Course Assessment Report
Washtenaw Community College

Discipline	Course Number	Title
Radiography	218	RAD 218 09/25/2018-Radiation Biology and Protection
Division	Department	Faculty Preparer
Health Sciences	Allied Health	Jim Skufis
Date of Last Filed Assessment Report		

I. Assessment Results per Student Learning Outcome

Outcome 1: State the effects of ionizing radiation on human cells and tissues.

- Assessment Plan
  - Assessment Tool: Departmental final
  - Assessment Date: Winter
  - Course section(s)/other population: Only one section is offered
  - Number students to be assessed: Number of students to be assessed is approximately 30
  - How the assessment will be scored:
  - Standard of success to be used for this assessment:
  - Who will score and analyze the data:

1. Indicate the Semester(s) and year(s) assessment data were collected for this report.

Fall (indicate years below)	Winter (indicate years below)	SP/SU (indicate years below)
		2018

2. Provide assessment sample size data in the table below.

# of students enrolled	# of students assessed
25	25

3. If the number of students assessed differs from the number of students enrolled, please explain why all enrolled students were not assessed, e.g. absence, withdrawal, or did not complete activity.

The number of students enrolled was the number assessed.

4. Describe how students from all populations (day students on campus, DL, MM, evening, extension center sites, etc.) were included in the assessment based on your selection criteria.

All sections are taught on campus.

5. Describe the process used to assess this outcome. Include a brief description of this tool and how it was scored.

Rather than using a departmental final exam as an assessment tool, we used students' homework assignments which treat the effects of ionizing radiation on human cells and tissues. The two homework assignments which cover this were Chapter 8: Early Radiation Effects on Human Cells and Tissues, and Chapter 9: Late Radiation Effects on Human Cells and Tissues, each with 50 and 40 questions, respectively. The score for each student was calculated based on the point scale of each assignment, and an average, median, high, and low score for each assignment was calculated. The Early Radiation Effects on Human Cells and Tissues assignment was worth 50 points and the Late Radiation Effects on Human Cells and Tissues assignment was worth 40 points.

6. Briefly describe assessment results based on data collected for this outcome and tool during the course assessment. Discuss the extent to which students achieved this learning outcome and indicate whether the standard of success was met for this outcome and tool.

Met Standard of Success: Yes

The Early Radiation Effects on Human Cells and Tissues assignment had a mean of 48.36 (97%), median of 49.00, high score of 50, and low score of 44. Twenty-four of the 25 students scored 90% or above; one student scored between 80 and 89%. The Late Radiation Effects on Human Cells and Tissues assignment had a mean of 39.08 (98%), median of 39.00, high score of 40, and low score of 35. Again, 24 of the 25 students scored 90% or above; one student scored between 80 and 89%.

No standard of success was specified for this outcome in the Master Syllabus for RAD 218; however, the last course assessment report indicated that when the average for the final exam was 85%, this showed that students understood the basic principles. The problem with the final exam assessment tool is that the final exam covers far more than the effects of ionizing radiation on human cells and tissues. The tool used for the current assessment is specific to an understanding of the effects of ionizing radiation on human cells and tissues. With an average score of 97% and 98%, it is obvious that the standard of success was met for this outcome and tool.

7. Based on your interpretation of the assessment results, describe the areas of strength in student achievement of this learning outcome.

Based on the results of this assessment of students' understanding of the effects of ionizing radiation on human cells and tissues, it is clear that they do indeed understand these effects. The lowest score for either of these assignments (44 out of 50 or 88%), is above the 85% score initially set as the benchmark.

8. Based on your analysis of student performance, discuss the areas in which student achievement of this learning outcome could be improved. If student met standard of success, you may wish to identify your plans for continuous improvement.

Although the benchmark for success was met, this is the first time I have assessed this course and used this tool. I will need more assessment cycles before deciding to change anything.

Outcome 2: State the current radiation protection standards and practices.

- Assessment Plan
    - Assessment Tool: Departmental final
    - Assessment Date: Winter
    - Course section(s)/other population: Only one section is offered
    - Number students to be assessed: Number of students to be assessed is approximately 30
    - How the assessment will be scored:
    - Standard of success to be used for this assessment:
    - Who will score and analyze the data:

1. Indicate the Semester(s) and year(s) assessment data were collected for this report.

Fall (indicate years below)	Winter (indicate years below)	SP/SU (indicate years below)
		2018

2. Provide assessment sample size data in the table below.

# of students enrolled	# of students assessed
25	25

3. If the number of students assessed differs from the number of students enrolled, please explain why all enrolled students were not assessed, e.g. absence, withdrawal, or did not complete activity.

The number of students enrolled was the number assessed.

4. Describe how students from all populations (day students on campus, DL, MM, evening, extension center sites, etc.) were included in the assessment based on your selection criteria.

All sections are taught on campus.

5. Describe the process used to assess this outcome. Include a brief description of this tool and how it was scored.

Rather than using a departmental final exam as an assessment tool, we used students' homework assignments which treat current radiation protection standards and practices. The homework assignment which covers this was Chapter 10: Dose Limits for Exposure to Ionizing Radiation with 55 questions. The score for each student was calculated based on the point scale of the assignment, and an average, median, high, and low score for each assignment was calculated. Dose Limits for Exposure to Ionizing Radiation was worth 55 points.

6. Briefly describe assessment results based on data collected for this outcome and tool during the course assessment. Discuss the extent to which students achieved this learning outcome and indicate whether the standard of success was met for this outcome and tool.

Met Standard of Success: Yes
The Dose Limits for Exposure to Ionizing Radiation assignment had a mean of 51.16 (93%), median of 51.00, high score of 55, and low score of 45. Eighteen of the students scored 90% or above; seven students scored between 80-89%. No standard of success was specified for this outcome in the Master Syllabus for RAD 218; however, the last course assessment report indicated that when the average for the final exam was 85%, this showed that students understood current radiation protection standards and practices. The problem with the final exam assessment tool is that the final exam covers far more than the current radiation protection standards and practices. The tool used for the current assessment is specific to an understanding of the current radiation protection standards and practices. With an average score of 93%, it is obvious that the standard of success was met for this outcome and tool.

7. Based on your interpretation of the assessment results, describe the areas of strength in student achievement of this learning outcome.

Based on the results of this assessment of students' understanding of current radiation protection standards and practices, it is clear that they do indeed understand these concepts. The lowest score for this assignment (45 out of 55) was still an 82%, the median score was 51 (93%), meaning that the majority of the students scored above the 85% score initially set as the benchmark.

8. Based on your analysis of student performance, discuss the areas in which student achievement of this learning outcome could be improved. If student met standard of success, you may wish to identify your plans for continuous improvement.

Although the benchmark for success was met, this is the first time I have assessed this course and used this tool. I will need more assessment cycles before deciding to change anything.

II. Course Summary and Action Plans Based on Assessment Results

1. Describe your overall impression of how this course is meeting the needs of students. Did the assessment process bring to light anything about student achievement of learning outcomes that surprised you?

RAD 218 is meeting the students' needs by helping them to understand the effects of ionizing radiation on human cells and tissues, and to know the current radiation protection standards and practices. The tools originally specified in the master syllabus to assess these outcomes was not specific enough, so a more targeted tools was employed.

2. Describe when and how this information, including the action plan, was or will be shared with Departmental Faculty.

The results of this assessment will be shared with program faculty during regular faculty meetings and with our program's advisory committee during advisory committee meetings.

3. Intended Change(s)

Intended Change	Description of the change	Rationale	Implementation Date
Outcome Language	Update outcomes based on course adjustments over time.	Outcomes no longer align well with the course content	2019
Assessment Tool	Update assessment tool and standard of success based on	Improve alignment with outcomes and collect more	2019

	revisions to the outcomes.	meaningful assessment data.	

4. Is there anything that you would like to mention that was not already captured?

Another Master Syllabus revision is in order!

III. Attached Files

Data for questions on early radiation effects
Data for questions on late radiation effects
Data for questions on currect radiation protection

Faculty/Preparer:	Jim Skufis	**Date:** 10/02/2018
Department Chair:	Kristina Sprague	**Date:** 10/04/2018
Dean:	Valerie Greaves	**Date:** 10/05/2018
Assessment Committee Chair:	Shawn Deron	**Date:** 10/16/2018

COURSE ASSESSMENT REPORT

I. Background Information

1. Course assessed: RAD
   Course Discipline Code and Number: 218
   Course Title: Radiation Biology and Protection
   Division/Department Codes: HAT/ALHD

2. Semester assessment was conducted (check one):
   - ☐ Fall 20__
   - ☐ Winter 2008
   - ☒ Spring/Summer 2008__

3. Assessment tool(s) used: check all that apply.
   - ☐ Portfolio
   - ☐ Standardized test
   - ☐ Other external certification/licensure exam (specify):
   - ☐ Survey
   - ☐ Prompt
   - ☒ Departmental exam
   - ☐ Capstone experience (specify):
   - ☐ Other (specify):

4. Have these tools been used before?
   - ☒ Yes
   - ☐ No

   If yes, have the tools been altered since its last administration? If so, briefly describe changes made.
   Exam questions were modified and new questions were added.

5. Indicate the number of students assessed/total number of students enrolled in the course.
   37 students (all students in the course; only one section of this course is offered each year)

6. Describe how students were selected for the assessment.
   All students in the course were assessed.

II. Results

1. Briefly describe the changes that were implemented in the course as a result of the previous assessment.
   Powerpoint lectures were modified and worksheets were created for students.

2. List each outcome that was assessed for this report exactly as it is stated on the course master syllabus.

State the effects of ionizing radiation on human cells and tissues.
State the current radiation protection standards and practices.

3. Briefly describe assessment results based on data collected during the course assessment, demonstrating the extent to which students are achieving each of the learning outcomes listed above. ***Please attach a summary of the data collected.***
   All 37 students achieved the learning outcomes of RAD 218. 9 students (24%) of the students scored between 90 - 100%; 23 (62%) scored between 80 - 89%; 5 (14%) scored between 70 - 79%. The average score was 85% on the exam.

   Exam questions with less than 75% correct were examined (see attached list). Students scored <75% on 17 (23%) of the 75 exam questions. 6 of the 17 questions will be updated.

   4 of the 6 questions that will be updated covered the topic of limiting radiation protection for patients & personnel.

4. For each outcome assessed, indicate the standard of success used, and the percentage of students who achieved that level of success. ***Please attach the rubric/scoring guide used for the assessment.***
   See the attached RAD 218 analysis.

   Describe the areas of strength and weakness in students' achievement of the learning outcomes shown in assessment results.

   Strengths: The student demonstrated an understanding of the basic concepts of radiatioin biology and protection.

   Weaknesses: The main content area where student scored poorly was limiting radiation protection for patient and personnel.

III. Changes influenced by assessment results

1. If weaknesses were found (see above) or students did not meet expectations, describe the action that will be taken to address these weaknesses.
   The students met the expectations of the course. The units on limiting radiation protection for patients and personnel will be reviewed and updated.

2. Identify intended changes that will be instituted based on results of this assessment activity (check all that apply). Please describe changes and give rationale for change.
   a. ☐ Outcomes/Assessments on the Master Syllabus
      Change/rationale:

   b. ☐ Objectives/Evaluation on the Master Syllabus
      Change/rationale:

   c. ☐ Course pre-requisites on the Master Syllabus
      Change/rationale:

   d. ☐ 1st Day Handouts
      Change/rationale:

   e. ☐ Course assignments
      Change/rationale:

   f. ☒ Course materials (check all that apply)
      - ☐ Textbook
      - ☒ Handouts
      - ☒ Other: Departmental Examination

   g. ☐ Instructional methods
      Change/rationale:

   h. ☐ Individual lessons & activities
      Change/rationale:

3. What is the timeline for implementing these actions? The course syllabus, powerpoint presentations, course handouts and departmental exam will be revised for the 2009 Spring/Summer semester.

COURSE ASSESSMENT REPORT

IV. Future plans

1. Describe the extent to which the assessment tools used were effective in measuring student achievement of learning outcomes for this course.
   The departmental exam was effective to the extent that it showed that the students understood the basic princples of radiation biology and protection.

   Analysis of the exam questions indicated a weakness in the content area of limiting radiation exposure to the patient and personnel.

2. If the assessment tools were not effective, describe the changes that will be made for future assessments.
   The assessment tool was effective and with minor modificatiion will be made to the final exam and other course materials.

3. Which outcomes from the master syllabus have been addressed in this report?
   All __X___ Selected _____
   If "All", provide the report date for the next full review: __Winter 2011_____.
   If "Selected", provide the report date for remaining outcomes: _____.

Submitted by:

Print: Connie Foster (Faculty/Preparer) **Signature** Connie Foster **Date:** 1/9/09

Print: Connie FOSTER (Department Chair) **Signature** Connie Foster **Date:** 1/9/09

Print: GRANVILLE LEE (Dean/Administrator) **Signature** [signature] **Date:** 1/12/09

1/13/09 sf

Approved by the Assessment Committee 11//08