Oregon Institute of Technology
Medical Imaging Technology Department
Nuclear Medicine Technology Program Assessment
2007-2008

1. Introduction

The Nuclear Medicine Technology (NMT) program began accepting students into the program in 1999 and graduated its first class of students in 2001. The NMT program is the only Bachelor degree program in Nuclear Medicine Technology in the Northwest.

Enrollment trends from 2002-2006 have varied from 39 to 54 students. The number of graduates has gradually increased from 5 students in 2002, as many as 21 students in 2004, to 18 students in 2006. The graduate salary range has been $42,000 to $67,000 with a mean of $53,920 per year.

II. Program Purpose, Objectives and Student Learning Outcomes:

The Nuclear Medicine faculty consists of two instructors who met formally in the fall of 2007 and several times informally since then and agreed to adopt the student learning outcomes listed below.

Nuclear Medicine Technology Program Purpose

The Bachelor of Science program in Nuclear Medicine Technology at Oregon Institute of Technology provides graduates with the knowledge and clinical skills necessary to become competent, ethical and caring professionals in the field of Nuclear Medicine.

Program Educational Objectives:

1. The program prepares students to perform as compassionate and caring health care professionals.

2. The program prepares our graduates to sit for the ARRT and NMTCB board exams.

3. The program prepares students who think critically, communicate effectively and demonstrate professional ethics.

4. The program prepares students to utilize diagnostic techniques, sound judgment and good decision making to provide patient services.

5. The program prepares students to be aware of radioactive exposure to themselves and patients.

Student Learning Outcomes:

1. The student will demonstrate proficiency in providing patient care.

2. The student will demonstrate knowledge of radiation safety precautions and ALARA concepts.

3. The student will demonstrate recognition of, and adherence to, ethical and professional responsibilities.

4. The student will perform Nuclear Medicine imaging procedures according to program and /or departmental protocol.

5. The student will demonstrate proficiency in obtaining a relevant patient history.

6. The student will demonstrate knowledge of various radiopharmaceuticals and their uses in nuclear medicine imaging.

7. The student will demonstrate knowledge, understanding, and appropriate uses of instrumentation used in a Nuclear Medicine department.

8. The student will demonstrate knowledge of quality control procedures for instrumentation used in Nuclear Medicine.

9. The student will demonstrate knowledge of radiation therapy procedures used in Nuclear Medicine.

Additional Student Learning Opportunities

Students in the Nuclear Medicine Technology Program are given the opportunity to attend a spring conference through the Northwest Chapter of the Society of Nuclear Medicine. Students also have the opportunity to attend other meetings throughout the year sponsored by various other organizations such as Northwest Imaging Forums, Cardinal Health, and Educational Symposium Institute.

III. Three-Year Cycle for Assessment of Student Learning Outcomes

The following are the nine main outcomes which will be assessed at a rate of three each per year on a three-year cycle, as listed in Table 1 below.

Nuclear Medicine Technology Student Learning Outcomes Assessment Schedule	**2007-2008**	**2008-2009**	**2009-2010**
1. The student will demonstrate proficiency in providing patient care.	**X**		
2. The student will demonstrate knowledge of radiation safety precautions and ALARA concepts.			**X**
3. The student will demonstrate recognition of, and adherence to, ethical and professional responsibilities.			**X**
4. The student will perform Nuclear Medicine imaging procedures according to program and /or departmental protocol.		**X**	
5. The student will demonstrate proficiency in obtaining a relevant patient history.		**X**	
6. The student will demonstrate knowledge of various radiopharmaceuticals and their uses in nuclear medicine imaging.	**X**		
7. The student will demonstrate knowledge, understanding, and appropriate uses of instrumentation used in a Nuclear Medicine department.	**X**		
8. The student will demonstrate knowledge of quality control procedures for instrumentation used in Nuclear Medicine.		**X**	
9. The student will demonstrate knowledge of In Vitro procedures.			
10. The student will demonstrate knowledge of radiation therapy procedures used in Nuclear Medicine.			**X**

Table 1. Nuclear Medicine Technology Education Cycle

IV. Summary of 2007-2008 Assessment Activities

A formal assessment was conducted by the Nuclear Medicine Technology faculty of one student learning outcome during the fall term of 2007, one during winter term 2008 and one during spring term 2008.

Student Learning Outcome #1: The student will demonstrate proficiency in providing patient care.

The Nuclear Medicine Faculty conducted an analysis of where this particular outcome is reflected in the curriculum. The mapping of this outcome in the Nuclear Medicine courses can be found in Appendix A., Student Learning Outcome-Course Matrices, Appendix A, Table A1. One direct assessment activity was conducted for junior standing students in the Nuclear Medicine Technology program and senior standing students on externship in the Nuclear Medicine Technology program.

Direct Measure #1

Students who are completing their fourth and final year of training in the Nuclear Medicine Technology program do so in the NMT 410 Externship course. These externship sites are located throughout the West coast of the United States. The students' mentor at the externship facility, the clinical coordinator or instructor, performs a professional evaluation on each student each term at those respective hospitals. Item number 14 on the professional evaluation is *Interpersonal Relationships/Patient Care.* We asked our clinical instructors to focus on this category as it relates to patient care and to identify if the student was meeting any of the seven performance criteria in this category by placing a check mark next to the criteria or circling the criteria if the student was not consistently meeting it. These results were sent in to the Nuclear Medicine faculty from each of the various hospital externship sites for analysis.

The Nuclear Medicine Technology faculty analyzed these data. A class average benchmark of at least 80% or higher was considered the minimum acceptable performance in each performance criteria for category item #14 on the professional evaluation.

Evaluation of these data revealed that our students on hospital externship in their fourth and last year of training are consistently providing a very high quality of patient care in the areas of patient interaction, patient safety, judging the patients' understanding of the procedure, making patients feel comfortable, and respecting & adhering to HIPPA laws. A class average greater than our benchmark of 80% was achieved for each performance criteria with four out of the seven performance criteria achieving a 100%. This reflects industry input and feedback from professionals in the field on how well our students are demonstrating patient care skills within a clinical setting.

Direct Measure #2

The Nuclear Medicine Technology faculty assessed the junior standing students in the program in the NMT 311 In Vivo studies course utilizing item #14 on the student professional evaluation: *Interpersonal Relationships/Patient Care.* Input from both Nuclear Medicine faculty as well as the staff at Sky Lakes Medical Center across the street where the students go for their required clinical rotations was used to assess students on the professional evaluation. The performance criteria and results are listed in the Outcome Assessment Summary for NMT 311 In Vivo studies. The performance category, *Tqke a relevant and exhaustive patient history in lab,* was taken from each students' lab practical evaluation in the NMT 311 In Vivo studies course.

The Nuclear Medicine technology faculty routinely assesses student progress in laboratory exercises by administering a lab practical exam each mid term and at the end of the term. A patient history evaluation is done for each student on this lab practical and these data were used as one of the performance criteria in the NMT 311 In Vivo Procedures Outcome Assessment summary for Student Learning Outcome #1.

Our minimum acceptable performance for each performance criteria was a class average of 80% or greater. Our junior students exceeded this benchmark in each performance criteria. These data indicate that, on average, our students demonstrated good patient history skills as well as patient care skills in lab as well as on their clinical rotations at Sky Lakes Medical Center. The minimum acceptable performance for each performance criteria was exceeded. Therefore, no actions were required.

Student Learning Outcome #6: The student will demonstrate knowledge of various radiopharmaceuticals and their uses in nuclear medicine imaging.

The Nuclear Medicine Faculty conducted an analysis of where this particular outcome is reflected in the curriculum. The mapping of this outcome in the Nuclear Medicine courses can be found in Appendix A., Student Learning Outcome-Course Matrices, Appendix A, Table A2. One direct assessment activity was conducted for junior standing students in the Nuclear Medicine Technology program and senior standing students on externship in the Nuclear Medicine Technology program.

Direct Measure #1:

The material covered on this assessment is primarily taught in the NMT 215 Radiochemistry/Radiopharmacy course taught fall term of the NMT students' sophomore year.

This assessment was a radiopharmaceutical quiz administered to my junior students in the NMT 325 course and senior students on their externship in the NMT 410 course. The quiz was the same for both courses. The quiz consisted of four categories of five questions each for a total of twenty questions. The categories were: *Radiopharmaceutical QC, Methods of Localization, Modes of Production* and *Critical Organ Uptake.* The benchmark for this assessment was to get at least 4 of the 5 questions right in each category. The juniors students failed to achieve at least an 80% in **ALL** categories: *Radipharmaceutical QC (75%), Methods of Localization (68.8%), Critical Organ Uptake (56.3%),* and *Modes of Production (50%).*

The externship students all performed very well and met the benchmark of at least 80% in the following categories: *Radipharmaceutical QC (94.4%), Methods of Localization (100%), and Critical Organ Uptake (100%).* However the externship students did not meet the 80% benchmark in one category: *Modes of Production (77.8%).*

I will be communicating these results with the other NMT faculty during the week of May 5 through May 9. For the junior students, my recommendation is to incorporate questions specifically related to the material in these categories in each of our courses for the remainder of this term and monitor the results. If continued review and assessment of these data shows an improvement of the results, we will then apply the same process to all junior and senior externship students next year.

For the externship students, since the minimum performance for the category *Modes of Production* was NOT met for those externship students in our program, I recommend that we incorporate more questions on *Modes of Production* on weekly quizzes and term exams in the junior level courses: NMT 311, NMT 312, NMT 325 and NMT 410 for the students next year. In addition, for the students who took this assessment this term in the NMT 410 course, I plan to let the students know I am going to ask questions on this material again, and ask five more questions on the next exam on May 7th, 2008 related to this material before they complete their externship and graduate in June.

I believe a concerted and focused effort to incorporate and review this material in subsequent courses from where the course was taught will result in an improvement of the scores in this assessment.

Student Learning Outcome #7: The student will demonstrate knowledge, understanding, and appropriate uses of instrumentation used in a nuclear medicine department.

The Nuclear Medicine Faculty conducted an analysis of where this particular outcome is reflected in the curriculum. The mapping of this outcome in the Nuclear Medicine courses can be found in Appendix A., Student Learning Outcome-Course Matrices, Appendix A, Table A3. One direct assessment activity was conducted for junior standing students in the Nuclear Medicine Technology program and senior standing students on externship in the Nuclear Medicine Technology program.

Direct Measure #1

The material used for this assessment was originally taught in the NMT 225 course spring term of the sophomore year.

I administered an assessment quiz to our junior students in the NMT 367 course and our senior externship students in the NMT 410 course. I used the same quiz for both courses. The quiz consisted of twenty questions in four categories; five questions for each category. The categories are: *Collimators, Gamma Camera Instrumentation, Well counter/Dose calibrator QC,* and *Gas Detectors.* The minimum acceptable performance for each category was to answer at least four of the five questions in each category correct. Therefore the benchmark for each category was an 80%.

In each of the four categories, the junior students failed to achieve the minimum acceptable performance of at least 80%, or getting at least four of the five questions right, in each category. The students scored highest on the section of *Collimators (53.3%)* and lowest in the *Gas Detectors (33.3%)* category. However, all results were below the minimum acceptable performance criteria.

For our senior externship students, the minimum performance criteria were met in two categories: *Collimators (89.5%)* and *Well counter/Dose Calibrator QC (89.5%).* However, these criteria were not met in the other two categories: *Gamma Camera Instrumentation (73.7%)* and *Gas Detectors (31.6%).* The weakest area was by far the section on *Gas Detectors (31.6%)*.

For the junior students this term, I plan to have the students review the material on these sections and ask similar questions again before the end of this term. I will continue to ask questions on this material while they are on their 11month externship in the NMT 410 course this coming academic year. In addition, I plan to incorporate similar questions on subsequent exams and quizzes for our junior students next year in the NMT 311, NMT 312, and NMT 325 courses.

For my senior externship students, I have one more test to administer to my Externship students in the NMT 410 Externship course. I plan to add ten more similar questions based on Well counter and Dose calibrator quality control and Gas detectors and see how the students perform.

The students have so much information they have to study for each term that they don’t review previous term’s material like the should unless we hold them accountable for that information by regularly including questions on that material on weekly quizzes or exams in subsequent courses from which that material was originally taught.

I intend to review and assess Nuclear Medicine instrumentation material for the junior standing students next year as well as those who are going to be on externship in the NMT 410 course. This will include having the students review the material and then

testing them on that material in addition to the material we will be covering in that particular course.

Institutional ISLO #8: Critical Thinking

Direct Measure #1

A critical thinking rubric was used for this assessment ISLO. There were six performance criteria: *Identifies and explains the problem/question/issue, Recognizes stakeholders and contexts, Frames personal responses and/or acknowledges other perspectives, evaluates assumptions, evaluates evidence,* and *evaluates implications/conclusions/consequences.*

Students were evaluated for each performance criteria using a scale of 1-4 with a (1) being no/limited proficiency, (2) being some proficiency, (3) exhibits proficiency, and (4) being high proficiency. The minimum acceptable performance criterion for this exercise was a score of at least 3 or 4 which is an 80%.

For this ISLO #8 Critical Thinking assessment exercise, our program chose to utilize our mid term lab practical in our NMT 312 course to assess critical thinking skills. In this exercise, students have to:

1. Take a patient history in five minutes, and based on that history, identify what study they are supposed to be performing.

2. Discuss in detail, various patient positions that may be used, different times images can be taken, various radiopharmaceuticals that can be used, and the strengths and weaknesses of each perspective.

3. Discuss and set up acquisition parameters for that patient study and the benefits and drawbacks of those parameters.

4. Choose the correct processing protocols, process the data correctly, label all images correctly, and discuss whether the study is normal or abnormal and potential consequences for the patient.

These students were scheduled for their lab practical on two dates: February 4 and 5th, 2008 in the Nuclear Medicine lab. Each student was given 20 minutes on a timer to complete the lab practical.

The results from this assessment were encouraging. We exceeded the Minimum Acceptable Performance of 80% of students with a score of 3 or 4 in all categories except the last one. All results showed a performance of 100% in four categories and 93.3% in Category 4: Evaluates Assumptions. However, we did not meet our minimum acceptable performance in Category 6: *Evaluates implications, conclusions, and consequences*. The results from this category were 73.3%.

Based on these data, the students' seems to do well identifying what exam they are doing based on taking an accurate patient history. The students also appear to be very adept at understanding and explaining various perspectives and assumptions when positioning patients for exams and setting up the acquisition.

Finally, this assessment demonstrates that our students were very good at processing the data on the computer, labeling the images, and explaining what they did.

However, the students seem to be weak on evaluating and explaining the implications of the processed data and results. In other words, only 73.3% of the students were able to discuss how the resultant processed data made a difference in the patients' diagnosis and treatment/follow-up.

In our lectures and labs, we spend a lot of time discussing indications for exams, patient preparation for exams, how the exams are to be performed, and how to acquire and process the data. However, this exercise has shown that in addition to what we are already doing, we need to focus a little more attention on **"what do these data mean".**

We discuss patient images and results in our NMT 311, NMT 312, and NMT 313 courses for our junior students in the Nuclear Medicine Program. I recommend the following changes:

1. In the lab, once the processed data is completed, we will require the students to discuss the implications and consequences of the results if any.

2. In the lectures for these courses, when we discuss the images, we will include a discussion of the implications and consequences of the results and what they mean for the patient. On the quizzes and exams for each of these courses, we will incorporate 10% of the questions to include scenarios in Nuclear Medicine and the implications and consequences of those scenarios.

V. Evidence of Student Learning

During the 2007-2008 academic year, the faculty assessed student learning outcomes #1, #6, #7 and ISLO #8 and observed the following:

Student Learning Outcome #1: The student will demonstrate proficiency in providing patient care.

Strengths: All of the students in our junior class exceeded the minimum performance criteria and demonstrated excellent skills in taking an exhaustive and accurate patient history in a reasonable amount of time.
All of our Externship students exceeded the minimum acceptable performance of at least 80% on category item #14: *Interpersonal Relationships/Patient Care* on their professional evaluation. This evaluation was administered by the students' clinical instructor at that hospital.

Areas needing improvement: There were not any areas for SLO #1 that required or demonstrated the need for improvement at this time.

Student Learning Outcome #6: The student will demonstrate knowledge of various radiopharmaceuticals and their uses in nuclear medicine imaging.

Strengths: The students demonstrated strengths in the areas of methods of localization, critical organ exposure, and radiopharmaceutical QC for this SLO.

Areas needing improvement: Modes of Production seemed to be the weakest area for our students for this SLO.

Plans for improvement: Our short term plan for this term is to have the students review this material and give an exam to these students again this term and re-evaluate. Our longer term plan for next year is to incorporate more of an emphasis in lecture on the various areas of radiopharmaceuticals and their uses in subsequent courses from which the material was originally taught. In addition, we plan to incorporate questions on quizzes and exams that directly relate to this material. The course in which we plan to implement this process will be NMT 311, 312 and 313.

Student Learning Outcome #7: The student will demonstrate knowledge, understanding, and appropriate uses of instrumentation used in a nuclear medicine department.

Strengths: The strengths identified for this SLO were: understanding of collimators and well counter and dose calibrator QC. The students performed very well in demonstrating their knowledge, understanding and uses for these types of instrumentation.

Areas needing improvement: The areas of gas detectors and gamma camera instrumentation were the weakest areas revealed by this assessment; particularly for the junior students.

Plans for improvement:

For the junior students this term, we plan to have the students review the material on these sections and ask similar questions again before the end of this term. We will continue to ask questions on this material while they are on their 11month externship in the NMT 410 course this coming academic year. In addition, we plan to incorporate similar questions on subsequent exams and quizzes for our junior students next year in the NMT 311, NMT 312, and NMT 325 courses.

For our senior externship students, we have one more test to administer to our Externship students in the NMT 410 Externship course. We plan to add ten more similar questions based on Well counter and Dose calibrator quality control and Gas detectors and see how the students perform.
We intend to review and assess Nuclear Medicine instrumentation material for the junior standing students next year as well as those who are going to be on externship in the NMT 410 course. This will include having the students review the material and then

test them on that material in addition to the material we will be covering in that particular course.

In addition, we plan to develop technical manuals for checking in radioactivity, doing surveys and wipe testing, and getting radioactivity from the hospital. The students will be able to review these manuals to improve their knowledge of these procedures and concepts.

Institutional ISLO #8: Critical Thinking

Strengths:

There were six performance criteria for this assessment and the students exceeded the minimum acceptable performance of at least 80% in each of the categories except one. The students were able to identify the problem/issue, recognize contexts, acknowledge other perspectives, evaluate assumptions, and evaluate the evidence. Four of the six categories the students scored 100%.

Areas needing improvement:

The students scored 73.3% on the performance criteria of: *Evaluates implications, conclusions, and consequences* of the data. This was below the minimum performance criteria of at least 80%. As it applies to our assessment, the students seems to be able to identify the study on the lab practical, recognize contexts and other perspectives and they also did well in evaluating assumptions for the study they were performing as well as processing the data. However, when it came down to “what does this result mean for the patient or what are the consequences of a positive or negative result”, they struggled a little bit here.

Plans for improvement:

The faculty recommends the following changes:

1. In the lab, once the processed data is completed, we will require the students to discuss the implications and consequences of the results if any.

2. In the lectures for these courses, which will include NMT 311, NMT 312, NMT 313, NMT 325 and NMT 367, when we discuss the images, we will include a discussion of the implications and consequences of the results and what they mean for the patient. On the quizzes and exams for each of these courses, we will incorporate 10% of the questions to include scenarios in Nuclear Medicine and the implications and consequences of those scenarios. These scenarios will include challenging patients who may require therapeutic options and other correlating exams.

VI. Changes Resulting from Assessment

Student Learning Outcome #6: The student will demonstrate knowledge of various radiopharmaceuticals and their uses in nuclear medicine imaging.

I repeated the assessment of SLO #6 for my junior and senior externship students in the NMT 325 and NMT 410 courses. For the junior students, the scores improved across the board in all performance categories and the students met the minimum performance criteria of at least an 80% in each category. Therefore, no further action is required at this time.

For the senior students on externship in the NMT 410 course, they also improved their scores across the board and met the minimum performance criteria of at least an 80% in all performance criteria. Therefore, no further action is required at this time either.

Student Learning Outcome #7: The student will demonstrate knowledge, understanding, and appropriate uses of instrumentation used in a nuclear medicine department.

This assessment revealed that the junior students in the NMT 325 course met the minimum performance requirements for two of the categories (*Collimators* and *Gamma Camera Instrumentation*) but still failed to meet them in the other two categories (*Well counter/Dose calibrator QC* and *Gas Detectors*). In these two categories, the scores improved (*Well Counters/Dose Calibrator QC* 46.7% to 66.7% and *Gas Detectors* 33.3% to 73.3%) but they were still below the minimum performance criteria of at least 80%.

This assessment also revealed that the senior externship students in the NMT 410 course improved their scores to at least an 80% in each of the performance criteria categories except the last one: *Gas Detectors (31.6%* to *73.7%)*. Since they are all graduating and completing their externship training in the next two weeks, I am not too concerned about this result nor will I have much opportunity to re-assess this area again before they are done. I will encourage them to review this material once again as they prepare for their national board exams.

To summarize, some improvement occurred simply by having the students review the material on their own without additional class time review, but more work is needed for future assessment and success as outlined in the SLO #7 Outcome Assessment Summary: *Actions to be Taken* 5/1/2008.

VII. Appendices

Appendix A. Table A1

Student Learning Outcome #1: The student will demonstrate proficiency in providing patient care. Table A1 demonstrates the mapping of this outcome to Nuclear Medicine courses.

NMT Patient Care course	Fall	Winter	Spring	Summer
Sophomore Year				
NMT 212 Biophysics				
NMT 217 Patient Care	X			
NMT 205 Administration				
NMT 215 Radiopharm				
NMT 225 Instrumentation				
NMT 256 Cardiovascular			X	
Junior Year				
NMT 311 In Vivo	X			
NMT 312 In Vitro		X		
NMT 367 PET		X		
NMT 355 CT				
NMT 335 X sectional anatomy				
NMT 325 Spect				
NMT 313 Therapeutics			X	
NMT 388 Extern Prep			X	
Senior Year				
NMT 410 Externship	X	X	X	X

Appendix A. Table A2

Student Learning Outcome #6: The student will demonstrate knowledge of various radiopharmaceuticals and their uses in nuclear medicine imaging.

NMT Patient Care course	Fall	Winter	Spring	Summer
Sophomore Year				
NMT 212 Biophysics				
NMT 217 Patient Care				
NMT 205 Administration				
NMT 215 Radiopharm		X		
NMT 225 Instrumentation				
NMT 256 Cardiovascular			X	
Junior Year				
NMT 311 In Vivo	X			
NMT 312 In Vitro		X		
NMT 367 PET		X		
NMT 355 CT				
NMT 335 X sectional anatomy				
NMT 325 Spect				
NMT 313 Therapeutics			X	
NMT 388 Extern Prep				
Senior Year				
NMT 410 Externship	X	X	X	X

Appendix A. Table A3

Student Learning Outcome #7: The student will demonstrate knowledge, understanding, and appropriate uses of instrumentation used in a nuclear medicine department.

NMT Patient Care course	Fall	Winter	Spring	Summer
Sophomore Year				
NMT 212 Biophysics				
NMT 217 Patient Care				
NMT 205 Administration				
NMT 215 Radiopharm				
NMT 225 Instrumentation			X	
NMT 256 Cardiovascular			X	
Junior Year				
NMT 311 In Vivo	X			
NMT 312 In Vitro		X		
NMT 367 PET		X		
NMT 355 CT				
NMT 335 X sectional anatomy				
NMT 325 Spect			X	
NMT 313 Therapeutics			X	
NMT 388 Extern Prep				
Senior Year				
NMT 410 Externship	X	X	X	X

VII. Appendices

Appendix B: Raw data score

Critical Thinking Summary

Learning Outcome Critical Thinking **Coordinator** Rick Hoylman
Number of Students 15
Collection Date 2/4/2008 & 2/5/2008
Course Number NMT 311

Performance Criteria	Assessment Methods	Measurement Scale	Minimum Acceptable Performance	Results
1. Identifies and explains problem/question/issue	NMT 312 In Vitro Studies Mid Term Lab Practical	Critical Thinking rubric scale of 1-4	80% of students with a 3 or 4 score	100
2. Recognizes stakeholders and contexts	NMT 312 In Vitro Studies Mid Term Lab Practical	Critical Thinking rubric scale of 1-4	80% of students with a 3 or 4 score	100
3. Frames personal responses and/or acknowledges other perspectives	NMT 312 In Vitro Studies Mid Term Lab Practical	Critical Thinking rubric scale of 1-4	80% of students with a 3 or 4 score	100
4. Evaluates assumptions	NMT 312 In Vitro Studies Mid Term Lab Practical	Critical Thinking rubric scale of 1-4	80% of students with a 3 or 4 score	93.3
5. Evaluates evidence	NMT 312 In Vitro Studies Mid Term Lab Practical	Critical Thinking rubric scale of 1-4	80% of students with a 3 or 4 score	100
6. Evaluates implications, conclusions, and consequences	NMT 312 In Vitro Studies Mid Term Lab Practical	Critical Thinking rubric scale of 1-4	80% of students with a 3 or 4 score	73.3