

Departmental Review Report
Department of Zoology
Weber State University
March 1-2, 2023

The review team composed of Dr. Kimberly Bates, Winona State University, Department of Biology (Review Team Chair) and Dr. Mark Stevenson, Weber State University (WSU), Department of Sociology & Anthropology, performed a site visit of the WSU Zoology Department on March 1-2, 2023. During this visit, the team toured the facilities and met with Dean Andrea Easter-Pilcher, Department Chair Ron Meyers, Zoology faculty (Drs. Chung, Brasso, Clark, Hoagstrom, Marshall, Skopec, Sandquist, Mull and Yesilyurt), the Lab Manager Susan Gurr, the Administrative assistant Rochelle Fernandez , current students and recently graduated students to discuss all aspects of the Department.

The Zoology Department is part of the College of Science and has 13 tenured or tenure-track faculty with approximately 300 majors. The department also relies on adjunct or full-time temporary positions that mostly teach non-majors or General Education classes.

Based on this visit, the self-study document and other provided documentation, the review team has several commendations as well as some recommendations for the Department to consider. The review team has commendations in the areas of curriculum, learning outcomes, faculty, program support, relationships with external communities and progress made from results of the previous review. The review team has concerns about the assessment of the program, the adequacy of academic advising, the lack of an advisory committee (or reason why it was discontinued) for external community relationships, and sustainability of support staff to manage labs and clubs.

The review team recommends that the Department focus on Advising and Program Assessment. A more formal advising strategy that can help students choose courses that align with their career choices needs to be designed. This should start as freshman and should follow the students through their 4 years. A Program Assessment needs to be implemented. Faculty should then meet regularly to discuss program/course assessments and use that information to drive curriculum development and changes. Other aspects to work on would be to allow tenure-track instructors to teach General Education courses, use faculty as club advisors and organizers for external or outreach opportunities, join your local PULSE and attend workshops or invite in Ambassadors, and attempt to culturally diversify the faculty.

The review team recommends that the Institution secure additional funds for adequate transportation to field sites. The purchase of an off-campus field station would also be encouraged and could potentially attract more students to the program. The institution will also be tasked with finding additional office space if the faculty numbers continue to grow. Funding should also support giving faculty more credit for student research. The current model of 0.25 credits/student does not come close to the time and resources that are necessary to train a student in this manner. Faculty are currently doing research almost for free. The increase in credits for research might necessitate hiring of more faculty.

The ratings and discussion below are in accordance with the Program Evaluation Worksheet format that provides for evaluation of each standard using the specified elements. The elements were rated using the following scale:

- S Strength; especially effective practice or condition
- G Good; meets expected standards
- C Concern; action could be needed in the future
- W Weakness; action needed
- X Did not evaluate – indicate why the area was not evaluated.

A. MISSION STATEMENT.

	Element	Rating	Comments and/or Recommendations for Change
a.	Expected outcomes of the program clearly defined and aligned to the mission.	S	The program mission statement defines outcomes of the program as 'values', which co-mingles program goals and faculty activities with student outcomes. This is commendable in that it portrays teaching, scholarship and service not as mutually exclusive, but rather as mutually reinforcing, making the connections between them more explicit.
b.	A process by which these accomplishments are determined and periodically assessed based upon the constituencies served by the program.	G	This is not directly addressed in the Mission Statement but is appropriately addressed elsewhere.
c.	A clearly defined educational program, including a curriculum that enables graduates to achieve the mission.	G	Program outcomes and the curriculum are appropriately aligned with college and university missions, accurately reflecting the varied roles played by the program in servicing the life science education needs of diverse student populations across the institution, within the college and for majors and minors.
d.	The program mission statement must be appropriate to and support the mission statements of both the college housing the program and the university.	G	

Comments and Recommendations: The mission statement adequately addresses the mission and outcomes expected of the Zoology Major.

B. CURRICULUM.

	Element	Rating	Comments and/or Recommendations for Change
a.	The program should demonstrate that the curriculum for each degree and for any general education/service courses offered by the program is the result of thoughtful curriculum planning and review processes.	S	<ul style="list-style-type: none"> Zoology major courses were mapped to concepts and competencies that are aligned with NSF Vision and Change. For each Concept at least one required course was assessed comprehensively and for some concepts, multiple courses were assessed comprehensively. The same was true for the core competencies. This allows students to meet these concepts and competencies multiple times while fulfilling their required courses and reinforcing those skills within their electives. The curriculum is both rigorous and thorough, and offers a broad range of electives, enabling students to choose courses (both within and outside the major) tailored to their interests. General Education classes were mapped to skills in the Foundations of the Natural Sciences and the Life Sciences. All skills are covered in all general education classes. The curriculum design was thorough and thoughtful.
b.	The curriculum should be consistent with the program's mission.	G	<ul style="list-style-type: none"> The curriculum is aligned with the mission. Suggestion to provide more information about specific topic-based pathways for students who are not on the research/graduate school track. Suggest providing multiple curriculum maps, similar to those for students based on their math competency but instead showing course work both within and outside the department that would help them achieve specific career goals.
c.	The program should be able to demonstrate that there is an appropriate allocation of resources for curriculum delivery that is consistent with the mission of the program, the number of graduates, and the number of major/minor and general education SCHs produced.	G	<ul style="list-style-type: none"> Resources appear to be allocated appropriately to offer the majors required and elective courses so that students can graduate in a timely manner. General Education courses are also offered regularly with multiple sections offered most semesters.

d.	Courses to support the major/minor/general education/service programs are offered on a regular basis to ensure students are able to complete graduation requirements in a timely manner.	C	<ul style="list-style-type: none"> • Elective courses are offered regularly which allows for majors to graduate in a timely manner. Some upper division courses have small class sizes and may not be offered often enough for all students to access before graduating. Maybe designating these classes as permission only could ensure that those who need it most had access. • The use of adjuncts to teach General Education should be avoided if possible. General Education courses are important as the clientele in these classes are often ones that are future policy makers and business owners. They should have a solid understanding of their natural world. If possible, using tenure/tenure-track faculty to excite these students would benefit many as well as provide insight into science-based careers and applications of scientific reasoning beyond the boundaries of their chosen discipline.
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Comments: The Zoology curriculum is strong. The mapping of outcomes to core concepts and competencies ensure that all students are getting these skills. The lab skills that are being taught are skills necessary for both graduate school and employment. For a department of your size, there is an excellent breadth of electives and additional choices that students can take outside the department which allows them to tailor curriculum to interests and career goals.

Recommendations:

- The use of adjuncts and non-tenure track instructors to teach General Education classes suggests they are not deemed as important as the major courses. These classes are important and should be taught by those with expertise and enthusiasm for the subject.
- Providing maps of different careers in biology would help students navigate which courses best suit their career goals.
- Having regular discussions about curriculum in the department will keep this excellent curriculum updated and relevant. One suggestion is to join your local PULSE (Partnership in Undergraduate Life Science Education) and attend some workshops and/or invite in Ambassadors. By inviting Ambassadors for a 3 day workshop you will critically evaluate your curriculum as well as decide as a department the areas you would live to improve the most. I (Kim Bates) highly recommend this exercise, it is eye-opening.

C. STUDENT LEARNING OUTCOMES AND ASSESSMENT.

Evaluate the extent to which the program has clearly defined outcomes.

	Element	Rating	Comments and/or Recommendations for Change
a.	Learning outcomes should describe the expected knowledge, skills, and behaviors that students will have achieved at the time of graduation (overarching program goals).	S	<ul style="list-style-type: none"> • Student learning outcomes for majors courses are clearly mapped for all courses following NSF’s Vision and Change. The extensive use of labs in required and elective courses provide a remarkably high degree of High Impact Educational Experiences (HIEE’s) through which they are able to introduce, emphasize and comprehensively assess outcomes. • General Education classes were also successfully mapped to learning outcomes.
b.	Learning outcomes must support the goals of the program and the constituencies served.	S	<ul style="list-style-type: none"> • The learning outcomes will serve anyone graduating with a Zoology degree well and will help support those who continue with graduate study. • The learning outcomes also support the goals for the General Education classes and provide non-majors a breadth of learning outcomes.
c.	Learning outcomes should be directly linked to the program's curriculum. An explicit curriculum grid illustrating this alignment, as well as the depth to which each course addresses each outcome, is publicly available.	S	<ul style="list-style-type: none"> • The Spring 2023 revised grid is excellent and has been simplified to reflect 3 levels of assessing concepts and competencies onto the required and elective classes the department offers, ensuring thorough coverage of outcomes. It is unclear whether these grids are publicly available. They could be linked to the Zoology website though it is also unclear whether students would find them useful or not. Revisiting this grid yearly would be a useful exercise for the department.

Comments: The student learning outcomes are clearly mapped to concepts and competencies. It is apparent that the department took time to identify these concepts and competencies and determine which courses they could be fully assessed. In doing so, students are guaranteed to be fully exposed and assessed on each of the learning outcomes multiple times. The grid is excellent and should be regularly revisited.

Recommendations:

- Regularly revisiting the learning outcomes for each course taught will ensure that students are being assessed comprehensively for each outcome. It will also highlight redundancies (which are not necessarily a bad thing).

Evaluate the effectiveness of the assessment process based on the following elements.

	Element	Rating	Comments and/or Recommendations for Change
a.	The program has a developed set of measures for assessment that are clearly defined and appropriately applied.	G	<ul style="list-style-type: none"> • Appropriate assessment of required courses, elective courses and general education courses. Most were assessed by exam questions but in the zoology major courses additional peer-reviewed assignments were used in addition to exam questions. In the General Education courses, Signature Assignments have been developed to help assess learning outcomes. • The program needs an overall assessment tool to see if there is growth in learning from freshman to graduating. Recommend NSF's BioMaps assessment but there are others. BioMaps is tied to the NSF's Vision and Change (https://cperl.lassp.cornell.edu/bio-maps). • The exit survey questions you have designed are useful for student perception but do not really reflect what they actually learned.
b.	Each learning outcome is assessed with <i>at least one direct measure</i> of learning; thresholds for acceptable performance are defined (for each measure) and published.	G	<ul style="list-style-type: none"> • The examples provided showed thoughtful assessment for each of the learning outcomes. Thresholds for acceptable performance are clearly defined and have been met. It was suggested in past assessments for General Education courses that multiple measures for all outcomes be designed. Not clear as to what extent that has happened. • The newly-introduced lab skills table (p28) provides a good basis for documenting evidence of effective instruction going forward, given the importance of lab-based instruction in the teaching and reinforcement of foundational learning outcomes. • It is unclear whether these results are published or are accessible by/for students or if that is truly necessary.
c.	Demonstrate that evidence of learning is being gathered on a regular basis across the program, that the evidence is aggregated, and reported at the aggregate.	G	<ul style="list-style-type: none"> • General Education courses and required courses are being assessed on a biennial basis and reported / posted per institutional guidelines. Learning thresholds were raised and consistently met. Recommendation from past review to assess one outcome per level (i.e. freshman assessed on one competency, sophomores another, etc.). This has not been reported nor does there appear to be a plan to do so. Possibly designing an assessment that could be taken by entering freshman, end of sophomore year and end of senior year to monitor learning gains could be useful.

d.	Demonstrate that these measures are being used in a systematic manner on a regular basis and are reviewed against department-established thresholds, i.e., are the program faculty meeting regularly to discuss the evidence?	G	<ul style="list-style-type: none"> Revised curriculum map shows evidence of ongoing reflection and revision of program outcome assessment plan, but the mechanism / degree of participation in this process is not clear, i.e. whether it is a result of faculty participation, a subset or faculty committee, or the chair alone. Recommend that program assessment plans are regular agenda items in faculty meetings.
e.	Demonstrate that the assessment of the program mission and student outcomes is being used to improve and further develop the program. Is the evidence acted upon? Is it clear what drives program change?	C	<ul style="list-style-type: none"> Last program review noted the need for both institutional guidance to faculty on processing assessment results and faculty discussion of results and 'closing the loop' activities. The current program review mentions feedback and suggestions from GEIAC (p11) and Office of Institutional Effectiveness regarding Gen Ed and program outcomes assessment, but no mention is made of how or when the results are discussed and suggestions implemented. In general, the lack of any forward-looking goals or evidence of strategic planning in the review document makes it difficult to assess what drives program change, although some of this may take place more at the college level. Recommendation of getting active with PULSE. They have incredible amounts of resources and team building exercises. A visit by the ambassadors could give your department a focus that you might find useful.

Comments: The program has been diligent about assessment at the course level both in majors and general education courses. The thresholds for learning have been raised and consistently met. Data is gathered every 2 years and reported to the institution. The current grid for learning objectives suggests departmental dialogue.

Recommendations:

- It is recommended that evaluation of student outcomes become a regular faculty meeting agenda item or retreat item.
- There is a tremendous need to evaluate the entire program. BioCore or another pre-built assessment tool would help with that assessment.
- Also recommend joining PULSE and utilizing their expertise and/or inviting an ambassador team to host a workshop for the department. It is almost free (you pay for a couple of meals) and very insightful.

D. ACADEMIC ADVISING.

	Element	Rating	Comments and/or Recommendations for Change
a.	The program has a clearly defined strategy for advising their major/minor, or BIS students that is continually assessed for its effectiveness.	C	<ul style="list-style-type: none"> • Program advising was identified as an area of concern in the last program review, and some changes have been instituted since then, including designated advisors identified for different degree options (BS, minors, BIS, pre-professional, etc.), and the designation of a faculty Zoology New Major advisor who, along with the department chair, advises and orients new majors and minors to the curriculum. • Students who are already matriculated at the university may seek General Education advising through the college, and newly-declared majors are required to seek initial advisement with the department, however this is the only required advising touch-point. If students declare their major upon enrollment at the institution, they are not required to seek any advisement. • After initial advisement, and depending on their areas of interest, students are then referred to other faculty members with relevant expertise for major advising and to explore possible areas of research. • The last program review report recommended the development of an ‘advisement assessment tool’, which has been initiated with a new exit survey for graduating students.
b.	Students receive appropriate assistance in planning their individual programs of study.	C	<ul style="list-style-type: none"> • Students on the pre-professional tracks and those who self-select for research experiences and/or eventual graduate study are very well-served and benefit greatly from faculty mentorship and inclusion in an impressive array of research and scholarship opportunities. Student feedback indicated that other students often felt a bit lost or that they slipped through the cracks in defining their pathway through the program. • The program curriculum is complex, and apart from the prerequisite courses ZOOL 1110 and 2220, largely non-sequential. In addition to numerous required courses and ‘elective support courses’ in other programs in the college, students may choose from a wide array of elective zoology courses, but there is no clearly-delineated, step-wise process after initial advising for guidance in choosing or understanding different topic areas and the implications of different elective choices. The current process seems to largely assume that students will find an area of focus on their own and seek out the relevant faculty for mentoring,

			but without any kind of initial guidance regarding elective choices and their implications for potential career pathways.
c.	Students receive needed assistance in making career decisions and in seeking placement, whether in employment or graduate school.	C	<ul style="list-style-type: none"> The student resources webpage for information on internships and employment opportunities provides many useful external links, but students are steered more generally to WSU Career Services or other national, off-campus resources. Perhaps more specific career information and opportunities are communicated to students via email or social media, but the Zoology Research, Internships and Job Opportunities webpage should be more actively maintained, as several links are currently broken.

Comments: Program advising works well for certain students but has room for improvement.

Recommendations:

- Require mandatory initial advising for all majors, regardless of when they declare.
- Assign students an advisor and/or require more frequent advising intervals. Particularly for students not on pre-professional or research tracks and who aspire to non-academic careers, additional required advisement touchpoints prior to graduation could enhance student understanding of different topical areas and elective choices, contributing to timely degree completion and effective career preparation. Given the large number of majors, this is a challenge, but could consist of a combination of required advisement with faculty in different topic areas, and dedicated staff resources within the department or across the life science programs, as recommended in the last program review.
- The program currently provides graduate maps based on math placement levels, but should consider offering additional graduation maps or suggested pathways through the degree based on topic area interests and career goals.

E. FACULTY

Evaluate the extent to which the faculty demonstrates the following characteristics.

	Element	Rating	Comments
a.	Faculty size, composition, qualifications, and professional development activities must result from a planning process which is consistent with the program's mission.	S	<ul style="list-style-type: none"> Faculty size is appropriate for the number of majors and all are qualified. Professional development appears to be based on an individual's expertise which is appropriate for a diverse set of skills in one department. The areas of expertise within the department are well thought out as there are a diverse set of electives yet there is some overlap of skills that allows the required classes to be taught by multiple faculty members. Research is important to most Zoology professors, and they include students in their research projects. The faculty collectively have an impressive publication record, and a very strong program of mentoring and collaborating with students on research projects and through lab experiences. However, with all the publications shown in the self-study, a relatively low number had students as authors. Is there a way to increase student involvement so that they are included more often in publications?
b.	The program maintains a core of full-time faculty sufficient to provide stability and ongoing quality improvement for the degree programs offered.	S	<ul style="list-style-type: none"> Faculty are excellent and are all interested in program and self-improvement. Faculty are reviewed annually and meet with the chair about that review. All submit Annual Reports with evaluations from 2 classes per year (for tenured) and all classes for non-tenured.
c.	Contract/adjunct faculty who provide instruction to students (day/evening, off/on campus) are academically and professionally qualified.	G	<ul style="list-style-type: none"> From the self-study it appears that all adjunct or non-tenure track faculty were academically and professionally qualified. The reviewers did not have a chance to speak to any adjunct or non-tenure faculty. They are evaluated by students and reviewed by the Chair. Any problems that are identified are addressed by the Chair.

d.	The program should demonstrate efforts to achieve demographic diversity in its faculty.	G	<ul style="list-style-type: none"> From the self-study they are interested in a more diverse faculty. They have an almost equal ratio of M/F, mostly Caucasian faculty with one Asian ancestry and one Asian tenure-track faculty. Adjunct faculty have a similar profile. Student recruitment, retention and success can benefit from a more diverse faculty, particularly with a 17% Latinx student population at WSU. This is a tough problem to solve.
e.	The program should have appropriate procedures for the orientation of new contract/adjunct faculty.	G	<ul style="list-style-type: none"> History of informally mentoring junior faculty that has been upgraded to a more formal process starting with their newest hire (Dr. Ezgi Yesilyurt). A committee of 3 was assembled and will meet every six months with the new hire to discuss the requirements for tenure and promotion as well as to answer any questions. This process is commendable and should be continued. There does not appear to be any mentorship of adjunct or non-tenure track full time hires, or it isn't evident in the self-study.
f.	Processes are in place to determine appropriate teaching assignments and service workloads, to guide and mentor contract/adjunct faculty, and to provide adequate support for activities which implement the program's mission.	G	<ul style="list-style-type: none"> Faculty reported a very supportive and collegial atmosphere and flexibility in scheduling, coordinating leaves, etc. Given the preponderance of 4 cr. hr. laboratory courses in the program, the college-wide system of including actual lab contact hours as part of full-time faculty load is admirable. The program further provides faculty with the opportunity to 'top off' their contractual loads with variable credit hour seminar courses which allow them the flexibility to explore topics of personal interest which benefit students and are sometimes used to pilot new ideas for 3-4 cr. hr. elective courses. Professional development is recommended and supported though many are doing these on top of a full teaching load. Mentoring student research is part of the mission of the department but is not adequately supported (0.25 credits/student/semester).

g.	<p>Teaching is systematically monitored to assess its effectiveness, and revised periodically to reflect new objectives and to incorporate improvements based on appropriate assessment methods. For both contract and adjunct faculty, there is evidence of:</p> <ul style="list-style-type: none"> • Effective creation and delivery of instruction. • Ongoing evaluation and improvement of instruction. • Innovation in instructional processes. 	G	<ul style="list-style-type: none"> • Faculty are reviewed annually and meet with the chair about that review. All submit Annual Reports with evaluations from 2 classes per year (for tenured) all classes for non-tenured faculty. • Not a lot of evidence of innovation in instructional processes being systematically monitored. Many faculty do new and exciting things, but no evidence of talks, support of innovative pedagogy. • Recommend having a once a year or more faculty meeting/seminar to discuss new, exciting pedagogy and how it affected learning outcomes. Open dialogue about how each instructor is improving their course will have a ripple effect on the program.
h.	<p>A formal, periodic review process exists for all faculty, and the results of the reviews are available.</p>	G	<p>Faculty are reviewed annually and meet with the chair about that review. All submit Annual Reports with evaluations from 2 classes per year (for tenured) all classes for non-tenured faculty.</p>

Comments: Faculty are highly qualified and diverse in their disciplines. This gives students a wide range of expertise and the ability to select from a diverse set of electives. Faculty are very engaged with students and offer many mentoring activities, especially in terms of research. They are productive and have produced an admirable list of manuscripts and presentations, many with students. The department has a system in place for mentoring new faculty that is excellent and should be continued for future new hires. The faculty are reviewed regularly and are given feedback by which to improve. The department is very collegial and it appears that everyone is supportive of each other.

Recommendations:

- Get institutional buy-in to give more credit to student research. This could possibly help increase the number of students engaging in research and maybe help increase the number of students as authors on peer-reviewed manuscripts.
- Institute a formal mentoring process for adjunct/non-tenure full time hires. It might not be as extensive as for a tenure-track hire but could be a way to help with the lower evaluation scores.
- Recommend having a once a year or more faculty meeting/seminar to discuss new, exciting pedagogy and how it affects learning outcomes. Open dialogue about how each instructor is improving their course will have a ripple effect on the program.
- Finally, maintain your approximately 50:50 male to female ratio of faculty but try to hire more culturally diverse faculty, especially Latinx to reflect the demographics of the community and university.

F. SUPPORT (STAFF, ADMINISTRATION, FACILITIES, EQUIPMENT, AND LIBRARY).

	Element	Rating	Comments
a.	The number and capabilities of the support staff are adequate to meet the mission and objectives of the program.	G	<ul style="list-style-type: none"> Overall the program is well-staffed. The lab manager is very capable and has a lot of responsibilities. In other institutions with comparable facilities the lab manager would typically have at least another half-time and/or student assistant. In addition to assigned responsibilities, the lab manager also voluntarily functions as a student club advisor, which is admirable but unusual and perhaps not sustainable in the long run. The program could benefit from a dedicated community outreach and/or student engagement coordinator. The program has an admirable track record of outreach to local schools, enlisting students to present on various topics, but from conversations with staff it appears that this is very much dependent on one part time staff member (the externally-funded Zoology Education Assistant), and appears to have very little faculty or other departmental involvement.
b.	Administrative support is present in assisting in the selection and development of support staff.	G	<ul style="list-style-type: none"> Administrative support staff is good, consisting of a recently-hired Administrative Specialist and a part-time student assistant.
c.	The facilities, equipment, and library support needs are adequate to meet the mission and goals of the program.	S	<ul style="list-style-type: none"> Facilities, including teaching labs, shared research spaces and storage in the relatively new Tracy Hall are excellent, although some teaching spaces with rearrangeable tables would be ideal for small group work. Faculty expressed satisfaction with available equipment for teaching and lab work, although budgetary resources for ongoing maintenance and repair are unclear. Although the building is relatively new, faculty office space is already in short supply, with some department faculty dispersed to other areas and little room to accommodate growth. Students spoke highly of the common room / student lounge available for study and socializing.

Comments: Overall the program is well staffed, equipped and the facilities are excellent.

Recommendations:

- Faculty identified access to reliable, affordable, and appropriately-sized campus vehicles for field trips as one significant obstacle, as such experiences are a regular and significant feature of numerous classes.
- The need for a permanent field station or other external site was expressed, which could serve as a base for field work, short courses and other activities for a variety of majors across the college. Given the importance of field work for many classes, such a facility could significantly enhance longer-term, in-depth high-impact learning experiences across the curriculum.

G. RELATIONSHIPS WITH EXTERNAL COMMUNITIES.

	Element	Rating	Comments
a.	If there are formal relationships between the program and external communities of interest they should be clearly defined.	G	<ul style="list-style-type: none">• Faculty have an admirable record of engagement with external professional organizations, and the department has a good range of relationships with external communities, including area schools and community groups. The department is to be commended for hiring an externally-funded Zoology Education Assistant who serves as a contact point for local K-12 educators, recruiting students to participate in school presentations.• Participation in college-level outreach programs promote a range of outreach and science education programs, providing community engagement opportunities for students, including tours and educational programs in the anatomy lab.• In terms of engagement with underserved BIPOC area youth and engagement with the community, one of the most effective and impactful form of departmental outreach seems to be the student club MAS- Multicultural Advancement in Science, which enables students to engage with a variety of self-selected issues and engage in presentations such as those for the WSU Multicultural Youth Conference. The continuity and success of this club seems largely contingent on the efforts of one faculty member, and the degree of departmental or institutional support is unclear.

b.	Such relationships should have a clearly defined role and evidence of their contribution to the program (curriculum, equipment, faculty, budget, etc.) should be demonstrated.	G	<ul style="list-style-type: none"> • Most department relations with external communities in the area are informal, ad hoc and contingent on community-initiated requests, particularly in the area of science education. • These relationships do not have a clearly defined role beyond the broad goals outlined in the department’s mission statement. • Greater transparency and accessible information about these potential avenues of outreach and external relations could benefit students in terms of curricular and/or career planning.
c.	If the program has an external advisory committee, it should meet regularly and minutes of the meetings be made available.	C	<ul style="list-style-type: none"> • The last program review identified the “functionality of the external advisory committee” as a concern, but in the current program review, it’s stated that the department “no longer has an external advisory committee” without further explanation.

Comments: The Zoology Program has a good record of engagement with external communities. There is a breadth of engagement opportunities with the opportunity to grow.

Recommendations:

- Community outreach activities include significant contributions from the Multicultural Advancement of Science and Zoology student clubs, providing valuable opportunities for student engagement. Enhanced departmental and faculty support for these groups could provide greater opportunities for impactful student engagement and learning experiences.
- Students in the program expressed an interest in community engagement but were uncertain about the availability of such opportunities. Improved dissemination of outreach opportunities could broaden student access to such extracurricular experiences.
- The last program review identified the “functionality of the external advisory committee” as a concern. In the context of the institutional emphasis on community-engaged learning and strengthening ‘town-gown’ relationships, this seems to be a missed opportunity for providing students with engaged learning, career mentoring and placement opportunities.

H. RESULTS OF PREVIOUS PROGRAM REVIEWS.

	Element	Rating	Comments
a.	<p>The program must show how it has implemented any recommendations from the previous review and what effect these changes had on the program. If any recommendations were not implemented the program should explain why they were not put into place.</p>	G	<ul style="list-style-type: none"> • Recommendations were taken seriously. The newly-introduced lab skills table (p28) provides a good basis for documenting evidence of effective instruction going forward, given the importance of lab-based instruction in the teaching and reinforcement of foundational learning outcomes. • The revised curriculum map is excellent. Each course was evaluated for the depth for which it met the core concept and competencies that the department felt were important. The concepts and competencies are being met more than once in the required course sequence and are then being met again in the electives. • Class assessments were documented and systematically approached. Most instructors are designing assessments other than exam questions which is highly recommended. • An exit assessment of graduating students was not implemented though the need was recognized. Recommend BioCore or another pre-built assessment tool (see above in assessments for link). Exit survey is useful for student perception, not necessarily for skills. • Still need to discuss course and program assessments as a department and make changes based on those discussions. Use data to help drive curriculum changes. This could be done once a year. • Advising needs to be a more formal process. Too many students can get lost. Students should be assigned advisors early and be strongly encouraged to visit their advisors. Students can be reassigned advisors if they shift their focus (i.e. decide not to be pre-med). Advising maps like you have for Math series can be developed for multiple career paths. • Diversity of faculty should be a priority but might be difficult to remedy. Institutional support in recruiting diverse faculty could help.

			<ul style="list-style-type: none"> • Lab manager feels supported and the student help has eased her burden. The reviewers were a bit concerned with her job including organizing external community projects and being the Zoology Club Advisor. This seems more appropriate to faculty. For example, many of the external community projects were to K-12 schools. Shouldn't the Life Science Teaching faculty be the one to take care of those commitments? • Discontinued the external advisory committee. Could there be an internal advisory committee to keep track of all the different types of opportunities and to make sure they are made public or available to students?
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Comments: Most reviewer comments were addressed in a positive way.

Recommendations:

- Need to address program-level assessment and then use the data from this plus course assessment to direct curriculum changes.
- Faculty need to visit assessment data at least once per year to determine if the program is working. Advising is still a problem.
- A more formal avenue of student advising needs to be implemented, especially for students who are not on a professional track.
- Keep pursuing diversity in your faculty lines.
- Think about using faculty as the Zoology Club advisor and as the external community relationship organizers.

Submitted March 27, 2023

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