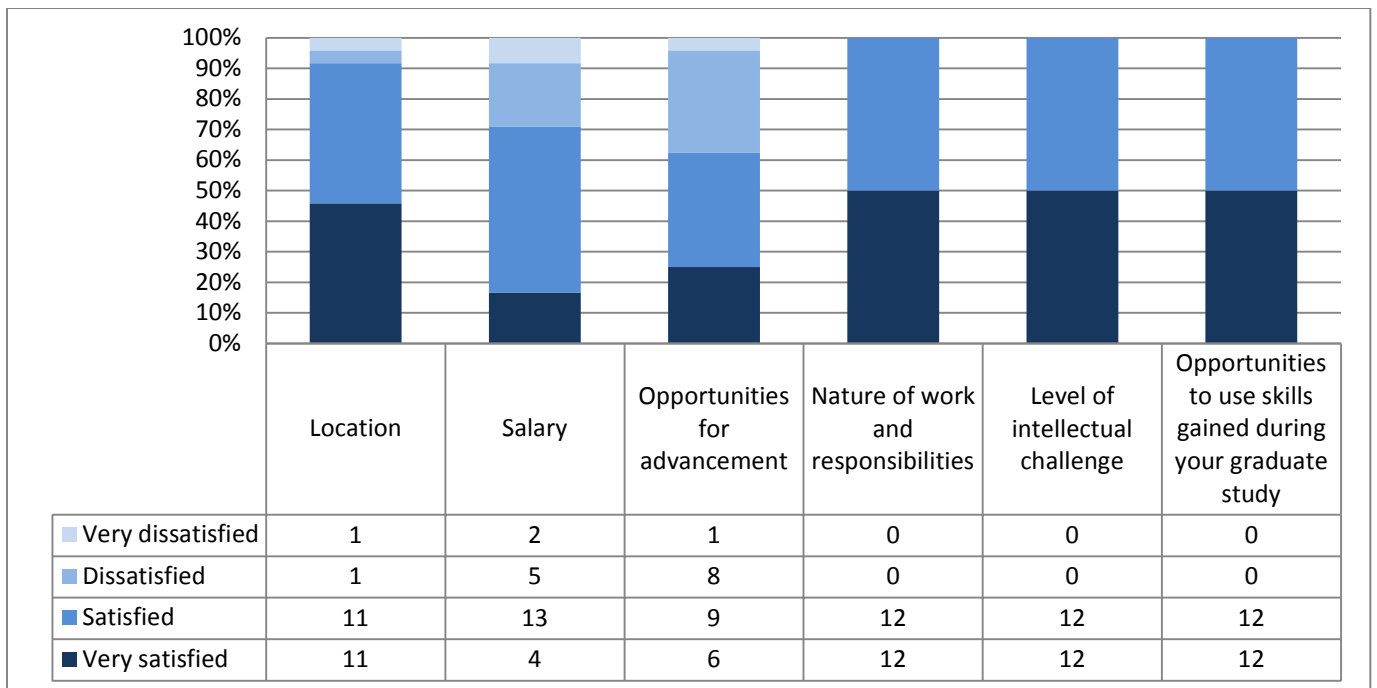


Figure 5: Alumni ranking of their satisfaction with different aspects of their job

Program Response:

Overall the alumni seem to be successful and the MS-FOS degree has led to a position in a forensic laboratory for most of them. Salary levels increased since 2011 and the salary differences between the first and current job seem to indicate that there was an upwards trend in alumni careers. The fact that all survey participants were satisfied or very satisfied with the nature of their work, the level of intellectual challenge and how they were able to use their forensic science skills shows that John Jay alumni are given tasks commensurate with their education.

Job Preparation

Alumni we asked to what extent their graduate training in the Forensic Science program helped them develop different work related skills. Answers are displayed in Figure 6.

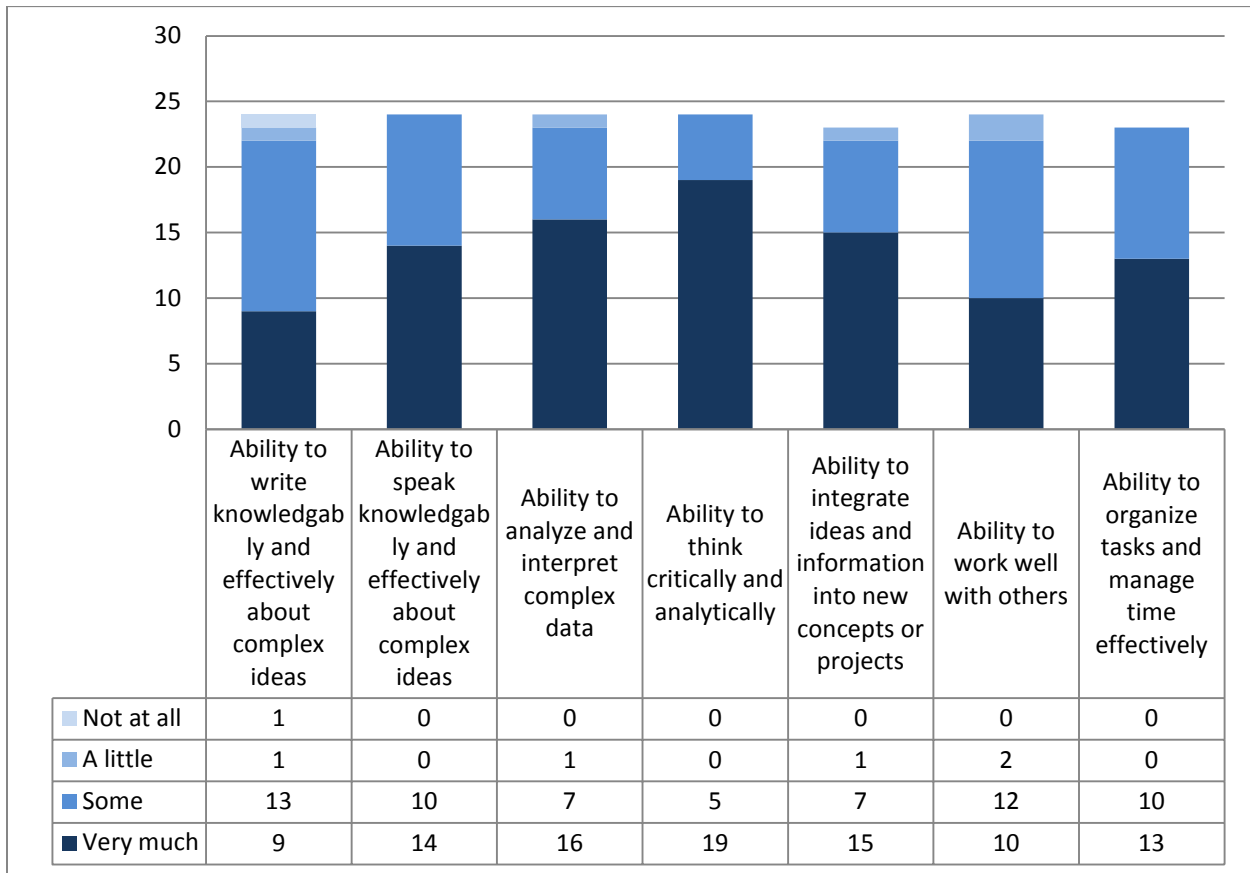


Figure 6: Development of work related skills

Alumni we asked to what extent their graduate training in the Forensic Science program helped them develop different work related skills. Answers are displayed in Figure 6. As far as skill

development is concerned, the ability to analyze and interpret complex data was rated highest with 19 out of 24 (79.29%) replying that the graduate program helped them very much and the remaining five respondents answered “some”. The skill with the lowest rating for how much the graduate program helped was writing. Here our participants felt the program did not help at all, one wrote “a little”, the majority 13 (54.2%) replied “some” and 9 (37.5%) replied “very much”.

Ability to work well with others also got a majority 12 (50%) of “some” ratings. 10 (41.2%) replied “very much” and two (8.3%) “a little”. The other four skills all had a majority of “very much” ratings. Task organization and time management and speaking knowledgeably had no “a little” or “not at all” answers. Ability to integrate ideas and ability to analyze and interpret complex data had one participant respond “a little”.

Compared to 2011, less answers indicated that the graduate program only furthered skill development “a little” or “not at all”. This was most pronounced for speaking (2014 “a little” none versus 2011 “a little” 3), ability to work well with others (2014 “a little” 2 versus 2011 “a little” 4, “not at all” 1) and task organization and time management (2014 “a little” none versus 2011 “a little” 1 and “not at all” 1). Twenty-one participants responded in 2011 compared to 24 in 2014.

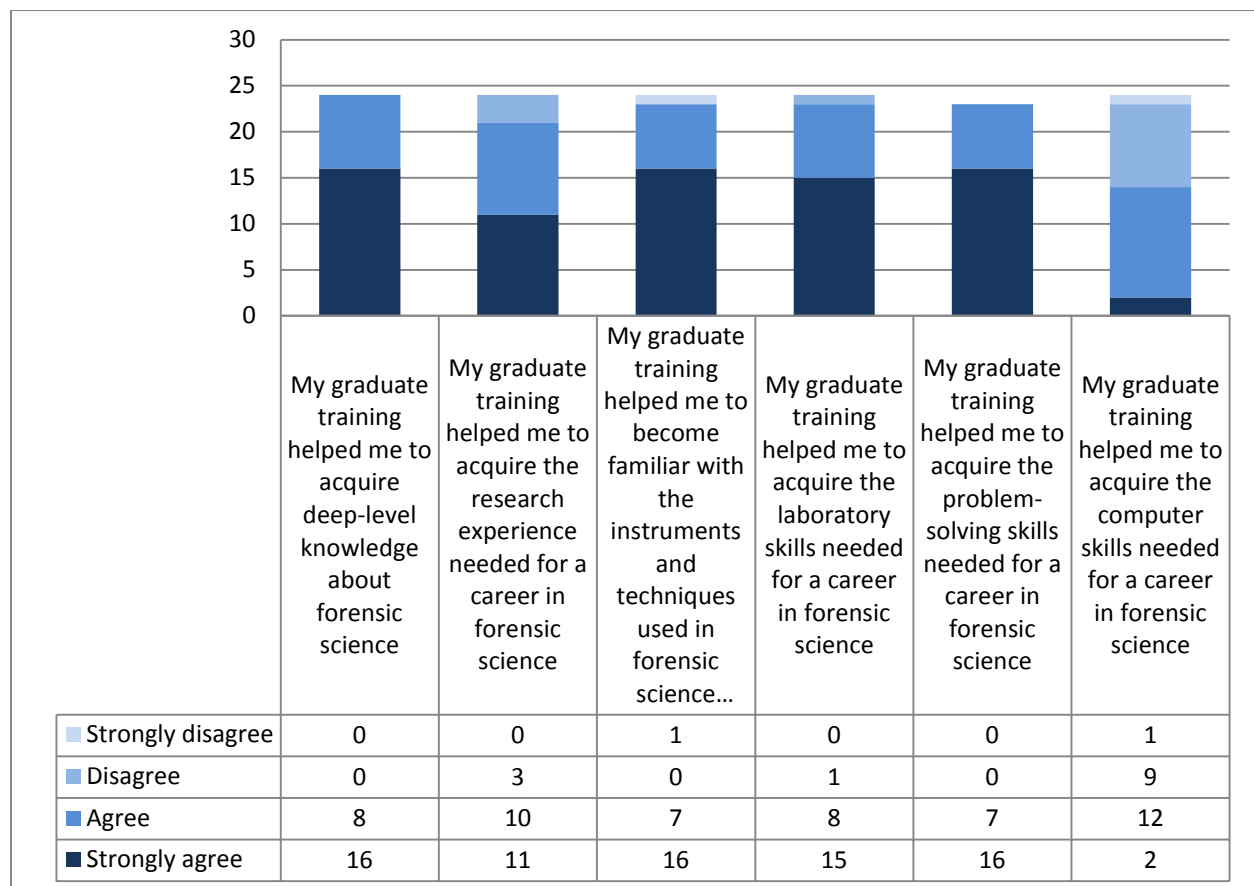


Figure 7: Answers to “How much do you agree or disagree with the following statements”

Question 19 dealt with forensic science specific skills and knowledge. Again most responses were positive. For deep-level knowledge about forensic science and problem solving skills, 16 (66.7% ~69.6%) strongly agreed and eight (33.3%) or seven (29.2%) agreed that graduate training helped develop these skills. Nobody disagreed. The answers were similar for instrumentation and laboratory skills, except one participant strongly disagreed that the program made him/her familiar with instrumentation and techniques and one participant disagreed with the notion that their graduate training helped them to acquire problem solving skills needed for a career in forensic science. Responses were slightly less positive for “research experience” with 11 (45.8%) checking “strongly agree”. 10 (41.7% “agree” and three (12.5%) “disagree”. Alumni were divided about the program’s coverage of computer skills: two (8.4%) “strongly agreed”, 12 (50%) “agreed”, nine (37.5%) “disagreed” and one (4.2%) “strongly disagreed” that their graduate training helped them to acquire these skills.

2014 responses are very similar to the 2011 survey. The distribution of answers, including the high rate of disagreement for computer skills is almost identical.

The survey also wanted to know how the alumni felt about the usefulness of the offered forensic science coursework (see figure 8). Answers were very similar to 2011.

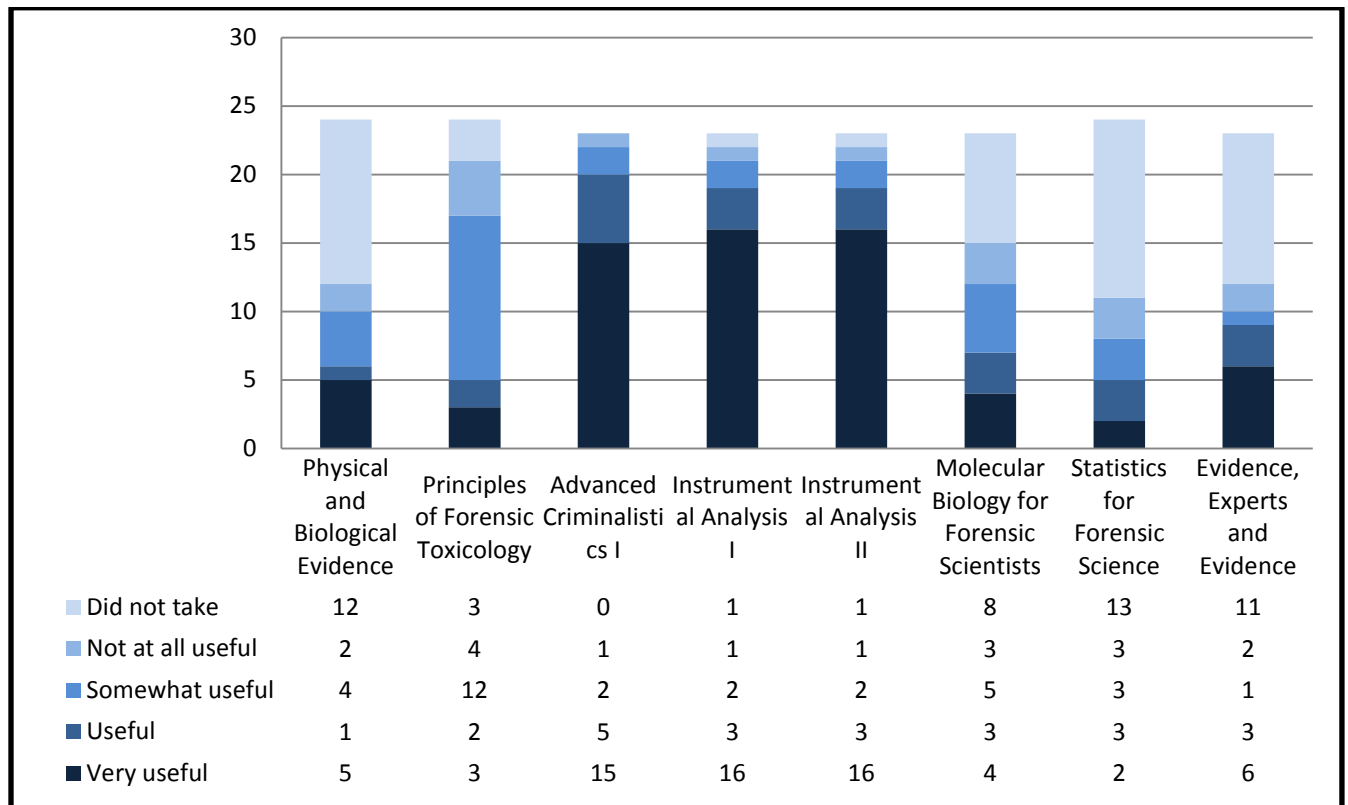


Figure 8. Relevance of MS FOS courses to current employment

As in 2011, the majority of the 23-24 participants 16 (69.6%) or 15 (65.2%) called Instrumental Analysis I and II and Advanced Criminalistics I “very useful”, while for four other courses most

alumni indicated that they did not take that class: Evidence, Experts and Evidence (11, 47.8%), Statistics for Forensic Science (13, 54.2%), Molecular Biology for Forensic Scientists (8, 34.8%) and Physical and Biological Evidence (12, 50%).

While Statistics and Evidence, Experts and Evidence are electives, Physical and Biological Evidence was made part of the core curriculum during the program revision in 2008. Therefore these results indicate that the majority of the survey participants completed their coursework under the old curriculum. Table 1 only allows for limited insight here. The earliest that a student starting in 2008 could have graduated is 2010, which means theoretically 11 participants could have studied using the revised curriculum. In reality, it is more likely that several of these 11 post 2010 graduates started prior to 2008.

The course “Principles of Forensic Toxicology” received very weak endorsements. Only five (20.8%) found the class very useful or useful. The majority 12 (50%) only found it somewhat useful, with four (16.7%) stating the course was not at all useful. This is similar to the results in 2011. The other seven classes had 1-3 not at all useful ratings.

Program Response

The fact that alumni reported high levels of preparedness for skills like critical thinking and complex data interpretation shows that the program is meeting these important learning goals. The graduate training was credited for important problem solving skills and knowledge and experience in various areas except computer skills. It is unclear, if alumni are referring to specific software packages like laboratory information management systems and statistical data analysis package, or to more general computer skills like programming. This should be explored. Data on the usefulness of the different courses are limited with many of the participants not having taken some of the classes. It is good to see that the two instrumental courses and the advanced criminalistics course are considered very useful.

FURTHER EDUCATION

37.5 percent (n = 9) of the 24 MS FOS graduates have continued their education, while 62.5% (n=15) have not. Compared to 2011, this is a slight increase from 27% in 2011 to 37.5% in 2014. The majority of these graduates (66.7%, n =6) enrolled in a doctoral program, two pursued a second MS degree, and one became a lawyer (see Figure 9). Some of these graduates who continued their education chose programs at McMaster University, Emory University School of Law, Rochester Institute of Technology, CUNY Graduate Center, Quinnipiac University, and Baruch.

If you decided to continue your education, what type of degree did you choose to pursue?

Answered: 9 Skipped: 17

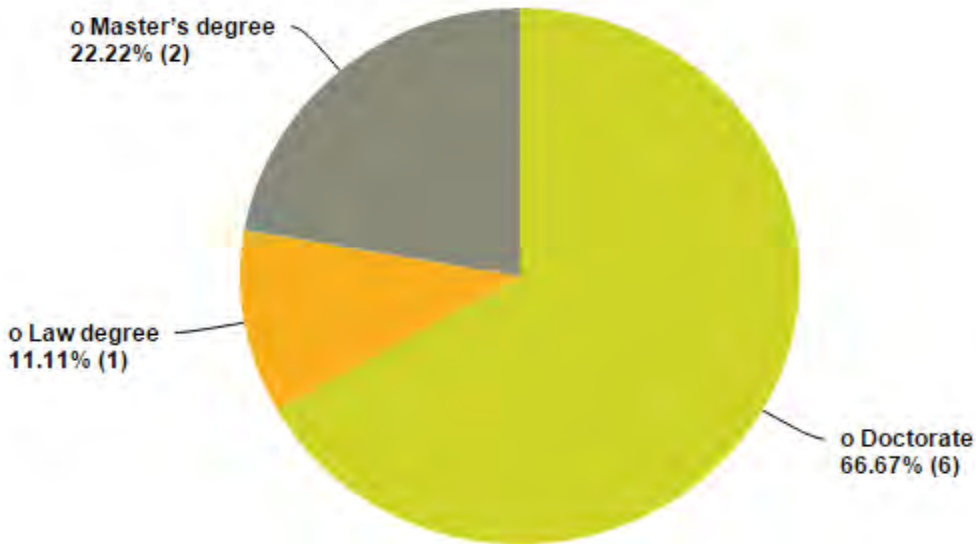


Figure 9. Type of post graduate education

All nine graduates who have continued their education responded to the question about how satisfied they were with their graduate education in regards to preparing them for further study. 55.6% (5) stated they were very satisfied and 44.4% (4) were satisfied. These numbers are similar to 2011, but with a higher number of students continuing their education.

Twenty-two graduates responded to the open ended question “What about the Forensic Science program was most useful in helping you prepare for a career or further study?” Several answers mentioned exposure to dedicated and knowledgeable professors; others cited the hands-on laboratory experience especially the instrumental class. Focus on problem solving and critical thinking was also mentioned

Twenty-one of the alumni answered the question “How could the Forensic Science program have better helped you prepare for a career or further education?” Here many participants were asking for more guidance and opportunities for research. Three answers requested updated instrumentation. Other topics requested to be covered in the curriculum were more information on the professional environment in a crime laboratory and the legal system

Program Response

It is rewarding to see the MS-FOS graduates have been successfully admitted to PhD and other graduate programs and that they feel well prepared. The curriculum deliberately includes many

laboratory based classes which foster independent problem solving and analytical thinking, which is well received. The improvement ideas are similar to the suggestions made in the 2015 employer survey and are worth considering.

Overall Experience in the Program

The last two survey questions inquired about the overall experience in the program and the level of satisfaction with different aspects like quality of teaching or advisement. Figures 10 and 11 are displaying these results.

Graduates were very satisfied with the level of intellectual challenge in the course content offered in the Forensic Science program 76% (n=18) of the time and satisfied 25% (n=6) of the time.

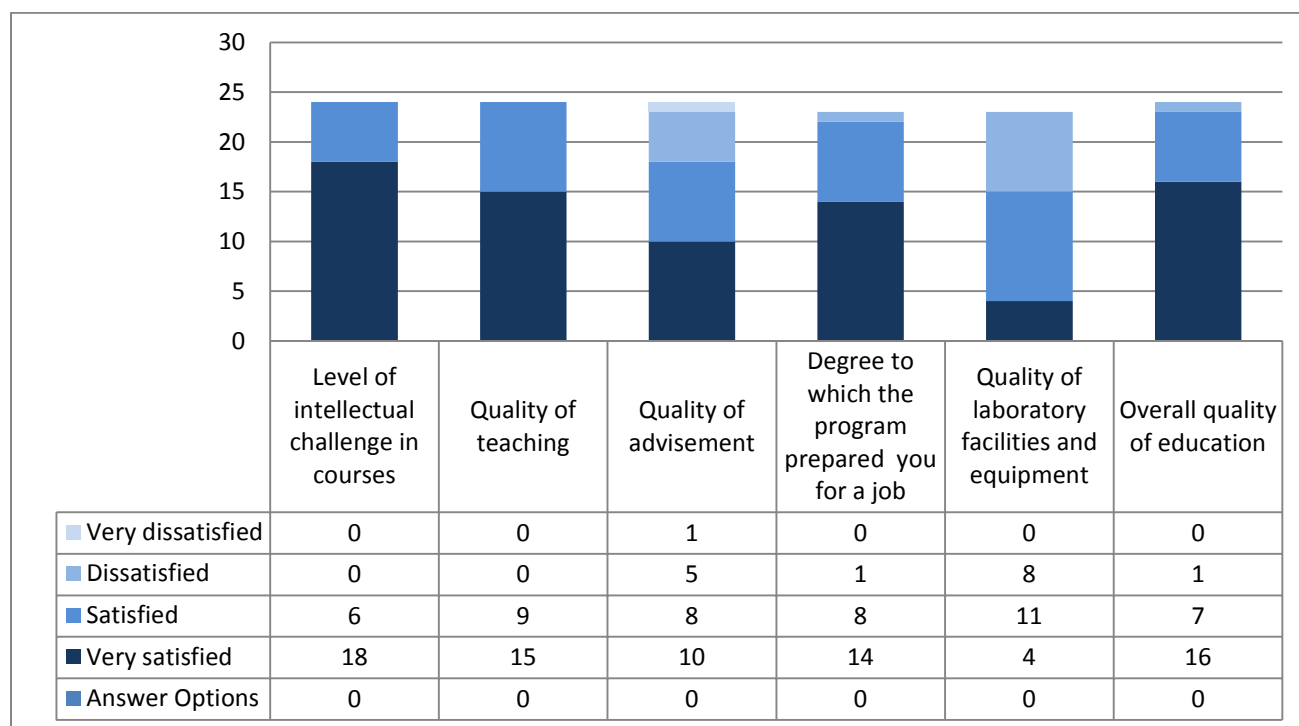


Figure 10. MS FOS Program satisfaction

The responses to quality of teaching were equally positive with 15 (62.5%) very satisfied and nine (37.5%) satisfied alumni. The remaining questions had at least one dissatisfied answer. One person was very dissatisfied with the quality of advisement, five (20.8%) were dissatisfied and eight (33.3%) and 10 (41.7%) were satisfied and very satisfied. Quality of laboratory facilities

and equipment provoked similarly mixed results. Here eight (33.3%) of the graduates declared themselves dissatisfied, 11 (45.8%) satisfied and only four (16.7%) were very satisfied.

Overall quality of education and job preparation resulted in similar ratings with one dissatisfied graduate but a majority 16 (66.6%) or 14 (58.3%) very satisfied. All of these results are remarkably similar to the 2011 ratings.

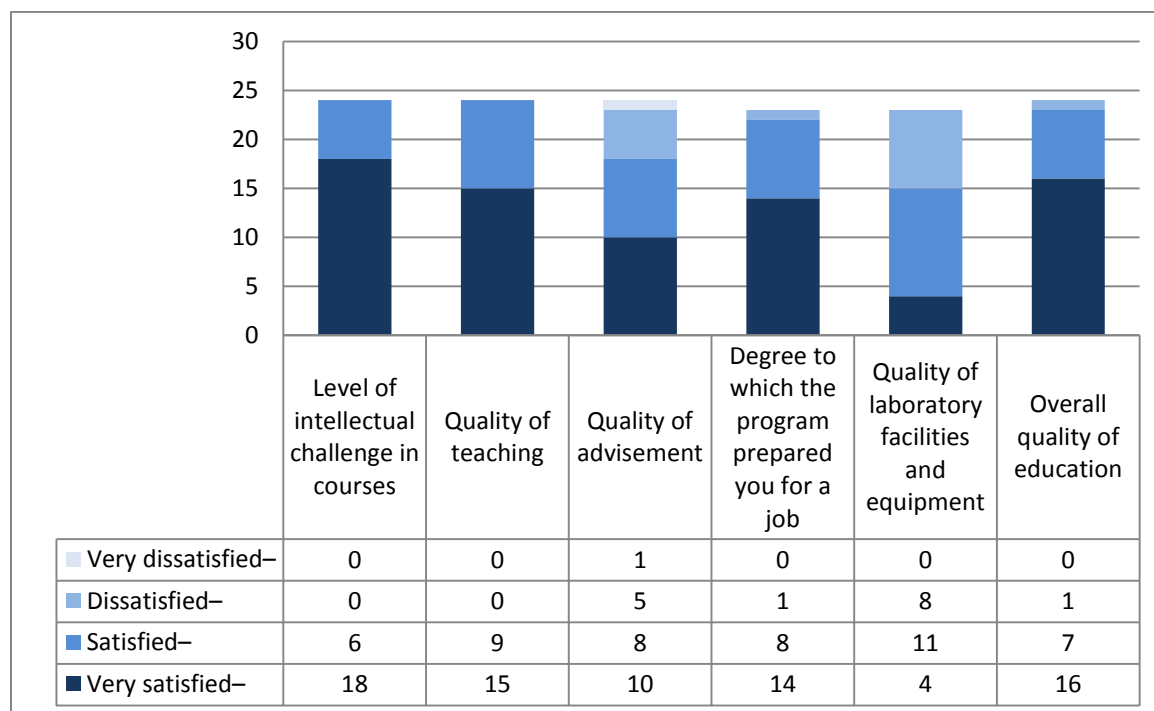


Figure 11. Overall experience in the MS FOS Program

Over half of the alumni (66.7%, 16) had rated their overall experience as excellent. 29.2% (7) rated it as good and only one graduate rated it as fair (4.2%). None of the graduates rated their experience as poor (see Figure 11). This is a higher rating than in 2011 where less than half (45%) responded with excellent, 50% with good and 5% with fair.

Program Response

As in 2011 MS FOS alumni were satisfied with the level of intellectual challenge in the courses, quality of instruction, degree to which the Program prepared them for employment and overall quality of the education provided by the MS FOS Program. Alumni were more critical of the quality of advisement and the laboratory equipment and facilities.

In future alumni surveys it will be important to ask when a student entered the program to be able to ascertain what their experience would have been like and possibly split analyze answers separately. As explained above, with most students exceeding the official two year course of

study, the fact that survey participants were asked to list their graduation year only offers limited insight here. The 2011 move to a new building should have alleviated almost all instrumentation complaints. The advisement system has also been overhauled and the opinion of the current student cohort would be more informative in that regard.

Conclusions

At least half of the survey participants completed their coursework prior to the major curriculum revision in 2008 and even more never experienced the updated instrumentation and facilities after the 2011 move to a new building. This means that some of the survey results reflect the past. What has not changed is the overall educational approach focused on outcome oriented learning goals. Here the majority of alumni confirm that they feel they developed these skills and they were well prepared for either a job or further education.

Alumni have been successful in finding degree related employment and salaries for current positions are higher than for first positions indicating a positive career trajectory.

Several concerns and requests for more information are worth pursuing in an effort to improve the curriculum and it is interesting to see the parallels to the most recent employer survey.

Options for additional training should be explored for:

- Forensic science related computer skills
- Research and experimental design
- Professional issues and the legal system

In order to get a proper assessment for the current MS-FOS program curriculum and faculty, future alumni surveys should be specifically targeting graduates that had entered the program in 2008 or later. While the historical perspective is interesting, it is more important to assess the quality and learning outcome success for the current state.