

**ASSESSMENT REPORT
CENTRAL NEW MEXICO COMMUNITY COLLEGE**

The purpose of this form is to provide a written summary of your assessment results for the current assessment cycle.

Fall 2011 – Spring 2012
(Assessment Period Covered)

6/14/2012
(Date Report Submitted)

Choose ONE of the following 3 areas for this assessment report and insert the name of the general education area, certificate, degree or discipline on the appropriate line:

See definitions for each category in Assessment Process document

Gen Ed Area (see definitions) _____ AA/AS <input type="checkbox"/> AAS <input type="checkbox"/>	or	Program _____ Certificate <input type="checkbox"/> AA/AS <input checked="" type="checkbox"/> AAS <input type="checkbox"/>	_____ Biotechnology <input type="checkbox"/> _____ _____ _____
Or Discipline Area (see definitions) _____			
Outcome(s) assessed: Degree Outcome #4: Nucleic acids: Demonstrate an understanding of the basic properties of nucleic acids, as well as, techniques used to isolate, purify, and analyze these molecules. Degree Outcome #5: Proteins: Demonstrate an understanding of the basic properties of proteins, as well as, techniques used to isolate, purify, and analyze these molecules.			
Classes/Cohort Assessed: BIOT 1510/1570 – Fall 2011, assessment of Outcome #4 BIOT 2410/2470 – Spring 2012, assessment of Outcomes #4 and #5			

BIOT 2475 – Spring 2012 – assessment of outcomes #4 and #5

Measurement tool(s):

In class exams (BIOT 1510/1570, BOT 2410/2470)

Take home (on-line) exams (BIOT 2475)

Program Final Comprehensive Exam (BIOT 2410/2470)

Type of tool (for each tool listed above, indicate type of tool):

All assessment data is based on embedded questions. Because the Degree Outcomes are very general and cover a broad range of subjects, multiple questions were examined for each degree outcome.

Achievement Target (if more than one measurement tool, list target for each tool separately):

The goal for the Biotechnology Program is for 80% of students to exhibit subject mastery of Degree Outcomes as measured by embedded questions. "Subject Mastery" was defined as earning 75% or greater of all possible points on a given embedded question.

Assessment Results/Findings (if more than one measurement tool, list results for each tool separately):

See below for data tables.

In general the Biotechnology students are performing well.

-In examining Degree Outcome #4 (Nucleic acids) at least 80% of students demonstrated subject mastery in 16 of 20 questions (80% of embedded questions). In only one question did less than 70% of students exhibit satisfactory subject knowledge (67%).

-In examining Degree Outcome #5 (Proteins) at least 80% of students demonstrated subject mastery in 7 of 8 questions (88% of embedded questions). Only 62% of students exhibited subject mastery in that one question.

-The data suggests that while overall students are doing well, there are clearly areas where students need additional instruction/guidance.

Action Plan (close the loop):

BIOT Assessment Project Fall 2011	
DATA SUMMARY	N=12
GE/DEGREE OUTCOMES	% correct
Degree Outcome #4: Nucleic acids: Demonstrate an understanding of the basic properties of nucleic acids, as well as, techniques used to isolate, purify, and analyze these molecules.	
Q1. DNA normally contains all but one of the following bases. What is the incorrect base?	100%
Q2. What is the biggest concern when isolating DNA?	92%
Q3. Genomic DNA is typically isolated using a phenol-chloroform extraction. What is the name of the method used to isolate extra-chromosomal DNA?	100%
Q4. List at least two factors that determine the ability of two strands of DNA to stay associated.	92%
Q5. Calculations to determine DNA concentrations.	75%
Q8. Interpretation of RFLP and gel labeling (% of students receiving at least 75% of available points)	100%
Q7. In spectroscopy, what is the A_{260} value and what is it used for? What is the A_{280} value and what is it used for (in relation to the A_{260} value)? (% of students receiving at least 75% of available points)	67%
Q8. Fill in the blank with the appropriate term for each phase of the PCR amplification plot.	92%

Q9. What is the name of the method used to distinguish between bacterial clones that contain vector but no insert and clones that contain both vector and insert? How does this method work? (% of students receiving at least 75% of available points)	83%
Q10. Math problem – calculating gel percentages (% of students receiving at least 75% of available points).	83%

BIOT Assessment Project Spring 2012	
DATA SUMMARY	N=13
GE/DEGREE OUTCOMES	% correct
Degree Outcome #4: Nucleic acids: Demonstrate an understanding of the basic properties of nucleic acids, as well as, techniques used to isolate, purify, and analyze these molecules.	
Q1. What is the name of the mRNA structure indicated by the following? (% of students receiving at least 76% of available points)	85%
Q2. Questions on RNA Isolation techniques (% of students receiving at least 76% of available points)	100%
Q3. Question on design of RNA primers (% of students receiving at least 76% of available points)	70%
Q4. Questions on RT-PCR (% of students receiving at least 76% of available points)	80%
Q5. Questions on selection of appropriate on-line DNA databases (% of students relieving at least 75% of available points)	100%
Q6. Questions on using on-line DNA database to examine nucleotide sequences (% of students relieving at least 75% of available points)	85%
Q7. Calculations to determine DNA concentration (% of students relieving at least 75% of available points)	85%
Q8. Questions on Polymerase Chain Reaction (% of students relieving at least 75% of available points)	85%

Q9. Question on DNA sequencing.	92%
Q10. Question on cloning techniques.	77%
Degree Outcome #5: Demonstrate an understanding of the basic properties of proteins, as well as, techniques used to isolate, purify, and analyze these molecules.	
Q1. Questions on protein structure (% of students relieving at least 75% of available points)	80%
Q2. Questions on SDS-PAGE techniques (% of students relieving at least 75% of available points)	62%
Q3. Questions on protein techniques and their uses structure (% of students relieving at least 75% of available points)	80%
Q4. Questions on selection of appropriate on-line protein databases (% of students relieving at least 75% of available points)	80%
Q5. Questions on using on-line protein database to examine peptide sequences (% of students relieving at least 75% of available points)	85%
Q6. Question on 2D gel electrophoresis techniques (% of students relieving at least 75% of available points)	85%
Q7. Question on SDS-PAGE and Western Blotting techniques (% of students relieving at least 75% of available points).	85%
Q8. Question on selection of the best protein technique (% of students	100%

relieving at least 75% of available points)



**CENTRAL NEW MEXICO COMMUNITY COLLEGE
ASSESSMENT REPORT – Part II
Action Plan & Assessment Plan Update**

The purpose of this form is to provide a written summary of your assessment action plan for the designated assessment cycle and provide an updated assessment cycle plan for the current 5-year cycle

Fall 2011-Spring 2012

 (Report Period)
 Susan Johnson/sjohnson@cnm.edu/224-4000 ext 50102

 (Contact Person/email/phone)

09/30/12

 (Date Report Submitted)

Indicate ONE of the following 3 areas for this assessment report and insert the name of the general education area, certificate, degree or discipline on the appropriate line:

See definitions for each category in Assessment Process document

Gen Ed Area (see definitions) _____ AA/AS <input type="checkbox"/> AAS <input type="checkbox"/> Or Discipline Area (see definitions) _____	or	Program <u>Biotechnology degree</u> Certificate <input type="checkbox"/> AA/AS <input type="checkbox"/> AAS <input checked="" type="checkbox"/>
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Data Results Period upon which this Action Plan is based (period which ended 6/30/xx): 8/29/11-6/30/12

Action Plan (close the loop):
 Outcome 4:Q7. In spectroscopy, what is the A_{260} value and what is it used for? What is the A_{280} value and what is it used for (in relation to the A_{260} value)? (% of students receiving at least 75% of available points)=67%

Plan to improve student performance: Added additional information on spectroscopy values and their relevance to the existing protocol. Also increased coverage of the topic during pre- and post-lab discussions.

Outcome 5: Q2. Questions on SDS-PAGE techniques (% of students relieving at least 75% of available points)=62%

Plan to improve student performance: This topic will be addressed in spring in BIOT 2410/2470. Plan to expand discussion of the topic, including pre- and post-lab question sets to increase student understanding.

ASSESEMENT PLAN

The assessment plan includes three parts:

1. **The plan description** (This should be a brief written description of the assessment plan(s) for the area/certificate/degree/discipline. If all outcomes are not shown in item #3 below as assessed in the 5 year cycle, this description must include information about their eventual assessment)
2. **The student learning outcomes for the area/program/discipline** for the 5 year cycle.
3. **The assessment cycle timeline**

1 Plan Description

In BIOT 2410/2470 BIOT degree outcomes were assessed by final exam questions during Spring 2012.

During Summer 2012-Spring 2013 BIOT degree outcomes will be assessed in BIOT 1210/1270 and BIOT 1510/1570.

2 Provide the list of current student learning outcomes for this area or program (you may add more lines if necessary by right clicking and choosing insert row below):

1	Communication: Demonstrate professional conduct and interpersonal communication skills in interactions with laboratory personnel, staff, and other members of the scientific community.
2	Quality Control: Demonstrate the ability to follow standard operating procedures, keep accurate records, and perform equipment validation and maintenance.
3	Safety: Demonstrate an understanding of basic laboratory safety and the handling and disposal of radioactive, biological, and chemical wastes.
4	Nucleic Acids: Demonstrate an understanding of the basic properties of nucleic acids, as well as, techniques used to isolate, purify, and analyze these molecules.
5	Proteins: Demonstrate an understanding of the basic properties of proteins, as well as, techniques used to isolate, purify, and analyze these molecules.
6	Computer Skills: Demonstrate command of basic computer skills including word processing, spreadsheets, and databases, as well as, basic bioinformatics skills used to perform literature searches, and characterization of nucleic acids and proteins

3 Assessment Cycle timeline for the above student learning outcomes for the next five years.

Outcome #	When Measured	Where measured (i.e. what course(s))	Measurement tool(s) & Type of tool
1	Summer 2013	BIOT 1210/1270	Not yet developed
2	Summer 2013	BIOT 1210/1270	Not yet developed
3	Summer 2012 Fall 2012 Spring 2013	BIOT 1210/1270 BIOT 1510/1570 BIOT 2410/2470	Final Exam Not yet developed Not yet developed
4	Spring 2012 Summer 2012 Fall 2012 Spring 2013	BIOT 2410/2470 BIOT 1210/1270 BIOT 1510/1570 BIOT 2475	Final Exam Final Exam Not yet developed Not yet developed
5	Spring 2012 Spring 2013	BIOT 2410/2470 BIOT 2475	Final Exam Not yet developed
6	Spring 2013	BIOT 2475	Not yet developed