

## Course Outcomes Assessment

**Course/Program Title: DHY 104 Dental Radiology**  
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**Date: 12/19/16**

### **Expected Learning Outcomes:**

1. Illustrate proficiency in exposing, processing, and mounting analog and digital film radiographs.
2. Develop positive patient management techniques, as applied to dental radiography.
3. Describe the attributes of dental x-rays in relation to the benefit versus the risk of radiation exposure.

**Assessment:** (How do or will students demonstrate achievement of each outcome? Please attach a copy of your assessment electronically.)

1. Radiology Lab Projects: We currently use a self-evaluation worksheet that is completed by the students and then graded by the faculty to measure student performance.
2. Patient Education Paper: Students submit a paper that answers common patient questions regarding x-rays and x-ray safety.
3. Comprehensive Final Exam: Cumulative 150 point exam that covers lecture and lab material from the entire semester.

**Validation:** (What methods have you used or will you use to validate your assessment?)

1. Lab Projects: Grades on lab projects are compared to data from previous semesters, two adjunct faculty calibrate with the lead instructor to grade projects. **(90% of students achieve an average of 75% or higher on all lab projects)**
2. Patient Ed Paper: This project is evaluated using a grading rubric that includes evidence based answers, persuasive tone, and writing mechanics. **(85% of students achieve an average of 75% or higher on patient education paper)**
3. Comprehensive Final: The final exam is constructed based on current radiographic practices and board exam content. An item analysis is conducted by the lead instructor to validate the exam. **(90% of students achieve an average of 75% or higher on the final exam)**
4. National Dental Hygiene Board Exam pass rates.

**Results:** (What do your assessment data show? If you have not yet assessed student achievement of your learning outcomes, when is assessment planned?)

I have chosen to compare data from the first three cohorts to analyze student achievement.

3. Student performance on examinations is consistent from year to year with a bell-curve distribution of grades. **(16/16 or 100% of students achieved a 75% or higher on the final exam)**

2. The Patient Education Paper grades are consistent for the first two cohorts and drop 5% in the third cohort. During the Fall 16 semester, there was a large increase in points lost for writing mechanics and a smaller increase in point deductions for persuasive tone and accuracy of information. **(16/16 or 100% of students achieved a 75% or higher on this project)**

1. Lab Projects: The grading system for lab projects is greatly inflated and does not accurately reflect student's ability to produce diagnostic radiographs. This affected the overall course grades and caused grade inflation. **(13/16 or 81% of students achieved a 75% or higher on this project)**

4. National Board Dental Hygiene Exam Scores: The NBDHE provides a d-value representing the standardized difference between your school's average standard score and the national average standard score. Based on the 14/17 students who took the exam in May 2016, HCC was -0.17 standard deviation below the national average for the Radiology portion of the exam. Results for the 3/17 student who took the exam in June 2016 were -.019 17 standard deviation below the national average. This puts the cohort at an average of -.018SD.

- A d-value representing the standardized difference between your school's average raw score (i.e., average number correct) and the national average for each of the disciplines covered on the examination. *Please note that a d-value is a standardized value representing the distance between your school's average and the national average in standard deviation units. A positive d-value of 1.0 indicates that your school average is **one standard deviation above** the national average. A d-value of -1.0 indicates that your school average is **one standard deviation below** the national average. A d-value of 0 would indicate that your school's average falls directly on the national average.*

The data for the 4 measures discussed above is presented in the following table.

Cohort	Lab Project Ave	Patient Ed Paper Ave	Final Exam Ave	NBDHE Result
Fall 14 (n=18)	95.37%	90.81%	82.91%	-0.18
Fall 15 (n=20)	94.79%	93.96%	81.91%	N/A
Fall 16 (n-16)	97.94%	86.5%	84.54%	N/A

**Follow-up:** (How have you used or how will you use the data to improve student learning?)

1. Lab Project Grading: The current grading instrument used to evaluate radiograph performance need to be adjusted so that the resulting grades better reflect the quality of the work produced. The overall grading schema of DHY 104 should be weighted so that lab performance counts for

less than 50% of the total course grade. Currently exams=45% and lab=60%; I would like to change that to exams=55%, lab=40% in addition to the revised lab evaluation.

2. The questions on the Patient Education Project will be evaluated next year to make sure they are still relevant. Students will be encouraged to utilize the Student Success Center and spend more time proof-reading their papers)

3. I do not anticipate changes to exams.

4. Board results will be collected for the Class of 2017.

**Budget Justification:** (What resources are necessary to improve student learning?)

No additional resources are needed at this point.