Assessment Plan: GELOs in Biology Courses

PLNU General Education courses (BIO 101, 102, 103, 105, 210 & 211)

Learning Outcome: GELO 1d. Critical Thinking: Students will be able to examine, critique and synthesize information in order to arrive at reasoned conclusions. This outcome will be measured yearly via direct, summative assessment.

Outcome Measure: Signature Assignment: Multiple choice questions on the final exam taken from the Test of Scientific Literacy Skills (TOSLS). The whole class was assessed.

Criteria for Success: For BIO101, 102, 103, 105, 210, and 211, at least 60% of the students will answer the questions correctly (an average of 60% for all of the questions). 60% was chosen since these are all introductory courses. BIO210 and BIO211 are freshmen courses for all Biology Department majors and also service courses for Allied Health majors. BIO101, 102, 103, and 105 are General Biology courses for all other majors. Questions from the TOSLS were chosen that specifically addressed critical thinking and were appropriate for the content of each course.

Longitudinal Data:

	SPRING, 2018		FALL, 2017		SPRING/SUMMER, 2017		FALL, 2016	
Class	**n**	**% of Students Answering TOSLS Questions Correctly (Ave ± S.D.)**	**n**	**% of Students Answering TOSLS Questions Correctly (Ave ± S.D.)**	**n**	**% of Students Answering TOSLS Questions Correctly (Ave ± S.D.)**	**n**	**% of Students Answering TOSLS Questions Correctly (Ave ± S.D.)**
BIO101	45	79 ± 14	46	78 ± 13	34	72 ± 12	45	73 ± 15
BIO102	NA	NA	78	62 ± 17	NA	NA	NA	NA
BIO103	47	73 ± 10	46	68 ± 12	48	71 ± 12	48	73 ± 14
BIO105	NA	NA	42	80 ± 11	21	69 ± 16	47	75 ± 16
BIO210	37	84 ± 12	91	81 ± 13	79	69 ± 16	98	80 ± 16
BIO211	62	88 ± 3	46	78 ± 11	65	83 ± 5	44	75 ± 10

Conclusions Drawn from Data: The students in the various GE courses are meeting the criteria for critical thinking.

Changes to be Made Based on Data: We will continue to use these questions for summative assessment in our GE courses.

Rubric:
Gormally, C., Brickman, P., and Lutz, M. "Developing a Test of Scientific Literacy Skills (TOSLS): Measuring Undergraduates' Evaluation of Scientific Information and Arguments." C.B. E. Life Science Education 11(4): 364–377 (2012).

BIO101: Questions 1, 4, 6, 7, 8, 11, 12, 13, 14, 18, 28
BIO102: Questions 2, 6, 18, 28
BIO103: Questions 4, 6, 7, 8, 11, 12, 13, 14, 18, 28
BIO105: Questions 2, 6, 18, 28
BIO210: Questions 1, 2, 7, 8, 11, 18, 19, 24, 25
BIO211: Questions 2, 6, 18, 28