Academic Program Assessment Report

Academic Year(s) Assessed: **2025**
College: **Agriculture**
Department: **Land Resources & Environmental Sciences**
Department Head: **Robert K. D. Peterson**
Submitted by:

Program(s) Assessed

List all majors (including each option), minors, and certificates that are included in this assessment – add or subtract rows as needed – please use official titles:

Majors	Minors, Options, etc.
	Entomology

Section 1. Past Assessment Summary.

Response:

Based on AOC feedback, we considered how to better address specific learning objectives by using a subset of undergraduate students in the class, rather than focusing on the quite difficult-to-determine actual number of students in the minor (in the previous assessment we noted that the minor exists across Departments and has no administrative support to provide additional information). In one case, there was only one undergraduate student, so that is the only response provided. We also focused on providing more information on how the specific LO was assessed. However, the guidance offered is greatly appreciated. Participating faculty instructors also corresponded back-and-forth about the previous assessment – this lack of feedback was a concern in one review, and we have addressed it among the 3 instructors involved. We have also added BIOE 422 as a required course for the minor and discussed switching the various 490 options to elective options. In the end, we made the change because students wishing to take the minor usually declare late, making it difficult to assign a research topic that is achievable.

Section 2. Institutional Assessment Data Request.

Core Quality LOs are Institutional Learning Outcome (ILO)	**PLO overlaps with MSU Core Quality**	**Beginning Level** e.g. CORE Courses (US, W, Q, IN, CS, IA, IH, IS, D)	**Developing Level**	**Proficient Level**	**Not Applicable (N/A)** No course exists in our program that addresses this Core Quality / ILO
Thinkers & Problem Solvers	X	Core classes are designed to address an introductory, foundational level of Core Qualities. Some may overlap into the developing level, but most intermediate-to-developing or proficient/mastery level courses will exist within the majors.	BIOO 262	BIOE 422	
Effective Communicators	X		BIOO 262	BIOE 422	
Local & Global Citizen	X		BIOO 262	AGSC 401	

Section 3. Actionable Research Question for Your Assessment.
Response:

*Can we reach potential minors in entomology sooner - and get them to declare? *Ultimately, we wish to do a rigorous assessment of students choosing the minor.*

(*We hope that the addition of BIOE 422 will help us accomplish this. Ultimately, BIOO 262 is where the students should first be made aware of the option of a course-based minor. As was mentioned last time, the instructor retired and there was little time for the inexperienced NTT instructor to prepare. We hope that a new hire will address the critical need to have BIOO 262 taught by a dedicated TT faculty member.*)

Section 4. Assessment Plan, Schedule, and Data Sources.

Did you change the previously established Assessment Plan Schedule. If yes, how has it changed?

YES. We have incorporated consideration of the rubric for BIOO 262 to indicate where this would apply – although no data is given. Currently, the course is being taught by an interim, non-Tenure Track instructor**.**

PLO #	PROGRAM LEARNING OUTCOME	2023-2024	2024-2025	Data Source*
1	Describe the core theoretical principles and applications in entomology.	**S, F**	**S, F**	**Embedded exam questions in BIOO 262, BIOO 465, and BIOE 422.**
2	Identify all major insect orders and ecologically/agriculturally important families by sight and by using diagnostic keys.	**S, F**	**S, F**	**Lab quizzes and exams in BIOO 262 and BIOO 465.**
3	Access, read, and critically assess the quality and source of entomological information	**S, F**	**S, F**	**Assignments in BIOO 262, BIOO 465, BIOE 422, and AGSC 401.**
4	Describe the theory and practice of data analysis and experimentation in entomology, including statistical analysis, model building, and graphical presentation of data.	**S, F**	**S,F**	**Progress and final report in BIOO/ENSC/ANRS 490.**
5	Effectively write and present scientific material	**S, F**	**S,F**	**In final report for BIOO/ENSC/ANRS 490. Embedded in assignments in AGSC 401**
6	Describe the ethical implications of conducting and applying entomology.	**S, F**	**S,F**	**Embedded within exercises in AGSC 401.**

What are the threshold values for which your program demonstrates student achievement? Provide a rationale for your threshold values.

Threshold Values		
PROGRAM LEARNING OUTCOME	Threshold Value	Data Source
We have established rubrics for each of the learning outcomes that can be ranked from 1 (low) to 4 (high).	The threshold value for this outcome is for 80% of assessed students to score above 1 in a 200-level course, and 80% of the students scoring above 3 in a 400-level course.	The data source varies with the course being used for the assessment, but includes a random selection of papers, presentations, and embedded questions.

Section 5. What Was Done?

Self-reporting Metric (required answer): Was the completed assessment consistent with the program's assessment plan? If not, please explain the adjustments that were made.

■ **Yes** ☐ **No**

How was the data collected and analyzed and by whom?

All reported data was collected by TT faculty member that was the instructor. For BIOO 262 no data was requested from the interim instructor.

PLO#	PROGRAM LEARNING OUTCOME	2024-2025	Data Source*
1	Describe the core theoretical principles and applications in entomology.	**S, F**	**For 2025:** **Embedded exam questions, BIOO 262 (no data requested of interim instructor), BIOO 465 (1 known minor and the only undergraduate student scored 3), BIOE 422 (a subset of 3 of 7 undergraduates addressing the PLO in take-home exams – 1 scored 4 and 2 scored 3, Avg. score = 3.33); Avg. score = 3.25**
2	Identify all major insect orders and ecologically/agriculturally important families by sight and by using diagnostic keys.	**S, F**	**For 2025:** **Lab quizzes and exams, BIOO 262 (no data), BIOO 465 (1 known minor and the only undergraduate student scored 4); Avg. score = 4**
3	Access, read, and critically assess the quality and source of entomological information	**S, F**	**For 2025:** **Embedded with assignments in BIOO 262 (no data), BIOO 465 (1 known minor and the only undergraduate student scored 4)), BIOE 422 (a subset of 3 of 7 addressing the PLO in take-home exams – 1 scored 4 and 2 scored 3, Avg. score = 3.33); AGSC 401 (a subset of 10 students – 1 scored 2, 4 scored 3 and 5 scored 4, Avg. score = 3.4); Avg. score = 3.43**
4	Describe the theory and practice of data analysis and experimentation in entomology, including statistical analysis, model building, and graphical presentation of data.	**S,F**	**For 2025:** **ENSC 490 (2 minors) Both students scored 4.0: Avg. Score = 4.0**
5	Effectively write and present scientific material	**S,F**	**For 2025:** **ENSC 490 (2 minors) Both students scored 4.0: Avg. Score = 4.0; embedded with assignments in AGSC 401 (a subset of 10 students – 1 scored 2, 3scored 3 and 6 scored 4, Avg. score = 3.4); Avg. score = 3.5**
6	Describe the ethical implications of conducting and applying entomology.	**S,F**	**For 2025:** **Embedded within exercises in AGSC 401 (a subset of 10 students – 3 scored 3 and 7 scored 4, Avg. score = 3.4); Avg. score = 3.7**

Section 6. What Was Learned.

Based on the analysis of the data, and compared to the threshold values established, what was learned from the assessment?

There were 4 assessed students for PLO 1. All students (100%) scored at or above 3. There was 1 assessed student for PLO 2 who scored above 3 (100%). There were 14 assessed students for PLO 3 and 13 of the 14 students (93%) scored at or above 3. There were 2 assessed students for PLO 4 and both (100%) scored above 3. There were 12 assessed students for PLO 5 and 11 (92%) scored at or above 3. There were 10 assessed students for PLO 6 and all (100%) scored at or above 3.

What areas of strength in the program were identified from this assessment process?

Based on the available sample number and information, it seems that we are meeting the threshold values for PLOs 1-6.

What areas were identified that either need improvement or could be improved in a different way from this assessment process?

Clearly, MSU needs to solve the fact that minor students often don't declare their minors until they are very late in their undergraduate programs. Therefore, it is extremely difficult to accurately track these students and assessing them after the fact by tracking them back in time and aligning them with PLOs would be excessively time-consuming. The approach of using a subset of enrolled undergraduates is a solution, but it is not ideal. We need to determine if, and how, BIOO 262 can be better used in our assessment. Although all minors must take BIOO 262, most who take the course do so well before they declare their minor. For the other courses, we will continue to provide instructors with better direction, including the need to specify the instruments used to assess the PLO.

Section 7. How We Responded.

Describe how "What Was Learned" was communicated to the department, or program faculty. How did faculty discussions re-imagine new ways program assessment might contribute to program growth/improvement/innovation beyond the bare minimum of achieving program learning objectives through assessment activities conducted at the course level?

The cross-college faculty in entomology are continuing to meet to better understand how to coordinate and report on entomology minor students, many of whom do not declare their minor until their third or second to last semester. In terms of arriving at numbers for the assessment, of the 10 current ENTO minors, only 1 is in any of the three specific classes. Therefore, the solution offered (using a subset of undergraduates in the course) is essential.

How are the results of this assessment informing changes to enhance student learning in the program?
If information outside of this assessment is informing of programmatic changes, please describe that.

At a basal level, faculty are made aware of and reminded of meeting the established criteria for assessing the success of the minor. In the absence of the assessment, these may not be fully sought or adhered to.

What support and resources (e.g., workshops, training, etc.) might you need to make these adjustments?

A planning meeting should be held in the first 2-3 weeks of each semester just to go over this. Using email is not adequate.

Section 8. Closing the Loop(s).

a) Self-Reporting Metric (required answer): Based on the findings and/or faculty input, will there be any changes made (such as plans for measurable improvements, realignment of learning outcomes, curricular changes, etc.) in preparation for upcoming assessments?

Yes ■ **No** ☐

b) In reviewing the last report that assessed the PLO(s) in this assessment cycle, what changes proposed were implemented and will be measured in future assessment reports? What action will be taken to improve student learning objectives going forward?

We have not made profound changes, rather, we have done a much better job aligning our reported efforts with PLOs and CLOs.

c) Have you seen a change in student learning based on other program adjustments made in the past? Please describe the adjustments made and subsequent changes in student learning.

We can meet established PLOs more directly.

d) If the program sees anything emerging from this assessment cycle that it anticipates would be a factor or an item of discussion in its 7-year program review cycle, please use this space to document that for future reference.

Not at this time, faculty participating in this program will meet soon to consider this.

Submit report to programassessment@montana.edu
Update Department program assessment report website.
Update PLO language in CIM if needed (Map PLOs to Course LOs)