Colorado State University – Pueblo Academic Program Assessment Report for AY 2016-2017 **Due: June 1, 2017**

Program:_____ ____BS-BIOLOGY_____ **Date report completed:** ___June 1, 2017_____

Completed by:_____Moussa M. Diawara_____

Assessment contributors (other faculty involved in this program's assessment): _____

PART I. Program student learning outcomes (SLOs) assessed in this cycle, processes, results, and recommendations for improved student learning.

A. Which of the program SLOs were assessed during this cycle? **Please include the outcome(s) verbatim from the assessment plan.**	B. When was this SLO last assessed? Please indicate the semester and year.	C. What method was used for assessing the SLO? **Please include a copy of any rubrics used in the assessment process.**	D. Who was assessed ? Please fully describe the student group(s) and the number of students or artifacts involved.	E. What is the expected achievement level and how many or what proportion of students should be at that level?	F. What were the results of the assessment?	G. What were the department's conclusions about student performance?	H. What changes/improvements to the program are planned based on this assessment?
1) Students will develop a broad-based knowledge of concepts and terminology in molecular, cellular, organismal and ecological biology.	AY 2016-2017	ETS Biology MFAT (Major Field Assessment Test)	All Biology majors enrolled in BIOL 493 Senior Seminar for Spring 2017	Biology majors enrolled in BIOL 493 Senior Seminar will have mean score ≥ 50%th percentile nationally.	65% (17/26) of Biology seniors in Spring 2017 BIOL 493 scored over 50% percentile nationally. The average percentile for all 26 Biology seniors in BIOL 493 was 58.2%; this was due mainly to the fact that three students scored between 4-7%.	We are enthusiastic about these results. It is nice that 65% of our seniors scored above 50% percentile nationally.	Although we are pleased with the perfrormance of our seniors on the MFAT and the strength of our program, we will strive to achieve a higher percentile. To this end we will examine the MFAT subject categories and our

							course syllabi this fall in order to strengthen our curriculum.
4) Students will demonstrate critical thinking and problem solving skills using experimental design and the scientific method.	AY 2016-2017	Two different evaluation forms were used to assess this: Form a) BIOL 493 Research Seminar Evaluation, completed by faculty, students, as well as any audience member attending the presentation; and Form b) SLO4-BS in Biology Program Assessment, completed by faculty only. (see attached);	15 Biology students in a section of BIOL 493 Senior Seminar in Spring 2017	The department currently does not have a formal achievement level defined for the two evaluations listed in colum C.	Form a): Each of the 15 presentations in BIOL 493 Seminar were evaluated by faculty and senior students. The average faculty score for these presentations was 85.6% and the average student score was 93.5%, showing almost a whole letter grade discrepancy. Form b): A total of 35 evaluations were completed by 3-5 faculty members who attended presentations by 15 students in BIOL 493 Senior Seminar. The majority of these evaluations found our students to be proficient (22) or excellent (9). Four (4) of the 35 evaluations were developmental. The limations of this assessment are two-folds: 1) It is unclear how many faculty evaluated each of the 15 seniors; and 2) the same faculty did not evaluate all	Due to time constraint, the new chair did have the opportunity to discuss these results with the rest of the department.	The above-mentioned improvement efforts will include discussions about continuously providing opportunities for our students to demonstrate and practice the scientific method.

					seniors, so we do have consistency in the results.		
5) Students will evaluate the scientific validity of information and ideas	AY 2016-2017	The instructor of BIOL 493 Seminar evaluated each of the 15 senior students in Spring 2017 based on the student's evaluations of her/his peers research proposal and seminar presenations. Form a) BIOL 493 Research Seminar Evaluation described under SLO 4 could also be used to assess this outcome.	15 Biology students in a section of BIOL 493 Senior Seminar in Spring 2017	The department currently does not have a formal achievement level defined for this category.	Overall, 10 seniors received a grade of 90-100%; three (3) seniors scored 80-89%, one 70%, and one 60%.	Due to time constraint, the new chair did have the opportunity to discuss these results with the rest of the department.	These will be determined after the results have been examined by faculty.

Comments on part I:

We thank the reviewres for reading our 2015-2016 report and welcome their comments. The new chair assumed responsibility of the function on May 15 and has not consulted yet with the rest of the department about assessment. Our last Assessment Plan was developed in 2010. In light of the reviewers comments and the recent HLC visit, we will revise our Program Assessment Plan this fall and propose a new Assessment Methods and Results. We will examine the MFAT subject categories and our course syllabi this fall in order to strengthen our curriculum.

PART II. Follow-up (closing the loop) on results and activities from previous assessment cycles. In this section, please describe actions taken during this 2016-2017 cycle that were based on, or implemented to address, the results of assessment from previous cycles.

A. What SLO(s) did you address? Please include the outcome(s) verbatim from the assessment plan.	B. When was this SLO last assessed? Please indicate the semester and year.	C. What were the recommendations for change from the previous assessment?	D. Were the recommendations for change acted upon? If not, why?	E. What were the results of the changes? If the changes were not effective, what are the next steps or the new recommendations?

Comments on part II:

SLO4: Students will demonstrate critical thinking and problem solving skills using experimental design and the scientific method

BS in Biology Program assessment rubric

	Excellent	**Proficient**	**Developmental**	**Ineffective**
Review of Literature	Extensive review of the literature; Clear connection between literature and the research question and/or hypothesis	Review of Literature; demonstrates basic understanding of how previous literature interacts with proposal	Review of literature incomplete; lacks complete understanding of how previous literature interacts with proposal	Review of Literature lacking, poor understanding of how previous literature interacts with proposal
Research Questions and/or Hypothesis	Hypothesis clearly stated; clearly communicates variables and controls	Hypothesis stated; communicates variables and controls	Hypothesis poorly stated; partial or incomplete explanation of variables and controls	Hypothesis not stated; no discussion of variables and controls
Proposed Experimental Aims	Aims test the hypothesis	Aims mostly test the hypothesis	Aims partially test the hypothesis	Aims do not adequately test the hypothesis
Proposed Materials and Methods	Methods appropriately test the aims ; justified choice of variables and controls; adequate sample size; superb and clearly communicated experimental design; correct and valid statistical analysis	Methods test most of the aims; questionable choice of variables and controls; sample size questionable; adequately communicated experimental design; statistical analysis meets minimum standards for validity	Methods poorly test the aims; dubious choice of variables and controls; insufficient sample size; partial or incomplete communication of experimental design; questionable or incomplete statistical analysis	Methods fail to test the aims; poor choice of variables and controls; sample size is deficient; poorly communicated experimental design; invalid or missing statistical analysis
Interpretation of the Expected Results	Relates all expected results back to aims and hypothesis; communicates significance of proposed results; appropriate comparisons to literature; proposed experiment extends knowledge in field; additional hypotheses generated	Relates some results back to aims and hypothesis; significance of results implied but not clearly stated; partial comparisons to literature; proposed experiment extends knowledge in field additional hypotheses implied	Results poorly linked to aims and hypothesis; weak communication of significance of results; little comparison to literature; proposed experiment insufficiently adds knowledge in field; no future direction generated	Results not linked to aims and hypothesis; does not communicate significance of results; no comparison to literature; proposed experiment merely repeats previous work; no future direction generated

BS in Biology	Excellent	Proficient	Developmental	Ineffective
Review of Literature				
Research Questions and/or Hypothesis				
Proposed Experimental Aims				
Proposed Materials and Methods				
Interpretation of the Expected Results				

Date_____

Academic year_____

Semester_____

Name of individual writing this evaluation: ……………………………………………………………..................

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BIOL 493 – BIOLOGY SENIOR SEMINAR

Instructor: Dr. Moussa M. Diawara

Colorado State University - Pueblo

RESEARCH SEMINAR EVALUATION SHEET

The research seminar addresses the student's ability to develop and demonstrate skills in presenting a synthesis of scientific literacy in oral form.

Name of Speaker ....………

Date of presentation ....

Title of Seminar ....…..........

....………

Reviewer: Your review of this research seminar addresses your own ability to evaluate the validity on scientific information and ideas presented. Evaluate the presentation using the following *0-10 scale* for each category below.

0-2: Poor: seminar presentation lacks preparation in this category

3-4: Fair: presentation needs significant improvement in this category

5-6: Good: acceptable work in this category, could be improved

7-8: Very good: nearly perfect in this category, with minor flaws only; has room for minor improvement

9-10: Excellent: superior job in every aspect of this category, without any flaws

Category	**Score** **(0 – 10)**
1. Subject knowledge	
2. Quality of visual aids	
3. Eye contact and enthusiasm	
4. Fielding of questions (repeat, answer, etc.)	
5. Spontaneity and clarity of speech	
6. Use of time, attire, and mannerism	
7. How effectively did the speaker demonstrate that s/he has read and properly interpreted scientific literature related to the proposed study to justify the proposed study?	
8. How clearly did the speaker state her/his research question/hypothesis?	
9. How clearly did the speaker state the objectives/specific aims of the proposed study?	
10. How effectively did the speaker show that the hypothesis will be tested and the specific aims addressed by using the methods described?	
Total score	____ /100

Your constructive remarks: