

**CENTRAL NEW MEXICO COMMUNITY COLLEGE**  
**ASSESSMENT REPORT**  
*Due to SAAC by September 30*

**PART 1: CONTACT & PROGRAM IDENTIFICATION**

Report Year and Contact Information:			
<u>2013-2014</u> Academic Year	<u>Philip Lister</u> Contact Person	<u>plister@cnm.edu</u> Email	<u>Ext 50102</u> Phone Number

Subject of this Assessment Report:		
<b>Program:</b> <u>Biology Degree</u> <input type="checkbox"/> Certificate <input type="checkbox"/> AA <input checked="" type="checkbox"/> AS <input type="checkbox"/> AAS	<b>Gen Ed Area:</b> _____ Applicable to: <input type="checkbox"/> AA/AS <input type="checkbox"/> AAS	<b>Discipline Area:</b> _____

**PART 2: EVIDENCE OF ACHIEVEMENT OF PROGRAM OUTCOMES**

Summary of Program Success in Achieving Desired Outcomes:
Students demonstrated proficiency above the 70% for all outcomes assessed (GE1, GE2, GE4, GE5). However, at this time the assessment only included data from one course in the program, BIO 1610 and 2 of the outcomes were not assessed.

Description and Evaluation of Recent Changes Made in Support of Student Learning:
Action Plan from 2012-2013: No action plan is required at this time to address student performances. However, the assessment tool previously developed for BIO1610/1692 will be redesigned to be more general for use by different instructors. Furthermore, the assessment tools for both BIO2410/2492 and BIO2510/2592 will be refined to provide a more general assessment tool for use by all instructors.  The core faculty for these courses has changed with the resignation of one faculty and the hiring of a new faculty. The new faculty hired has a long history of assessment development and will be taking the lead in the efforts to develop a successful assessment program for this degree.

**PART 3: REPORT ON RECENT ASSESSMENT OF STUDENT LEARNING PROCESSES**

<b>Learning Outcome(s)/Exit Competencies Assessed:</b> <i>To add rows: right-click in cell below and select "Insert," "Insert Rows Above"</i>	<b>Classes/Cohorts Assessed:</b>
GE1 Employ critical thinking skills to judge the validity of information from a scientific perspective.	1610/1692
GE2 Apply the scientific method to formulate questions, analyze information/data and draw conclusions.	1610/1692 Not Assessed
GE3 Properly operate laboratory equipment to collect relevant and quality data.	
GE4 Utilize mathematical techniques to evaluate and solve scientific problems.	1610/1692
GE5 Communicate effectively about scientific ideas and topics, in both oral and written formats.	1610/1692
GE6 Relate science to personal, social or global impact.	Not Assessed

<b>Measurement Tool(s) Used:</b> <i>To add rows: right-click in cell below and select "Insert," "Insert Rows Above"</i>	<i>Enter X's for type of tool</i>				<b>Initial Achievement Target or Expectation:</b>
	<b>Internal</b>	<b>External</b>	<b>Direct</b>	<b>Indirect</b>	
PROJECT ASSIGNMENT 1610/1692	x				70% correct responses for each question.

<b>Assessment Results/Findings:</b>
<p><b>GE1 Employ critical thinking skills to judge the validity of information from a scientific perspective.</b></p> <p><b>BIO 1610/1692:</b></p> <p><b>Question 3.</b> What do you conclude about your prediction in question 2 from these results from Visser (2012). Explain. SP14=90%</p> <p><b>Question 5.</b> What do you conclude about your prediction in question 4 from these results from Visser (2012). Explain. SP14=88%</p> <p><b>Question 7.</b> What do you conclude about your prediction in question 6 from these results from Visser (2012). Explain. SP14=86%</p> <p><b>Question 10.</b> What do you conclude about your prediction in question 8 from these results from Visser (2012). Explain. SP14=90%</p>

**Question 11.** Considering the above discussion and results, what do you conclude about the initial overall hypothesis that the *HERC2* intron 86 rs12913832 T/C SNP influences eye color variation because it leads to variation in its ability to bind the transcription factor HLTF and act as an enhancer at the *OCA2* promoter? Explain. SP14=84%

**GE2 Apply the scientific method to formulate questions, analyze information/data and draw conclusions.**

**1610/1692:**

**Question 2.** If the *OCA2-HERC2* C-allele has its influence on the development of blue iris color through decreasing the ability of this region to act as an enhancer at the *OCA2* promoter relative to the T-allele, what would you predict about the rate of expression of *OCA2* mRNA transcripts in melanocytes homozygous for the C-allele compared to those homozygous for the T-allele? Explain. SP14=88%

**Question 3.** What do you conclude about your prediction in question 2 from these results from Visser (2012). Explain. SP14=90%

**Question 4.** If the *OCA2-HERC2* C-allele has its influence on the development of blue iris color through decreasing the ability of this region to act as an enhancer at the *OCA2* promoter relative to the T-allele, what would you predict about the rate of binding of RNA polymerase II to the *OCA2* promoter in melanocytes homozygous for the C-allele compared to those homozygous for the T-allele? Explain. SP14=90%

**Question 5.** What do you conclude about your prediction in question 4 from these results from Visser (2012). Explain. SP14=88%

**Question 6.** If the *OCA2-HERC2* C-allele has its influence on the development of blue iris color through decreasing the ability of the rs12913832 region to bind HLTF and thus to act as an enhancer at the *OCA2* promoter relative to the T-allele, what would you predict about the rate of binding of HLTF to the hypothesized enhancer element in the *HERC2* rs12913832 region in melanocytes homozygous for the C-allele compared to those homozygous for the T-allele? Explain. SP14=88%

**Question 7.** What do you conclude about your prediction in question 6 from these results from Visser (2012). Explain. SP14=86%

**Question 8.** If the *OCA2-HERC2* C-allele has its influence on the development of blue iris color through decreasing the ability of the rs12913832 region to interact with the *OCA2* promoter as an enhancer relative to the T-allele, what would you predict about the frequency of interaction of the *HERC2* rs12913832 region with the *OCA2* promoter in melanocytes homozygous for the C-allele compared to those homozygous for the T-allele? In other words, how frequently do you expect the rs12913832 region to be found looped out to the *OCA2* promoter region with the C-allele, relative to the T-allele? You would have drawn this looping interaction for the T-allele in question 1. Explain. SP14=86%

**Question 10.** What do you conclude about your prediction in question 8 from these results from Visser (2012). Explain. SP14=90%

**Question 11.** Considering the above discussion and results, what do you conclude about the initial overall hypothesis that the *HERC2* intron 86 rs12913832 T/C SNP influences eye color variation because it leads to variation in its ability to bind the transcription factor HLTF and act as an enhancer at the *OCA2* promoter? Explain. SP14=84%

## **GE4 Utilize mathematical techniques to evaluate and solve scientific problems.**

### **BIO 1610/1692:**

**Question 3.** What do you conclude about your prediction in question 2 from these results from Visser (2012). Explain. SP14=90%

**Question 5.** What do you conclude about your prediction in question 4 from these results from Visser (2012). Explain. SP14=88%

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## **GE5 Communicate effectively about scientific ideas and topics, in both oral and written formats.**

### **BIO 1610/1692:**

**Question 2.** If the *OCA2-HERC2* C-allele has its influence on the development of blue iris color through decreasing the ability of this region to act as an enhancer at the *OCA2* promoter relative to the T-allele, what would you predict about the rate of expression of *OCA2* mRNA transcripts in melanocytes homozygous for the C-allele compared to those homozygous for the T-allele? Explain. SP14=88%

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question 1. Explain. SP14=86%

**Question 10.** What do you conclude about your prediction in question 8 from these results from Visser (2012). Explain. SP14=90%

**Question 11.** Considering the above discussion and results, what do you conclude about the initial overall hypothesis that the *HERC2* intron 86 rs12913832 T/C SNP influences eye color variation because it leads to variation in its ability to bind the transcription factor HLTF and act as an enhancer at the *OCA2* promoter? Explain. SP14=84%

**Analysis and Interpretation of Assessment Results/Findings:**

Student performance exceeded 70 percent for all outcomes assessed.

**Action Plan in Support of Student Learning:**

For the 2014-2015 year, we will expand assessment to capture GE3 and GE6. Assessment for the Biology Degree will also be expanded to include assessment from BIO 1510/1592 and 2410/2492 to provide a more comprehensive assessment approach to the Biology Degree.

**Recommendations, Proposals, and/or Funding Requests:**

**PART 4: EMBEDDED OUTCOMES**

**Critical Thinking and Life Skills/Teamwork Development within Programs:**

- a) Please describe how Critical Thinking assessment is embedded within your program assessment.
- b) Please describe how Life Skills/Teamwork assessment is embedded within your program assessment.

a) Employment of the Scientific Method is a student learning outcome in every Biology course at CNM. The Scientific Method is the embodiment of critical thinking: Observe, Formulate a Hypothesis, Test the Hypothesis, Analyze the Results, Formulate a Conclusion

b) All Biology lab courses and many Biology lecture courses incorporate group activities that involve Teamwork, and successful Teamwork is a Life Skill. In addition, students are taught laboratory safety skills and regulations that will translate to their careers in laboratory or clinical settings.

**PART 5: ASSESSMENT CYCLE PLAN** (Copy and paste from original plan if unchanged)

**Plan Description:**

The previous cycle planned proposed the eventual assessment of all outcomes in all classes. However, this is no longer the pathway desired for assessment. Over the next year, the core faculty that teach BIO 1510/1592, BIO 1610/1692, BIO 2410/2492, and BIO 2510/2592 will develop an assessment plan to will incorporate all 6 assessment outcomes across the various courses. In addition, assessment tools that are more course specific rather than faculty specific will be developed. This will ensure that assessment can be performed regardless of the faculty member teaching the course. The new comprehensive assessment plan will be presented in the Fall 2015 SAAC report.

<b>Student Learning Outcomes/Exit Competencies:</b>	<b>When Measured:</b>	<b>Where Measured:</b>	<b>How Measured:</b>
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			