SAINT LOUIS UNIVERSITY.

Program Assessment: *Annual Report*

Program(s): Forensic Science

Department: Sociology and Anthropology

College/School: Arts and Sciences

Date: June 6, 2019

Primary Assessment Contact: Richard Colignon

1. Which program student learning outcomes were assessed in this annual assessment cycle?

This year we assessed our third program goal: Goal #3: Forensic Science majors will understand the role of Critical Thinking Skills in Forensic Science.
Forensic Science majors will demonstrate their knowledge of Critical Thinking Skills through evaluation of these learning outcomes:
Learning Outcomes:
a) demonstrate the ability to build a pattern from diverse evidence
b) demonstrate the ability to assemble diverse evidence to form a whole
c) demonstrate the ability to create a new meaning or structure.

2. What data/artifacts of student learning were collected for each assessed outcome? Were Madrid student artifacts included?

We assessed these outcomes by reading the laboratory reports in FRSC 4550, Crime Scene Investigations course and major an assignment in ANTH 3280, Forensic Anthropology as the most synthetic of forensic science courses. This review would serve as **a direct measure** of our student learning outcomes. In addition, we conducted focus group interviews of our graduating seniors as our **indirect measure** of our programs effectiveness in imparting methodological knowledge as well as their perceptions of the strengths and weaknesses our program.

Madrid student outcomes were not used as Madrid has no Forensic Science Program.

3. How did you analyze the assessment data? What was the process? Who was involved?
NOTE: If you used rubrics as part of your analysis, please include them in an appendix.

Our direct measure of forensic science student performance was based on lab reports in Crime Scene Investigation course and a major assignment in Forensic Anthropology course for AY 2018-19. A committee (Professors Colignon, Vermilion, and Hall) reviewed a sample of the lab reports and assignments. They graded each student's artifact (paper or assignment) on the three outcomes using a rubric on a scale of 1-5 (1 = unacceptable, 3 = adequate, 5 = excellent) for each of the learning outcomes. These scores were aggregated across students to provide a quantitative measure of student's effectiveness on goal three: critical thinking skills. The committee's grading indicate that the students demonstrated greater proficiency on outcomes 1 and 2, build patterns from diverse evidence, and assemble diverse evidence to form a whole. As a group the students were strong on these outcomes. Scores ranges between 3 and 5 with averages of 4.06 and 4.28, respectively. The committee scores indicate that all student documents (using an

average of above 4 demonstrate good proficiency on the first two outcomes. Outcome c (create new meaning or structure") was a bit more challenging. Scores on outcome c provided wide variation with N/A to 5 and an average of 3.47. The outcome itself is demanding and we would expect it to show wide variation. It does, however, provide the committee with either a challenge for our instruction or recognize the outcome as too challenging for our students. Although a 3.47 average is between adequate and outstanding and suggests we work to improve our students' abilities to address this outcome.

Our indirect measure of forensic science students learning outcomes was derived from an exit interview with our 5 of 8 graduating seniors conducted May 7, 2019. Drs. Jennings and Colignon conducted the focus group. We used a scheduled but unstructured interview script to prompt the students but we allowed them to take the topic where they wanted and with as much intensity as they preferred. We embedded questions that paralleled our three outcomes addressing the issue of critical thinking skills within our general questions we ask year over year.
See Appendix 1 for rubric for rating outcomes on direct measures of student artifacts.
See Appendix 2 for rubric of questions for indirect measures used in focus groups.

4. What did you learn from the data? Summarize the major findings of your analysis for each assessed outcome.
NOTE: If necessary, include any tables, charts, or graphs in an appendix.

Several issues were noted from the focus group discussion.
Critical Thinking Skills Summary:

- Students indicated that tests in the courses did a good job of forcing them to tease out critical thinking—assemble evidence—"not regurgitation."
- Students indicated that labs provided good practice in writing up reports by assembling information into a coherent whole.
- Students also indicate that labs in Crime Scene provided good practice for identifying other ways of understanding a pattern of evidence or series of facts.

The list of "illustrative specialization courses" on our flyers for the Forensic Science major continues to be read as an exhaustive list—must change. Students provided a list of the the typical courses taken in Biology and Chemistry. We will rephrase advertising and provide more explicit instructions to plan with their mentor on upper division science course required of the major..

Students indicated a weakness in the sense of community among the majors. We suggested that we institute a mentorship program between upper/lower class majors. We will start a matching program between rising seniors and fresh/sophomores early in the fall.
See Appendix 3 table of quantitative scoring of the rubric on direct measures.
See Appendix 4 for write up of qualitative responses from the focus group indirect measures..

5. How did your analysis inform meaningful change? How did you *use the analyzed data to make or implement recommendations for change* in pedagogy, curriculum design, or your assessment plan?

We plan to have the instructors review our rubrics in mid-fall semester for each year's goal. Instructors will be expected to use this rubric to fine tune their course content and assignments for the spring semester courses that will be the basis of that year's assessment.

Again, this year forensic science majors mentioned the lack of depth in Forensic Chemistry—these students took a combined major / minor version of both courses. The majors have had sophomore chemistry but minors may not have had any chemistry making the instruction next to impossible.

6. Did you follow up ("close the loop") on past assessment work? If so, what did you learn? *(For example, has that curriculum change you made two years ago manifested in improved student learning today, as evidenced in your recent assessment data and analysis?)*

The senior legacy and instructor evaluations are used, in part, to identify the departments "Outstanding Senior in Forensic Science" award winners each year. The awardee(s) is/are publicly recognized at our graduation party taking place each year after pre-commencement ceremonies in May.
The chair, directors/coordinators review these reports at their monthly meetings. Both reviews made recommendations to modify Forensic Science curriculum, scheduling, as well as changes of student learning outcomes and future assessment strategies,
This past year we used our assessment reports to plan to implement curricular change by offering Forensic Chemistry, Forensic Biology, and Crime Scene Investigation courses every semester with exclusive selection of either majors and non-majors/minors for alternative offerings. This would allow our instructors to better deliver the content at the appropriate level of science background of our students. This year We made efforts to provide separate courses for minors and majors in Forensic Biology with some success. We will try to do the same with Forensic Chemistry and Crime Scene Investigation. However, we do not have sufficient numbers of minors to make enrollment minimums. We will try to solve this issue.

In addition, the program is discussing the development of a new capstone that will provide students with the opportunity to do a signature work in the field.

IMPORTANT: Please submit any revised/updated assessment plans to the University Assessment Coordinator along with this report.

Rubric for Assessing Goal #3

Paper #_____ Last Name_____

Goal #3: Forensic Science majors will understand the role of Critical Thinking Skills in Forensic Science.

1. Does the student demonstrate the ability to demonstrate the ability to build a pattern from diverse evidence?

Poor		Adequate		Excellent	
1	2	3	4	5	Not applicable to paper's topic

Comments:

2) Does the student demonstrate the ability to assemble diverse evidence to form a whole interpretation in the field of forensic science?

Poor		Adequate		Excellent	
1	2	3	4	5	Not applicable to paper's topic

Comments:

3) Does the student demonstrate the ability to create a new meaning or structure from evidence provided?

Poor		Adequate		Excellent	
1	2	3	4	5	Not applicable to paper's topic

Comments:

Rubric for Exit Interviews

Structured Exit Interview with Graduating Seniors

Sample Focus group questions.

1. What was the most interesting question on the questionnaire?

2. What was/were you favorite courses in the major?

3. What elective courses would you suggest we create?

4. Weakness in the curriculum—What required courses would you suggest we create?

5. Do you have a sense of the breadth of knowledge of this discipline?

6. Were courses with hands-on-experience helpful?

7. Do you think you received helpful guidance from you mentor?

Forensic Science majors will understand the role of Critical Thinking Skills in Forensic Science.

Learning Outcomes:

8. demonstrate the ability to build a pattern from diverse evidence

9. demonstrate the ability to assemble diverse evidence to form a whole

10. demonstrate the ability to create a new meaning or structure.

11. Other Issues:
    a. Facilities?
    b. Research Experience?
    c. Security issues?

12. What additional questions should we be asking?

Notes on responses:

Appendix 3: Quantitative Forensic Science Assessment

Name	Outcome 1	Outcome 2	Outcome 3	
Student 1				Comments and Possible Recommendations
Ric	4	3	1	
Mary	5	3	1	
Erik	3	4	3	
Student 2				There is some variation among our ratings but the assessment estimates in the aggregate are probably good for our assessment purposes.
Ric	4	5	5	
Mary	5	5	5	
Erik	4	4	N/A	
Student 3				We might re-think "create new meaning or structure" as not necessarily a good outcome measure unless we change the way we direct the students for these papers/assignments. For example, we might consider handing out the outcome rubric ahead of time to have them orient their papers to what we want them to emphasize.
Ric	3	3	2	
Mary	3	5	3	
Erik	5	5	5	
Student 4				Creating a new meaning or structure is most challenging. We might: emphasize that as a part of assignments; give the rubric to the students before they write up their analyses to know to emphasize meaning/structure.
Ric	5	5	5	
Mary	5	5	5	
Erik	4	4	3	
Student 5				
Ric	4	5	5	
Mary	5	5	5	
Erik	4	4	3	
Student 6				
Ric	3	3	1	
Mary	3	5	N/A	
Erik	4	4	N/A	
	73	**77**	**52**	
	4.06	**4.28**	**3.47**	
1=unacceptable 3=adequate 5=excellent	Outcome 1=build a pattern from diverse evidence Outcome 2=assemble diverse evidence to form a whole Outcome 3=create new meaning or structure			

APPENDIX 4: Exit interviews by discipline:

All focus groups conducted by Colignon and Jennings on May 7, 2019. The following represents a summary of bullet points: including perceptive/practical suggests but focused on responses to our disciplinary objectives of the year.

Forensic Science-- 5 students and one tried to schedule an alternative date after graduation.

The list of "illustrative specialization courses" continues to be read as an exhaustive list—must change. See students listing addition to the advertisement for FS major. We need to change our advertising as students continually interpret the list of courses as exhaustive.

Again, lack of depth in Forensic Chemistry and Biology—these students took a combined major / minor version of both courses. Effort to provide separate courses for minors and majors. We have the majors but not the minors. Solve issue. We have cohort listing of the FS majors to help plan for courses. We can do the same for FS minors.

Student expressed need/interest in better communication among Forensic Science majors. The new FS club should start to fill this void. However, it is apparent that a mentorship program should develop between upper/lower class majors. We should start a matching program between rising seniors and fresh/sophomores early in the fall.

Critical Thinking Skills:

Tests in the courses did a good job of forcing us to tease out critical thinking—assemble evidence—not regurgitate.

Labs—writing up lab reports to assemble information.

Labs in Crime Scene –other ways of understanding a pattern of evidence or series of facts.

General Impressions:

1.There were general comments from FS and other majors about there not being a "space," in a physical sense, to discuss issues of security or issues of on-campus controversies. At some point, it became clear that students did not have much familiarity with each other. We probed for why majors might be more fragmented than other majors. Claim they were diverse but this may mean many things. We have some IMS students as double majors with FS.

2. We want to think about how FS majors may have more opportunities or places to communicate with each other.

3. Curriculum Suggestions.

A 1-credit research presentation course was suggested for the other majors and it may work for our FS majors to practice for Senior Legacy and Sigma Xi. This course would start in the Fall of Senior year. These students might meet periodically to practice presenting their research or a research project.

Another suggestion would be to require or give extra credit to FS juniors that attend Senior Legacy or Sigma Xi presentations in their spring courses.

Another suggestion was to attach a lab to Forensic Anthropology. Forensic Anthropology is required for the majors. The students should be able to accommodate 1 credit in the semester they take this course.

4. Rising Seniors might be matched with FR and Sophomores in the Fall. This mentoring set up is designed a facilitate communication among students.