

This guide will show assessment coordinators the process of program assessment for 2017-18, including descriptions, examples and rubric measures for the annual program assessment report. Follow the guide description text in black while referencing the example text in blue and the rubric text in gray.

Section 1 – Program Mission

Describe the purpose of the degree program – why it exists and what distinguishes it from other units or programs. How is it aligned with the university's Core Themes (particularly Core Theme 1: Applied Degree Programs; and Core Theme 2: Student and Graduate Success)? This content will stay fairly static from year to year.

Program Mission: The mission of the Bachelor of Science in Nuclear Medicine and Molecular Imaging Technology (NMMIT) program at Oregon Institute of Technology is to prepare students to be successful in the field of Nuclear Medicine and Molecular Imaging. To be successful, graduates must demonstrate knowledge and skills that will allow them to be competitive in accessing employment, maintain their skills and abilities when employed, successfully pass the national registry examination in Nuclear Medicine, Computed Tomography, and/or Magnetic Resonance Imaging (MRI), and provide competent and compassionate care.

To support the Mission of the Bachelor of Science in NMMIT program at Oregon Tech, the program faculty have incorporated several courses to the curriculum to competitively differentiate our graduates and enhance their ability to be competitive in accessing employment. These courses include: Computed Tomography, MRI, and Mammography. In addition, students are encouraged to also enroll in the Advanced Computed Tomography and Advanced MRI courses offered in the Medical Imaging department during the Junior year. Faculty also develop and manage a cross section of clinical externship site opportunities for each student's fourth year of clinical training and education. These clinical externship opportunities are offered in a variety of geographical locations and hospital sizes to cater to diverse learning styles and to more effectively network graduates to employment opportunities.

Graduates from the NMMIT program secure employment in hospitals and clinics as working technologists in Cardiac clinics, general Nuclear Medicine departments, PET/CT and CT departments, and outpatient Radiology clinics. Some graduates go on to medical school, Physician Assistant school, or Masters degrees in Business or Health Care Management. Within 5-10 years from graduation, many graduates take on additional responsibilities within their organizations as clinical instructors, managers within Nuclear Medicine departments, or upper level management.

Mission Alignment: Virtually every lecture course within our curriculum incorporates a hands on, often project based learning environment attached to it. Students are often assigned a project or problem, and given opportunities to work individually or as part of a team, to address the problem or project. Often, these projects involve students interacting with the appropriate equipment in the lab such as gamma cameras, computers, well counters, dose calibrators, and thyroid probes, to provide hands on learning to solve problems. These exercises are designed to develop problem solving and critical thinking skills necessary in our industry.

The mission, objectives, and student learning outcomes for the NMMIT program are reviewed annually by the program and at the fall retreat during convocation. They are also reviewed annually by the Nuclear Medicine and Molecular Imaging Technology Advisory board.

Section 2 – Program Description and History:

This content will stay fairly static from year to year, and can be included in any reasonable order, but program enrollment, graduate, and employment, and (if applicable) board pass rates should be updated each year based on updated data.

- Program History
- Program Locations
- Program Enrollment
- Program Graduates
- Employment Rates and Salaries
- Board and Licensure Exam Results (if applicable)
- Industry Relationships
- Showcase Learning Experiences
- Success Stories – Descriptions of Successful Graduates (potentially including quotes from students highlight the programs' effective preparation)

The Nuclear Medicine and Molecular Imaging Technology program officially began in 1999 and is the only Nuclear Medicine and Molecular Imaging program in the state of Oregon. Enrollment trends from 2002-2019 have varied from 12 to 20 students per year in the program. By fall term of 2019, there were 53 students enrolled in the program. For the graduating class of 2019, retention was 90% and attrition was 10%. Attrition was the result of (2) students failing to pass a course or courses, and (1) student dropping out and reconsidering Nuclear Medicine as a career path. However, (3) students came back into phase at one point or another during this time frame.

Program Location: Klamath Falls Campus only for the didactic and laboratory education and training. Across the United States for the fourth year Clinical Externship education and training.

Program Enrollment: 2015-2019

Fall 2015	Fall 2016	Fall 2017	Fall 2018	Fall 2019	5 Year Difference	5 Year % Change
48	49	53	56	53	8	14%

Program Graduates: 2010-2019

2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20
15	16	16	15	14	14	15	14	15	16

Employment Rates and Salaries: 2019 (Data as of 9/2/2019)

Employed	Continuing Education	Looking for Work	Not Seeking	Median Salary	Success Rate
88% (14)	0%	12% (2)	0%	70,362	100%

Board Exam Results (if applicable):

American Registry of Radiologic Technology (ARRT)

100% Pass Rate

Class of 2002-2019

Industry Relationships:

Oregon Tech Nuclear Medicine and Molecular Imaging Technology Advisory Board Meeting

Date: Friday, May 3, 2019

Committee Members

- Rick Hoylman, NMMIT Program Director (present)
- Vanessa Bennett, Assistant Professor, NMMIT Program (Present)
- Wally Limbacher, Cedar Sinai, CA (present)
- Bert Marston, Providence, Portland, OR (present)
- Benny Quang, Providence St. Vincent, Portland, OR (present)
- Mike Dillard, Inland Imaging, Spokane, WA (present)
- David Mariner, Inland Imaging, Spokane, WA (present)
- Holly Rhodes, Sacred Heart, Eugene, OR (present)
- Tim Herrington, Sacred Heart, Spokane, WA (Present)
- Adam Brown, OHSU, Portland, OR (present)
- Matt Riggins, OHSU, Portland, OR (present)
- Beth Meysenburg, University of Washington, Seattle, WA (Zoom Video Conference)
- Kristine Hellige, Barnes-Jewish Hospital, St. Louis, MO (Zoom Video Conference)
- James Green, Renown, Reno, NV (Present)
- Todd Merkley, Kadlec Hospital, Richland, WA (present)
- Kristen McBride, UC Davis, Sacramento, CA (Zoom video conference)
- Ryley McAllister, St. Alphonsus, Boise, ID (Present)
- Stacy Frazer, Good Samaritan, Puyallup, WA (present)

Notes on Discussion of Assessment Results

- Discussed registry statistics and 100% pass rate as well as performance compared to national average. Also discussed employment rates and locations for last (2) years.
- Performed FERPA training for all clinical instructors.
- Discussed HR policy topics
- Discussed and provided a workshop on scoring the Professional Evaluation for students and how to use the Probation policy.
- Discussed the Clinical Competency policy and procedure.
- Discussed Modeling the Professionalism skills you require of students. Discussed how effective modeling is as a teaching method.
- Discussed how to challenge students' critical thinking and problem solving skills specifically related to image interpretation.
- MRI training dialogue with Monica Breedlove.
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Showcase Learning Experiences

Success Stories – Descriptions of Successful Graduates (potentially including quotes from students highlight the programs' effective preparation)

100% pass rate on the National Registry Board Examination in Nuclear Medicine and Computed Tomography.
88% employment rate.

2017 Median Salary of \$70,362.

Student Comments about the effectiveness of the Program's preparation:

Critical thinking, practical application in labs, in-depth understanding of each aspect of what we do.

Small class sizes with lots of hands on experience and training. The nuclear medicine professors truly care about their students and making sure we are successful. The externship experience is so valuable and made me feel prepared to step right into the working field after graduation.

Dedication to helping students thoroughly understand nuclear medicine.

Rick and Vanessa expecting the best from us. This prepares us for the real world.

The program wouldn't be what it is without the amazing professors that prepare us for the real world. Just the overall great foundation of knowledge and skills we gain before going out on to extern. We wouldn't be successful without the knowledge and support of the professors and the foundation they help us build.

Extern is amazing.

Section 3 – Program Student Learning Outcomes

NWCCU's standards for accreditation require that programs must "culminate in achievement of clearly identified student learning outcomes." (1.C.1.)

In this section, address the following:

- **PSLOs:** What are the 5-10 program student learning outcomes – the key skills, supported and scaffolded across the program, which graduates will need to be able to demonstrate by graduation in order to successfully pursue the professional directions described the program's mission statement?
 - Resources on Bloom's Taxonomy: <http://oregonstate.edu/instruct/coursedev/models/id/taxonomy/#table>
 - Resources on program student learning outcomes:
 - <https://manoa.hawaii.edu/assessment/howto/outcomes.htm>
 - <https://www.jmu.edu/assessment/files/How%20to%20Write%20Clear%20Objectives.pdf>
 - <https://www.jmu.edu/assessment/files/Objectives%20Made%20Easy.pdf>

PSLO #1. The student will demonstrate knowledge and application of radiation safety precautions and ALARA concepts by didactic examination and laboratory practical assessment.

PSLO #2. The student will demonstrate ethical reasoning through a variety of scenarios in lecture and lab, and adherence to professional responsibilities identified on their Professional Evaluation performed at the end of each term.

PSLO #3. The student will demonstrate knowledge and use of instrumentation in Nuclear Medicine by didactic examination and laboratory practical assessment.

PSLO #4. The student will perform nuclear medicine procedures using inquiry and analysis demonstrated on lab practical assessment.

PSLO #5. The student will demonstrate knowledge and uses of radiopharmaceuticals used in Nuclear Medicine by didactic examination and lab practical assessment.

- **Origin and External Validation:** How did the current set of program student learning outcomes originate? and/or when were Program Student Learning Outcomes last reviewed by program faculty? What sort of external

validation exists for the program student learning outcomes? When were program student learning outcomes last reviewed by the program's industry advisory board?

The faculty met several years ago to develop PSLOs for the NMMIT program. The faculty were asked to identify (9) PSLOs that that were specific and applicable to our program/industry. The faculty meet every fall to review the PSLOs and add/delete as appropriate. These PSLOs listed above were last reviewed by the NMMIT program faculty fall 2018 and will be reviewed again fall 2019 after school starts. The PSLOs were last reviewed by our Advisory Board in May 2019.

The primary external validation our program uses are (2) surveys we conduct at the end of each academic year. These surveys are sent to our clinical sites. One survey is sent to the student who is completing their clinical externship and fourth year of training, and the second survey, almost identical, is sent to the student's clinical instructor. Within each survey, we ask the student and clinical instructor to evaluate to what degree the student demonstrated knowledge and ability in a variety of skills, including each PSLO. As a program, we look not only at individual responses by student and site, but we look for trends with each PSLO for all students.

Changes: Have there been any changes to program student learning outcomes? If so, how were these arrived upon and why were these changes made?

The NMMIT faculty met last fall 2018 to discuss the value and benefit of our listed PSLOs. After some discussion regarding the relevance of the assessment data from the PSLOs previously, as well as the relevance and importance of the individual PSLOs, we decided to narrow our assessment focus to the (5) PSLOs listed above.

OREGON TECH PROGRAM ASSESSMENT REPORT RUBRIC (Section 4)			
1 – Beginning	2 – Developing	3 – Good	4 – Exemplary
<i>Outcomes: Clarity</i>			
No outcomes stated.	Outcomes present, but with imprecise verbs (e.g., know, understand; things that are not measurable because they are internal to the student), vague description of content/skill/or attitudinal domain.	Outcomes generally contain precise and measurable verbs, rich description of the content/skill/or attitudinal domain. Outcomes describe how students demonstrate learning.	All outcomes (except those explicitly mandated by an accrediting body) stated with clarity and specificity including precise and measurable verbs (for example, from Bloom's taxonomy) articulating how students demonstrate learning, with rich description of the content/skill/or attitudinal domain.
<i>Outcomes: Student-centered orientation</i>			
No outcomes stated in student-centered terms.	Some outcomes stated (either explicitly or implicitly) in student-centered terms.	All outcomes at least implicitly have a student-centered orientation.	All outcomes explicitly stated in student-centered terms (i.e., "Students will...").
<i>Outcomes aligned with Mission/Industry/Student Success</i>			
No discussion of external validation of outcomes.	At a superficial level, it appears the learning outcomes are aligned with industry needs, but	General detail about how outcomes relate to industry needs or is externally validated is provided, but lacks detail or specificity.	External validation of outcomes is clearly articulated, through reference to outcomes originating from external accreditors, industry advisory

	no explanation is provided.	Little to no evidence of recent discussions (either internally or with external partners) about the currency of program learning outcomes.	boards, employer surveys, etc. and reflect Oregon Tech's applied mission and reflect application of theory to practice. Evidence of recent program and external discussions about the continued relevance of learning outcomes.
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Section 4 – Curriculum Map

NWCCU’s standards for accreditation requires that programs must demonstrate “an appropriate breadth, depth, sequencing, and synthesis of learning” of student learning outcomes. (1.C.2)

- **Curriculum Map:** How are each of your program student learning outcomes (and institutional ESLO’s) supported and scaffolded throughout the program’s curriculum?

To address this, please complete a table with program’s curriculum map, with identification of how each PSLO and ESLO appears within the curriculum at the Foundation (Introduction), Practice (Reinforcement and Application) and Capstone (Synthesis) levels.

Resources to Guide Creation of Curriculum Maps:

- <https://manoa.hawaii.edu/assessment/howto/mapping.htm>

This content should remain relatively static from year to year, but should be updated as the program curriculum map changes.

Nuclear Medicine & Molecular Imaging Technology B.S. Student Learning Outcomes Table

F – Foundation

P – Practice

C – Capstone

COURSE	PSLO 1	PSLO 2	PSLO 3	PSLO 4	PSLO 5	ESLO 1 Comm	ESLO 2 In & Acq	ESLO 3 Ethical Reason	ESLO 4 Teamwork	ESLO 5 Quant Lit	ESLO 6 Divers Persp
Wri 121,122 Sp 111						F					
Hum or Soc Scien							F				
SPE 221 (321)									F		

Chem 350											
Physics 217											
NMT 217 Patient Care		F						F			F
NMT 215 Rad Pharm	F			F	F					F	
NMT 212 Rad Physics											
NMT 205 NM Admin											
NMT 225 Instrum			F								
NMT 256 Cardiac											
NMT 311 Proc I						P				P	
NMT 312 Proc II	P	P		P			P	P			
NMT 367 PET/CT									P		
NMT 346 MRI											
BIO 346 PathoPhys											
NMT 355 C.T.											
NMT 313 Therapy											
NMT 325 Spect											
NMT 388 Ext Prep			P		P						P
NMT 410 Extern	C	C	C	C	C	C	C	C	C	C	C

OREGON TECH PROGRAM ASSESSMENT REPORT RUBRIC (Section 5)			
<i>Outcomes are mapped to course/learning experiences and assessment plan</i>			
1 – Beginning	2 – Developing	3 – Good	4 – Exemplary
No alignment of curriculum to outcomes.	Report contains a curriculum map connecting student experiences with some outcomes. Map is not	Report contains a curriculum map clearly illustrating how each outcome is supported within the curriculum.	Report contains a curriculum map illustrating how the curriculum as a whole supports scaffolded, vertical development (e.g., on a scale of 1-3, or introduction, development, mastery) for each outcome for both

	clear or difficult to interpret.		program outcomes (PSLOs) and institutional outcomes (ESLOs).
Program doesn't demonstrate alignment of course activity with program learning outcomes.	Program asserts that course activity is at least somewhat aligned with program outcomes and points to some evidence to support this.	Program points to some materials (e.g. course syllabi on the T:/ drive) that indicate meaningful and regular attention to program outcomes in course design, but does not demonstrate thorough and consistent alignment between class activity and program outcomes.	Program points to publicly available materials (e.g. course syllabi, assignments, unit learning outcomes, class materials) which demonstrate thorough and consistent alignment in all course of relationships between course activity and program learning outcomes.

Section 5 – Assessment Cycle

In this section, please complete a table to show which courses (and, where known, what assignments) are used to assess each PSLO and ESLO in a three-year cycle. (Although some programs may have compelling reasons to adopt a different cycle, assessment of program learning outcomes should follow a three-year cycle, with the intention that improvements prompted by one year's assessment should be designed and implemented during the two years prior to the next scheduled assessment of that outcome.)

Each PSLO should be assessed with **2 direct measures and 1 indirect measure** (the indirect measure is often the Student Exit Survey, which asks graduating students about each PSLO each year).

This content should remain relatively static from year to year, although it should be extended by at least one year (and the old year dropped off) each time a new report is submitted.

Nuclear Medicine & Molecular Imaging Technology B.S. Cycle for PSLOs and ESLOs			
Outcome	2017-18	2018-19	2019-20
PSLO 1	Indirect Student Exit Survey	Indirect Student Exit Survey Direct Assessment NMT 215/313	Indirect Student Exit Survey
PSLO 2	Indirect Student Exit Survey	Indirect Student Exit Survey Direct Assessment NMT 215/311	Indirect Student Exit Survey
PSLO 3	Indirect Student Exit Survey Direct Assessment NMT 225/388	Indirect Student Exit Survey	Indirect Student Exit Survey
PSLO 4	Indirect Student Exit Survey I & Q Direct Assessment NMT 312 Case study	Indirect Student Exit Survey	Indirect Student Exit Survey
PSLO 5	Indirect Student Exit Survey Direct Assessment NMT 225/388	Indirect Student Exit Survey	Indirect Student Exit Survey
ESLO 1	Indirect Student Exit Survey	Indirect Student Exit Survey	Indirect Student Exit Survey
ESLO 2	Indirect Student Exit Survey	Indirect Student Exit Survey	Indirect Student Exit Survey

	I & Q Direct Assessment NMT 312 Case study		
ESLO 3	Indirect Student Exit Survey	Indirect Student Exit Survey ER Direct Assessment NMT 212/311	Indirect Student Exit Survey
ESLO 4	Indirect Student Exit Survey	Indirect Student Exit Survey	Indirect Student Exit Survey Teamwork Direct Assessment NMT 367
ESLO 5	Indirect Student Exit Survey	Indirect Student Exit Survey	Indirect Student Exit Survey
ESLO 6	Indirect Student Exit Survey	Indirect Student Exit Survey	Indirect Student Exit Survey

OREGON TECH PROGRAM ASSESSMENT REPORT RUBRIC (Section 6)			
1 – Beginning	2 – Developing	3 – Good	4 – Exemplary
<i>Current year's plan</i>			
No activities/ courses listed for outcomes assessed during the current year	Activities/courses listed but link to outcomes is absent.	Most outcomes have classes and/or activities linked to them.	All outcomes assessed during the report year have classes and/or activities linked to them.
<i>Multi-year cycle plan</i>			
No formal assessment plan beyond current year.	Report contains a multi-year cycle outlining when assessment of all program student learning outcomes will occur.	Report contains a multi-year plan for assessment of learning outcomes, with courses identified for all assessment activities.	Clear, multi-year plan with several years of implementation (both past and future) outlined and clearly connected, with identification of courses and activities where assess will occur. Plan extends out at least far as the next assessment of any outcomes assessed during the report year.

Section 6-Assessment Activity

NWCCU's standards for accreditation require that institutions engage in "an effective system of assessment to evaluate the quality of learning in its programs" that "recognizes the central role of faculty in establishing quality, assessing student learning, and improving instructional programs." (1.C.5.)

In this section, address the following for each assessment activity conducted during the academic year covered by the report. This section may be integrated with Section 7 (Action Plans) and 8 (Re-assessment) as appropriate:

- **Activity:** What is the activity – (for a direct assessment, typically the course assignment) – used to assess this outcome? Describe in enough detail to make it clear how the activity is a reasonable measure of the outcome, and attach the assignment as an appendix. (Archiving the assignment is critical for consistent reassessment.)
- **Rubric:** How is the activity to be scored/evaluated? (Especially if scoring to assess the outcome is different from course grading). Describe in enough detail to makes it clear the rubric or scoring approach is a reasonable way to assess the outcome. Where a rubric is used, attach the rubric as an appendix. (Archiving the rubric is critical for consistent reassessment.)

- **Sample:** How many student artifacts were assessed? Was the population representative of the program as a whole? Were there any special or unusual characteristics of the student population that should be noted?
- **Reliability:** Who was involved in the scoring? How was consistency of rubric use assured? Have multiple faculty been involved in the scoring process to ensure reliability of the data? (Involving multiple raters for reliability is a best practice requested by NWCCU.)
- **Multiple Sites:** How is comparable assessment of this outcome carried out across all program sites? Although assessment processes do not need to be identical between different sites, the same measures should be assessed in comparable ways that facilitate exchange of ideas between program faculty at different sites.
- **Performance Target:** What was the target performance level? If less than 100%, why was the target performance level set at that point?
- **Performance Level:** What are the summary results? (i.e. What is the distribution of rubric scores?) What percentage of students exceeded the performance target? (Syu
- **History of Results:** Is there data from the previous assessment of this outcome, particularly if conducted with comparable methods? What trend(s) are seen in student performance over time?
- **Faculty Discussion:** How and when were results presented to and discussed by program faculty?
- **Interpretation:** What meaning or take-aways can be gleaned from this data? What are the factors, such as assignment design, course context, instructor, etc., that may have impacted student performance, either positively or negatively?

Indirect Self-Assessment PSLO #1: Student Exit Survey, NMT 410 Externship, Rick Hoylman & Vanessa Bennett					
PSLO #1: The student will demonstrate knowledge and application of radiation safety precautions and ALARA concepts by didactic examination and laboratory practical assessment.					
Performance Criteria	Assessment Methods	Measurement Scale	Minimum Acceptable Performance	Results 2015-2016	Results 2018-2019
Q BNUMC 1: Proficiency in the following areas.	Self-assessment on Student Exit Survey.	-High Proficiency -Proficiency -Some Proficiency -Limited Proficiency	80% of students scoring Proficiency or higher.	100%	100%
Q BNUC 2: How has your experience at OT contributed to your knowledge, skills, and personal development in these areas?	Self-assessment n Student Exit Survey.	-Very much -Quite a bit -Some -Very Little	80% of students scoring “Quite a bit” or higher.	100%	100%

Direct Assessment #1 PSLO 1: Klamath Falls Campus, NMT 313 Rick Hoylman & Vanessa Bennett					
PSLO 1: The student will demonstrate knowledge and application of radiation safety precautions and ALARA concepts by didactic examination and laboratory practical assessment.					
Performance Criteria	Assessment Methods	Measurement Scale	Minimum Acceptable Performance	Results 2015-2016	Results 2018-2019
The student will identify (5) actions or steps that can be taken to reduce radiation exposure to themselves in a Nuclear Medicine department.	Student essay/Rubric	1-4 according to attached criteria	80% of students scoring 3 or higher	100%	100%
The student will list the requirements for what constitutes level I, II, and III transportation index.	Student essay/Rubric	1-4 according to attached criteria	80% of students scoring 3 or higher	100%	100%
The student will identify (5) actions or steps that can be taken to limit or reduce unnecessary radiation exposure to their patients.	Student essay/Rubric	1-4 according to attached criteria	80% of students scoring 3 or higher	100%	100%
The student will list (5) steps to take to identify or measure radioactive contamination within a Nuclear Medicine department.	Student essay/Rubric	1-4 according to attached criteria	80% of students scoring 3 or higher	100%	95%

Indirect Self-Assessment PSLO 2: Student Exit Survey, NMT 410 Externship, Rick Hoylman & Vanessa Bennett					
PSLO 2: The student will demonstrate ethical reasoning and appropriate behavior through a variety of opportunities in the eleven month, clinical setting with patients, departmental staff, staff in other departments, and adherence to professional responsibilities identified on their Professional Evaluation performed at the end of the term.					
Performance Criteria	Assessment Methods	Measurement Scale	Minimum Acceptable Performance	Results 2015-2016	Results 2018-2019

Demonstration: Demonstrates ethical reasoning and appropriate behavior for lecture/lab/clinical work setting consistent with industry/department/program standards.	Ethics evaluated by clinical instructors using NMT Professional Evaluation Form.	-High Proficiency -Proficiency -Some Proficiency -No Proficiency	80% of students scoring Proficiency or higher.	100%	100%
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Direct Assessment #1 PSLO 2: Klamath Falls Campus, NMT 215 Sophomores, Rick Hoylman & Vanessa Bennett					
PSLO 2: The student will demonstrate ethical reasoning through a variety of scenarios in lecture and lab, and adherence to professional responsibilities identified on their Professional Evaluation performed at the end of the term.					
Performance Criteria	Assessment Methods	Measurement Scale	Minimum Acceptable Performance	Results 2015-2016	Results 2018-2019
Knowledge: Understands ethical responsibilities of the profession.	Ethics evaluated by program instructors using NMT Professional Evaluation Form.	NMT/MIT Grade scale: 93-100 84-92 75-83	80% of students scoring 75 or higher on the Professional Evaluation	100%	100%
Demonstration: Demonstrates ethical reasoning and appropriate behavior for lecture/lab/clinical work setting consistent with industry/department/program standards.	Ethics evaluated by program instructors using NMT Professional Evaluation Form.	NMT/MIT Grade scale: 93-100 84-92 75-83	80% of students scoring 75 or higher on the Professional Evaluation	100%	100%

Direct Assessment #2 PSLO 2: Klamath Falls Campus, NMT 311 Juniors, Rick Hoylman & Vanessa Bennett					
PSLO 2: The student will demonstrate ethical reasoning through a variety of scenarios in lecture and lab, and adherence to professional responsibilities identified on their Professional Evaluation performed at the end of the term.					
Performance Criteria	Assessment Methods	Measurement Scale	Minimum Acceptable Performance	Results 2015-2016	Results 2018-2019
Knowledge: Understands ethical responsibilities of the profession.	Ethics evaluated by program instructors using NMT Professional Evaluation Form.	NMT/MIT Grade scale: 93-100 84-92 75-83	80% of students scoring 75 or higher on the Professional Evaluation	100%	100%
Demonstration: Demonstrates ethical reasoning and appropriate behavior for	Ethics evaluated by program instructors using NMT Professional Evaluation Form.	NMT/MIT Grade scale: 93-100 84-92 75-83	80% of students scoring 75 or higher on the Professional Evaluation	100%	100%

lecture/lab/clinical work setting consistent with industry/department/program standards.					
Indirect Self-Assessment ESLO 3: Student Exit Survey, NMT 410 Externship, Rick Hoylman & Vanessa Bennett					
Q ESLO 3: Oregon Tech students will make and defend reasonable ethical judgments.					
Performance Criteria	Assessment Methods	Measurement Scale	Minimum Acceptable Performance	Results 2015-2016	Results 2018-2019
Proficiency in the following areas.	Self-assessment on Student Exit Survey.	-High Proficiency -Proficiency -Some Proficiency -Limited Proficiency	80% of students scoring Proficiency or higher.	100%	100%
How has your experience at OT contributed to your knowledge, skills, and personal development in these areas?	Self-assessment n Student Exit Survey.3	-Very much -Quite a bit -Some -Very Little	80% of students scoring “Quite a bit” or better.	100%	100%

Direct Assessment #1 ESLO 3: Klamath Falls Campus, NMT 212, Rick Hoylman and Vanessa Bennett					
ESLO 3: Oregon Tech students will make and defend reasonable ethical judgments.					
Performance Criteria	Assessment Methods	Measurement Scale	Minimum Acceptable Performance	Results	
Theory: Student demonstrates knowledge of different ethical theories and codes.	Ethics assignment evaluated by program instructors using Oregon Tech's Ethics Rubric.	1-4 according to attached criteria	80% of students scoring 3 or higher	100%	100%
Recognition: Student can recognize decisions requiring ethical judgments.	Ethics assignment evaluated by program instructors using Oregon Tech's Ethics Rubric.	1-4 according to attached criteria	80% of students scoring 3 or higher	100%	100%

<p>Logic: Student demonstrates knowledge of the logic of ethical reasoning.</p>	<p>Ethics assignment evaluated by program instructors using Oregon Tech's Ethics Rubric.</p>	<p>1-4 according to attached criteria</p>	<p>80% of students scoring 3 or higher</p>	<p>100%</p>	<p>100%</p>
<p>Judgment: Student can make and support plausible ethical decisions.</p>	<p>Ethics assignment evaluated by program instructors using Oregon Tech's Ethics Rubric.</p>	<p>1-4 according to attached criteria</p>	<p>80% of students scoring 3 or higher</p>	<p>100%</p>	<p>100%</p>

Direct Assessment #2 ESLO 3: Klamath Falls Campus, NMT 312, Rick Hoylman and Vanessa Bennett					
ESLO 3: Oregon Tech students will make and defend reasonable ethical judgments.					
Performance Criteria	Assessment Methods	Measurement Scale	Minimum Acceptable Performance	Results	
Theory: Student demonstrates knowledge of different ethical theories and codes.	Ethics assignment evaluated by program instructors using Oregon Tech's Ethics Rubric.	1-4 according to attached criteria	80% of students scoring 3 or higher	100%	100%
Recognition: Student can recognize decisions requiring ethical judgments.	Ethics assignment evaluated by program instructors using Oregon Tech's Ethics Rubric.	1-4 according to attached criteria	80% of students scoring 3 or higher	100%	100%
Logic: Student demonstrates knowledge of the logic of ethical reasoning.	Ethics assignment evaluated by program instructors using Oregon Tech's Ethics Rubric.	1-4 according to attached criteria	80% of students scoring 3 or higher	100%	100%
Judgment: Student can make and support plausible ethical decisions.	Ethics assignment evaluated by program instructors using Oregon Tech's Ethics Rubric.	1-4 according to attached criteria	80% of students scoring 3 or higher	100%	100%

NOTES:

Students in both the NMT 212 course offered fall term, and NMT 312 course offered winter term in our curriculum map, received a Direct Assessment Ethical Reasoning Assignment. This assignment asked students to identify various ethical codes of conduct consistent with our discipline and our registry organization: The American Association of Radiologic Technologists (ARRT). The assignment presented a scenario the student may face while on externship. The student were asked to identify and describe the ethical issue(s) using the code of ethics. The student described the party or parties involved and discussed their point of view. The student also described possible or alternate approaches to the issue(s). The student chose to defend one of the approaches they think is most appropriate.

Scoring and evaluation was conducted using the PSLO #2 rubric/ELSO 3 rubric following this narrative. Four criteria were used for each student using this rubric and a measurement scale of 1-4. The minimum acceptable performance was 80% of students scoring 3 or higher.

This assessment was conducted in two of the levels of student education and training in the NMMIT program. The Direct Assessment approach was used in the NMT 212 and NMT 312 courses. In addition, an indirect assessment was conducted through the Student Exit Surveys at the end of the academic year prior to students completing their 11 month clinical externship and graduation.

Target performance criteria were 80% of students scoring a 3 or higher. This is consistent with our performance criteria of at least a cumulative score of 80% on our lab practical evaluations administered in each of our programmatic courses at the end of each term.

Performance was evaluated by the instructor teaching that course, as well as another instructor in that department. Results were compared to the last time this PSLO was evaluated, 2015-2016. Results will be discussed and reviewed with both NMMIT faculty. Both NMMIT faculty will investigate and discuss causes for any unacceptable results, and implement a remediation plan to include re-assessment if necessary.

OREGON TECH PROGRAM ASSESSMENT REPORT RUBRIC			
1 – Beginning	2 – Developing	3 – Good	4 – Exemplary
<i>Valid relationship between outcomes and assignment</i>			
Seemingly no relationship between outcomes and assignment.	At a superficial level, it appears the assignment assessed by the measures matches the outcomes, but no explanation is provided.	General detail about how outcomes relate to assignment is provided. For example, the faculty wrote items to match the outcomes, or the instrument was selected “because its general description appeared to match our outcomes.”	Narrative describes assignment and its alignment with outcomes, including providing the assignment in an appendix. Assignment appears to be a natural feature of the course and not inserted arbitrarily. Report describes assignment (including fit with class context) in sufficient detail to see that it is a natural feature of the course (not inserted arbitrarily) and is a reasonable way to assess that outcomes.
<i>Valid relationship between outcomes and rubric</i>			
Seemingly no relationship between outcomes and rubric. (No indication of rubric being used.)	At a superficial level, it appears that an appropriate rubric is used to assess the outcomes, but no explanation is provided.	Some detail concerning the rubric's appropriateness is provided, but description doesn't fully justify the appropriateness of the rubric to evaluation of the outcome and for the course context.	Rubric is provided and shows clear alignment between outcome and rubric elements. Detail provided regarding outcome-to-rubric match. Rubric is used to provide feedback to students (isn't totally disjoint from class goals and feedback).
<i>Types of Measures: 2 Direct, 1 Indirect</i>			
No measures indicated	Most objectives are not assessed via direct measures (only with indirect measures).	Most objectives assessed with at least one direct measure and one indirect measure.	All objectives assessed using at least two direct measures (e.g., tests, essays) and one indirect measure.
<i>Alignment of assessment across sites/modes</i>			

No discussion of alignment of assessment processes across sites.	Report includes data from all sites where the program is offered.	Reports includes data for each outcome from all sites where the program is offered.	Similar measures are used at all multiple sites/modes where program is offered. Differences in methodology between sites are clearly justified. [Or: Program is only at one site/mode.]
<i>Specification of desired results for objectives</i>			
No desired results for objectives stated.	Statement of desired result in qualitative terms (e.g., student growth, comparison to previous year's data, comparison to faculty standards, performance vs. a criterion), but no specificity (e.g., students will grow; students will perform better than last year).	Desired result specified quantitatively (80% of our students will score a "Proficient" or "Highly Proficient" on rubric, our students will gain ½ standard deviation from junior to senior year). Desired result is not justified. ("Gathering baseline data" is acceptable for this rating.)	Desired result specified AND justified (e.g., "Last year the typical student scored 20 points on measure x. The current cohort underwent more extensive coursework in the area, so we hope that the average student scores 22 points or better.")
<i>Data collection and research design</i>			
No information is provided about data collection process or data not collected.	Limited information is provided about data collection such as who and how many took the assessment. (e.g. term and number of students), but not enough to judge the veracity of the process.	Enough information is provided to understand the data collection process, such as a description of the sample size, scoring protocol (who scored student work), and course conditions (student motivation to participate). Nevertheless, methodological flaws are evident such as unrepresentative sampling.	The data collection process is clearly explained (e.g. term, number of students, and is appropriate to the specification of desired results (e.g., representative sampling, adequate motivation).
<i>Reliability evidence</i>			
No additional psychometric or reliability data provided.	Report identifies process for scoring (e.g. identifies raters).	Reliability estimates (inter-rater comparisons) provided for some scores, or an externally validated rubric used. Reports states how efforts have been made to improve reliability (e.g., raters were trained on rubric).	Reliability (inter-rater comparisons) used for all scoring, with clear evidence of both internal agreement. Or, externally validated rubric used with trained scorers and inter-rater agreement. (Raw data provided in an appendix.)
<i>Presentation of results</i>			
No results presented	Results are presented in summary form with respect to performance criteria. (e.g. "Students performance met our criteria.")	Results are presented, and they directly relate to the objectives and the desired results for objectives (e.g. 78% of students scored "Proficient" or "Highly Proficient," which fall below	Results are presented, and they directly relate to objectives and the desired results for objectives, are clearly presented, and were derived statistical analyses, as appropriate.

		our desired results), but presentation is sloppy or difficult to follow. Statistical analysis may or may not be present. Raw data is not provided.	Raw data is provided in attachments.	
<i>History of Results</i>				
No results presented	Only current year's results provided.	Past iteration(s) of results provided for some assessments in addition to current year's.	Past iteration(s) of results (e.g., a prior year's) provided for majority of assessments in addition to current year's.	
<i>Document how results are shared with faculty/stakeholders</i>				
No evidence of communication of results to faculty and others.	Results from assessment provided to limited number of faculty or communication process with program faculty is unclear (not in minutes)	Results from assessment provided to all faculty, and mode (e.g. program meetings, e-mails) and details of communication are clearly described (The discussion highlights are documented).	Information provided to all faculty, mode and details of communication clear. In addition, information shared with others such as advisory committees, other stakeholders, or to conference attendees (discussion highlights documented along with additional assessment recommendations).	
<i>Interpretation of results</i>				
No interpretation attempted	Limited narration of results. Interpretation attempted, but the interpretation does not refer back to the objectives or desired results of objectives. Or, the interpretations are clearly not supported by the methodology and/or results.	Some narration of assessment analysis and results. Interpretation of results seem to be reasonable inferences given the objectives, desired results of objectives, and methodology (only reviewed by a single faculty member).	A complete and clear narration and analysis of the assessment results. Interpretations of results seem to be reasonable given the objectives, desired results of objectives, and methodology. Plus, multiple faculty interpreted results (not just one person). And, interpretation includes discussion of context: how classes/ activities might have affected results (Documents who reviewed the data and the comparison results between reviewers).	

8. Evidence of Improvement in Student Learning.

If this is an outcome being assessed on your standard schedule, did you have past results from this outcome? If this is a specifically scheduled “closing the loop” assessment, how do this year’s results compare with the results that prompted improvements?

Did you have past action plans? Can you say that data supports that those plans resulted in improvements?

Look backwards: Discuss the last time that outcome was assessed:

- Were changes recommended?
- Were those changes implemented?
- If so, was improvement seen?

The last time the ESLO #3/PSLOs #2 for Ethical Reasoning and PSLO #1 for Radiation Safety Precautions were evaluated was in the 2015-2016 Assessment report. All results in 2015-2016 were within acceptable ranges. No additional changes needed to be implemented. Results for 2018-2019 were similar and consistent.

OREGON TECH PROGRAM ASSESSMENT REPORT RUBRIC

Closing the loop

1 – Beginning	2 – Developing	3 – Good	4 – Exemplary
Mention is made of past curricular or programmatic changes carried out in response to prior assessment data. No evidence is provided to evaluate whether these changes resulted in improvements in student learning.	Some evidence is presented to suggest improvement in student learning in response to program modifications. Evidence is vague and/or not clearly presented.	Evidence, from direct measures, suggesting learning curricular and/or pedagogical modifications, RE assessed, and found that student learning improved. Lack of clarity regarding the interventions or methodological issues (unrepresentative sampling, concerns regarding student motivation, etc.) leave legitimate questions regarding the improvement interpretation.	Strong evidence, from direct measures, supporting substantive and/or pedagogical modifications, RE-assessed, and found that student learning improved. The rationale and explanation of the modifications leading to the change are clearly laid out. The methodology is of sufficient strength that most reasonable alternative hypotheses can be ruled out (e.g., sampling concerns, validity issues with instrument or student motivation). In essence, the improvement interpretation can withstand reasonable critique from faculty, curriculum experts, assessment experts, and external stakeholders.

9. Data-driven Action Plans: Changes Resulting from Assessment

PSLO #1: I forgot to perform a Direct Assessment #2 for this PSLO for the sophomore class in the NMT 215 course. I need to incorporate this in the assessment next time this PSLO is in the rotation. See below **.

PSLO #2: None. See below **

ESLO #3: None. See below **

** The only recommendation here is to increase the sample size for the Indirect Assessment using Student Exit Surveys at the end of the year. We only had (6) students participate out of (16) students on externship. This resulted in a low sample size. Based on experience, I do not believe this would have changed the results, but it would be nice to have higher participation. If I know when the Assessment department plans to send these surveys out, I can encourage students to participate. The earlier, the better. These may have been sent too late in the school year/term.

OREGON TECH PROGRAM ASSESSMENT REPORT RUBRIC

Weaknesses result in action plans

1 – Beginning	2 – Developing	3 – Good	4 – Exemplary
Outcomes are identified, but no improvement plans are outlined.	Some areas where performance is below targets results in plans to collect further data, program improvements, or assessment improvements.	All areas where performance is lower than targets result in either (1) plans to collect further data, (2) program improvements, or (3) assessment method improvements. [Or: no areas fall below performance thresholds.]	All areas where performance is lower than targets result in either (1) plans to collect further data, (2) program improvements, or (3) assessment method improvements. Additionally, further opportunities for program improvement are identified, whether based that exceed performance targets but are still weak, or other inputs.

Action plans are linked to assessment findings

No mention of any improvements to program, curriculum, or courses.	Examples of improvements documented, but they are poorly described, and the link between them and assessment findings is not clear.	Plans to improve) are documented and directly related to the findings of assessment. However, improvements lack close ties with specific assessment findings, lack details, or are developed simply based on "best intuition" of program faculty.	Plans to make program, curricular, or course improvements or plans to improve) are documented and clearly relate to findings of assessment (e.g. specific criteria that fall below desired performance levels). Improvements draw upon knowledge of best practices in the field to maximize likelihood of success and make sense in the context of a rational, vertically-designed curriculum.
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Plans for improvement of assessment.

No recommendations in improving the program assessment practices.	Some critical evaluation of past and current assessment practices, including acknowledgment of flows. Minimal or surface-level recommendations in improving the program assessment practices.	Critical evaluation of past and current assessment, including acknowledgement of flaws. Some evidence of recommendations for revision improving the program assessment practices.	Critical and specific evaluation of past and current assessment, including acknowledgement of flaws. Detailed recommendations for the improvement of the assessment practices in the program (changing methodology, collecting supplementary data, etc.) are outlined, drawing upon
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			insightful and specific analysis of flaws in past assessment and best practices in academic assessment.
<i>Accountability on improvement</i>			
No information is there on how the modifications will be re-evaluated, when and by whom.	Incomplete information is included on implementation timelines, responsible parties, and re-assessment plans.	Most information on implementation plan is included (timeline, responsible parties, re-assessment schedule) is included.	All modifications include timeline for implementation, names of responsible parties, and identify when re-assessment will occur (whether at the next time the outcome comes up in the assessment cycle or sooner).
<i>Planning/budgeting alignment.</i>			
No attempt at aligning improvement plans with planning and budgeting processes. No recognition or discussion of resource needs to implement improvement plan.	Minimal or vague attempt at integrating improvement plans and planning and budgeting processes. (Acknowledgment that resources may be required, but doesn't specify or quantify then.)	Meaningful attempt at integrating improvement plans and planning and budgeting processes. Plan begins to quantify resource needs.	Clear and extensive improvement plan articulates needed resources and implementation plan explicitly feeds in to planning and resource request processes (e.g. staffing, equipment, etc.).

Ethics Homework Assignment

For this assignment, please use the ARRT code of ethics. The attached rubric will be used to evaluate your proficiency on this assignment.

- I. List three provisions in the professional ethics code that you think are very important. For each provision, explain why you have selected it as important. Give an example of how this provision might be applied in a professional situation.

Provision 1:

- a. List provision
- b. Reason for importance and relevance to profession
- c. Applied example illustrating importance

Provision 2:

- a. List provision
- b. Reason for importance and relevance to profession
- c. Applied example illustrating importance

Provision 3:

- a. List provision
- b. Reason for importance and relevance to profession
- c. Applied example illustrating importance

- II. Read the ethics scenario below, and answer the questions which follow it.

Ethics Scenario

A patient arrives in the Nuclear Medicine Department who does not speak English. The patient is scheduled for a 12:00 p.m. appointment, which happens to be the same time the technologist who is conducting the exam was hoping to take lunch. You over hear the disgruntled technologist state that he will not take all the appropriate pictures, because the patient clearly is not from this country and probably does not have insurance to pay for the exam anyway. You watch as the technologist, who clearly seems "put out", puts an excessively high dose in the dose calibrator and gradually raises it up until the dose calibrator reads an acceptable amount. He makes the statement, "That's good enough", and he continues to say he will also cut the imaging time short, so he will be sure to make his lunch on time.

When the exam is complete, you go to lunch with the technologist and hear the technologist talking bad about the patient by name and that patient's exam to a friend who joins you for lunch.

1. Using your professional code of ethics, describe the ethical issue(s).
2. Describe the parties who are or should be involved in the issue(s) and discuss their point(s) of view.
3. Describe and analyze possible/alternative approaches to the issue(s).
4. Choose one of the approaches that you think is best and explain the benefits and risks.

OIT Student Professional Evaluation Form

Faculty Evaluator(s)/Department: R. Hoylman & V. Bennett

Date: PSLO #2 Direct Assessment #1. NMT 215. Winter

Scale:
 93-100 Progressing beyond expectations
 84-92 Meets expectations
 75-83 Marginally meets expectations
 0-74 Fails to meet expectations

Student ID	Last Name	First Name	Major	9) Professional Ethics and Behavior
Sophomores	NMT 215			
			BNUC	92%
			BNUC	92%
			BNUC	92%
			BNUC	92%
			BNUC	92%
			BNUC	92%
			BNUC	92%
			BNUC	88%
			BNUC	92%
			BNUC	75%
			BNUC	92%
			BNUC	92%
			BNUC	92%
			BNUC	92%
			BNUC	92%

OIT Student Professional Evaluation Form

Faculty Evaluator(s)/Department: R. Hoylman & V. Bennett

Date: PSLO #2 Direct Assessment #2. NMT 311 Fall Term

Scale:
 93-100 Progressing beyond expectations
 84-92 Meets expectations
 75-83 Marginally meets expectations
 0-74 Fails to meet expectations

Student ID	Last Name	First Name	Major	9) Professional Ethics and Behavior
Juniors	NMT 311			
			BNUC	92%
			BNUC	92%
			BNUC	92%
			BNUC	92%
			BNUC	92%
			BNUC	92%
			BNUC	92%
			BNUC	92%
			BNUC	92%
			BNUC	92%
			BNUC	92%
			BNUC	92%
			BNUC	92%
			BNUC	92%
			BNUC	84%