Student Outcomes Assessment and Success Report AY2017-18   *Completed reports due from the dean to the Assessment Office via Blackboard by October 15. Deans, assessment coordinators, and/or department chairs set their own internal deadlines for material review and request for refinement if not suitably addressing questions.*

Unit/Program Name: Biology_____**Contact Name(s) and Email**   Donna Selman__donna.selman@indstate.edu

Before you complete the form below, review your outcomes library and curriculum map to ensure that they are accurate and up to date. If not, you may submit a new version along with this summary. Templates are available on the assessment website.

Part 1a: Summary of Assessment Activities

a. What learning outcomes did you assess this past year? If this is a graduate program, identify the Graduate Student Learning Outcome each outcome aligns with.	b. (1) What assignments or activities did you use to determine how well your students attained the outcome? (2) In what course or other required experience did the assessment occur?	c. What were your expectations for student performance?	d. What were the actual data/results?	e. What changes or improvements were made or will be made in response to these assessment results or feedback from previous year's report?
1. SLO #3 Scientific communication and literacy	1) Students were given a scientific journal article to read and were asked to answer a set of questions about the article. 2) BIO 490 Biology Seminar	Identify the hypothesis, interpret the experimental strategy and results, and critique the discussion and conclusions of the article	All students demonstrated proficiency at identifying the hypothesis. Approximately 75% of students correctly interpreted both the experimental strategy and the results of the manuscript with the remaining students being capable of identifying at least one key experiment or finding. Approximately 50% of students provided a written summary that represented a good to excellent interpretation of the author's conclusions. An additional 25% were able to give the majority of the main points of the author's conclusions or provided an appropriate description of the This is the first year for assessment of Scientific Communication and Literacy. In 2020 we will repeat this assessment for comparison. It would benefit our students to add additional exercises in all upper division classes to have them read the primary literature.	This is the first year for assessment of Scientific Communication and Literacy. In 2020 we will repeat this assessment for comparison. It would benefit our students to add additional exercises in all upper division classes to have them read the primary literature.

			paper's contribution to the broader literature. Overall: 75% of our students did acceptable work with the publication.	
2.				
3.				

Note: *If you would like to report on more than three outcomes, place the cursor in the last cell on the right and hit "tab" to add a new row.*

Notes
   a. Use your outcomes library as a reference.
   b. Each outcome must be assessed by at least one direct measure (project, practica, exam, performance, etc.). If students are required to pass an examination to practice in the field, this exam must be included as one of the measures. At least one of the program's outcomes must use an indirect measure (exit interview, focus group, survey, etc.). Use your curriculum map to correlate outcomes to courses.
   c. Identify the score or rating required to demonstrate proficiency (e.g., Students must attain a score of "3" to be deemed proficient; at least 80% of students in the program will attain this benchmark."
   d. Note what the aggregate level of proficiency actually was and the number of students included in the cohort or sample (e.g., "85% of the 25 students whose portfolios were reviewed met the established benchmark").

Part 1b: Continuous Quality Improvement
In no more than one page, summarize 1) the discoveries assessment has enabled you to make about student learning (a. What specifically do students know and do well—and less well? b. What evidence can you provide that learning is improving?); 2) what your assessment plan will focus on in the coming year; and 3) how will this information be shared with other stakeholders?

Part 1b: Continuous Quality Improvement
In no more than one page, summarize 1) the discoveries assessment has enabled you to make about student learning

In science, reading the primary literature is key to remaining at the forefront of the most recent discoveries. As one type of assessment, we have asked students to read a primary scientific publication followed by questions to determine their basic understanding of the most important facts in the paper. Training in the understanding and utilization of primary literature is provided throughout the program with mastery of this skill expected by the time a student graduates. Previous efforts to evaluate students in this area were less successful as there was no consistency in the writing assignments evaluated. In order to standardize this assessment, we incorporated the assessment into one required course typically taken in the senior year, BIO490. Each student was asked to complete a primary literature reading assignment with a corresponding rubric to be evaluated by the undergraduate affairs committee. Utilization of the same assignment and rubric each year will enable consistent evaluation across multiple years.

(a. What specifically do students know and do well—and less well?

Based on the data provided from this initial year of assessment using the new model for writing, students demonstrated proficiency at identifying both the key hypothesis of a primary literature article. Students also correctly identified the motivation/rationale for the research. Approximately 75% of students correctly interpreted both the experimental strategy and the results of the manuscript with the remaining students being capable of identifying at least one key experiment or

finding. Approximately 50% of students provided a written summary that represented a good to excellent interpretation of the author's conclusions. An additional 25% were able to give the majority of the main points of the author's conclusions or provided an appropriate description of the paper's contribution to the broader literature.

b. What evidence can you provide that learning is improving?);

This specific type of assessment, Scientific Communication and Literacy, has not been performed with our students prior to this year. This cycle establishes the baseline for future evaluations and areas for focus in the coming years. The current data demonstrates students are appropriately prepared to evaluate and interpret key concepts within the primary literature. Further emphasis should be placed on connecting a single article to the primary literature. The other writing components of our assessment plan should provide a foundation for achieving this focus.

2) what your assessment plan will focus on in the coming year;

Next year we will repeat the Biology Exit Exam and continue to assess the various writing components outlined in the assessment plan. The Biology Exit Exam emphasizes material from all of the core courses required of our Biology Majors. Further development of additional writing assignments that meet our assessment goals will also be emphasized.

and 3) how will this information be shared with other stakeholders?

The undergraduate affairs committee is expected to complete the evaluations of the exit exam and writing components. The deidentified summaries of student performance are made available to the department via the faculty Blackboard page and distributed/discussed at the December department meeting.

Part 2a: Summary of Student Success Activities
Based on the results of your assessment of student learning outcomes from Part 1 above, reflect on how this data will impact student success within your unit/program.

a. What goals/objectives were established this past year to aid student performance, retention, persistence, and completion?	b. What primary action steps were taken to make progress on each goal and who was responsible?	c. What data informs progress on each goal?	d. What were some accomplishments or achievements for each goal and/or challenges confronted?	e. Please indicate goals that are continuing and any goals that will replace a previous goal. Any additional goals can also be added on a new line.
1. *Reduce curricular barriers to timely degree completion*	Changed time BIO 374 is offered to avoid conflict with Analytical Chemistry (which students need for Chemistry minor).	Course schedule changes.	Some difficulty instituting changes to individual faculty schedules but overall good coordination with other departments.	Ongoing schedule coordination with CAS Dean's office and department chairs.

	Offered BIO 101 and 101L in Spring and BIO 102 and 102L in Summer to aid students in staying on track for degree completion

Biology faculty are discussing revising model for core course sequence to determine if current order is best option for persistence to degree completion. | Course schedule changes. SP18 BIO 101=32 enrolled SP18 BIO101L=14 enrolled SU18 BIO102=15 enrolled SU18 BIO102L=7 enrolled | There is a demand and a number of students who failed either Lab or Lecture were able to get back on the 4 year graduation track. | We plan to continue this schedule offering as long as we have the needed resources.

Ongoing |
| 2. *Promote career readiness and connections between course content and careers* | Invited alumni speakers and panel presentations, including minority alumni, to better-educate students about career options, and to maintain their interest in the major and degree completion.

Prepare individual PowerPoint slide(s) to be used in BIO 101 in lectures that communicate and illustrate careers related to lecture topics. | Speaker List: Invited 22 speakers to campus. | All were asked to provide some detail on their current and past employment. Current students (TRI-BETA) are now recommending speakers to bring in.

We need to collect attendance numbers | Will continue

Ongoing |
| 3. *Increase use of Science Help Center by Biology students* | Increased hours of available Biology tutors (hours that don't conflict with classes and evening hours). Found resources to support assigned tutor to BIO 112. | Fall 17 there were a total of 24 BIO students tutored in the Center. SP18 there were a total of 84 BIO students advised in the Center. We changed to hours to avoid conflicts with high needs courses. | We tripled the number of students served.

Unable to schedule evening hours due to current management of the center. Referring students to tutors instead. | Our ability to continue this will depend on continued recruitment and training of skilled tutors. |

4. Promote regular attendance and study habits in introductory courses (BIO 101, 102, and 112)	Instituted "How to Succeed at Science and Keep your Street Cred."	Fall 18 267 students from BIO 112, 231,274, and 380 attending. 6 BIO faculty participating (up from 2).	Early indications show that this is useful to students in BIO and other classes. ENVI students are also electing to attend.	Ongoing. Should be instituted for all Freshmen and Sophomore BIO students/courses. Will need full faculty participation.
	Use of "Quickly" attendance tool in large lectures.	3 faculty are currently using this tool.	Some resistance from faculty. As teaching assignments change the tool will increase in use.	Ongoing. Make this a requirement for all adjuncts.
5. Review and revise Biology's Student Learning Outcomes and assessment plan	Discuss current SLOs with Assessment office and determine if changes are merited. Explore use and cost of Biology Majors Field Test.	Discussed SLO's with Mary Harrington Perry. No changes were suggested.	Department has tentatively agreed to the use of the Majors Field Test.	Will continue evaluating Scientific Communication and Literacy SLO
6. Enhancing the Learning Experience	Identify courses with high failure and DFdrop rates over the past three years (2015–16, 2016–17, 2017-2018), and examine grades for students who dropped.			Ongoing
	Assign highest rated teaching assistants to BIO 101 and 102 labs to demonstrate study skills and note-taking practices to Biology majors.	Required all TA's to enroll in FA 18 BIO 610 Preparation for College Teaching. Assigned 50% responsibility to all TA's regarding grades and attendance. Classroom management and tool development assignments.		Ongoing—this is the first time we have done this.

Benchmark Metrics

Metric	2016-17 FTFT-BDS Cohort Actual	2017-18 Target	3 Year Target (2019-20)
Freshmen Retention[1] *(by latest department)*	73.13%	74%	75%
4-Year Grad Rate *(by latest department)*	41.94%	43%	44%
	Source data for 2016-17 actual	**2017-18 Target**	**3 Year Target (2019-20)**
DFDr Rate	25.32%	24%	23%
Lower division course completion ratio	78.98%	80%	81%

Notes

a. These goals could be program/department wide but may also be focused on specific sub-populations of interest (e.g., service course student performance, transfer students, part-time students, students of a particular class year, students of color, etc.).

c. Retention and completion data, D/F/drop rates, credit hour productivity (defined as credit hour enrollment at start of term versus credit hours earned at end of term) are common data examples. See Blue Reports database (access from Linda Ferguson in Institutional Research) or the Office of Institutional Research for ideas.

Part 2b: Continuous Quality Improvement

In no more than one page, summarize 1) the discoveries that attention to student performance, retention, persistence, and completion has enabled you to make about program/department systems, processes, and norms as it effects students; and 2) how this will positively impact student success, including with regard to the readiness of students for graduate study or a career?

Please prepare this report as a Word document. Do not include any attachments. Instead, provide links to important supporting materials

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[1] In a very few cases, such as with departments with very small numbers of majors or who have few or no new freshmen who enroll in their program, this metric and a grad rate may not be applicable. Other appropriate metrics should be used instead (e.g., service course student performance, transfer students, part-time students, etc.).

(e.g., detailed—but not student-specific--assessment results; rubrics; minutes; etc.), or upload them to the college's assessment site in Blackboard.

Reducing the barriers to timely graduation has required us to open lines of communication with other departments and pre-professional advisors. This has shown to provide small but effective changes to scheduling which in turn has relieved some pressure on students struggling to get needed courses in the year of graduation and reduced the number of competing but required courses. While we have had success doing this we can do more. Specifically when planning schedules department chairs and advisors need to meet and collaborate on our schedule needs and offering. Our focus here should be on student needs rather than faculty preference. Moreover, this process has illuminates the need to revisit the core offerings rotation and indeed the relevancy of the core offerings in the program.   Revisiting the curriculum with an eye towards relevancy will necessarily encompass career needs and preparation. Revisiting the rotation with an eye towards persistence will involve reexamining the old traditional rotation of courses to come in line with current student needs.
Efforts to promote regular attendance and study habits have allowed us to try some new initiatives and collaborate with other offices across campus. The collaborative efforts of BIO faculty and the staff of the Center for Student Success has resulted in two widely successful initiatives "How to Succeed in Science and Keep Your Street Cred" and "The Professor is In." Focused on studying and note taking specifically in science and offered during the third week of courses students report that this (street cred) has helped in all of their courses (not just science). Building on this success and recognizing that students need to be able to access faculty in a more informal way (rather than office hours) for a variety of things: quick questions, career advice, talking through research ideas and just simply getting to know them the Biology faculty are available in the "Lookout Area" of the Science Building every Friday. The excitement and usefulness of "The Professor is In" is readily available if one just strolls through the area from 1-4 on Friday afternoons. There has been a shift in the climate; once an area that was eerily quiet late on Friday is now full of life and energy. We expect to see the numbers and the stories to support theses efforts to become abundantly clear, as these are small adjustments but have the potential for great impact on performance, retention, persistence and completion.   Our *attention on enhancing the learning experience* revealed the necessity of insuring that our TA's are well equipped to manage courses. This included making sure they had pedagogical and technological skills that allowed for clear and concise communication with students as well as identified the expectations of them as they conducted classroom activities. This is certainly beneficial to the enrolled students but also better prepares our graduate students for the next step in their own careers.

Dear Donna,

Thank you so much for sharing your assessment process and findings for AY 2017-18 with the Assessment and Student Success Councils. You will find a comprehensive synthesis of the feedback compiled by both groups below. It is understood that some of the feedback might encompass practices that you already engage in but that are not documented in this report. As the purpose of this evaluation is focused on recognizing great work and helping faculty improve assessment practice, it is not necessary to retroactively add documentation. Please feel free to let me know if you have any questions or if there is any way I can assist you in further developing assessment in your program.

This report will be shared with the Associate Dean(s) and Dean of your college and summarized findings will be shared as composite college/institutional data with the President's Office and the Provost's team.

Sincerely,

Kelley (x7975)

Program: BS Biology & BS Lab Science
Assessment Practice Overall Rating: Developing (1.625/3.00)
Student Success Practice Overall Rating (notes below in blue): Mature (2.25/3.00)

Strengths	Recommendations
• The assignment selected seems like a good way for students to demonstrate learning. Good notation of the class in which it is administered. • Excellent discussion of the actual results. Breaking the discussion into student performance by area of the assignment helps to identify specific areas of strength and challenge, allowing you to better focus instructional strategies moving forward. • Useful reflection on the findings and how they will be applied to future decisions. Good note on the follow-up assessment in the cycle now that this area has been added. • **Comprehensive student success goals to address time to degree, ongoing interest and motivation for persistence and career readiness, and quality of learning through promoting tutoring, attendance, and studying. This is a really great, multifaceted approach.** • **Clear evidence supporting success of changing time of course offerings.** • **Great approach to improving student skills in a relevant way through "The Professor is In" and "How to Succeed at Science and Keep Your Street Cred." Hopefully instructors will hear from those participating in Quickly attendance tool that it is beneficial.**	• As it's written, SLO 3 is not a learning outcome. This might be a broad area of learning in the program, but it needs to be much more specific about what students will learn and how they will demonstrate their learning. It is likely that multiple outcomes would fall under this broad area. • Good notes on what students were expected to do in the assignment – add a note of the level of success students were expected to achieve. (Ex: 70% of students will answer 80% of questions coreectly; 70% of students will score 3 or better on the rubric and describe the rubric ratings, etc.). • When you have expanded upon the type of evaluative tool used (test key, rubric, checklist, etc.) it will be helpful to briefly describe how it was employed to establish the quality of the evaluation. • **Consider collecting feedback from students who attended the speaker sessions to learn what they're gaining in terms of the goal (confidence, motivation, career ideas, etc.).** • **Per the assessment feedback in this report, consider reviewing SLOs with new Assessment Coordinator.** • **Looking forward to seeing results from the TA preparation in the coming year.**

	• **Make a note of which faculty were responsible for which goals, and how faculty were involved in using findings to determine goals and/or action steps.**

Assessment (Parts 1a & 1b) Scoring Rubric is included below. Student Success (Parts 2a & 2b) Scoring Rubric is included below with no notations just for your reference (the SSC did not choose to report in this way).

Score was calculated on a 0 (undeveloped), 1 (developing), 2 (mature), 3 (exemplary) scale.

Evaluation Criteria	Exemplary	Mature	Developing	Undeveloped
Student Learning Outcomes	At least one learning outcome that is aligned with program coursework is assessed this cycle. Learning outcome(s) is specific, measureable, and student-centered. Rationale for assessment of this outcome(s) is made clear (ex: it is part of a standing assessment cycle, a need was identified, etc.) Learning outcome(s) directly link to college, institutional, and/or accreditor goals/standards.	At least one learning outcome that is aligned with program coursework is assessed this cycle. Learning outcome(s) is specific, measureable, and student-centered. Rationale for assessment of this outcome(s) is made clear (ex: it is part of a standing assessment cycle, a need was identified, etc.)	At least one learning outcome that is aligned with program coursework is assessed this cycle. Learning outcomes(s) is measurable.	No learning outcomes are identified for assessment or the outcomes that are identified are not linked to program outcomes aligned with program coursework (e.g. – curriculum map) or are not measurable.
Performance Goals & Measures	Performance goal identified for each learning outcome is clear and reasonable (ex: based on previous performance data, professional standards, etc.). Identified measures are designed to accurately reflect student learning, including at least one direct measure. Tools used to measure student performance are described and were reviewed for validity or trustworthiness prior to use (note this in the report; attach tools if applicable – ex: rubrics, checklists, exam keys, etc.).	Performance goal identified for each learning outcome is clear and reasonable (ex: based on previous performance data, professional standards, etc.). Identified measures are designed to accurately reflect student learning, including at least one direct measure. Tools or processes for evaluating student performance on measures are described (attach tools if applicable – ex: rubrics, checklists, exam keys, etc.).	Performance goal(s) is identified for each learning outcome. Identified measures (ex: assignments, projects, tests, etc.) are poorly suited to performance goals or are solely indirect measures. Tools or processes for evaluating student performance on measures are not described.	No goals for student performance of learning outcomes is identified, and/or no measures are provided.

Analysis & Results	Data is collected using the measures and tools identified. Results are reported with clear description of quality analysis (e.g., analysis follows accepted statistical or qualitative procedures). Results are shared in relation to performance goals. Results are discussed in relation to college, institutional, and/or accreditor goals/standards.	Data is collected using the measures and tools identified. Results are reported with clear description of analysis (e.g., analysis follows accepted statistical or qualitative procedures). Results are shared in relation to performance goals.	Data is collected using the measures and tools identified. Results are reported with little description of analysis.	No data is being collected. No results are provided.
Sharing & Use of Results for Continuous Improvement	Clear information is provided about sharing and using results to inform practice. Discussion of what was learned from results is provided and connected to plans for sharing and using results to inform practice. A plan for adjusting performance, goals, assessment, and/or program components based on results is outlined.	Clear information is provided about sharing and using results to inform practice. Discussion of what was learned from results is provided and connected to plans for sharing and using results to inform practice.	Limited information is provided about sharing or using results to inform practice. Some discussion of what was learned from results is provided.	No information is provided about sharing or using results to inform practice. No evidence of reflection on results is provided (ex: discussion, conclusions drawn)
Overall Rating	□ Exemplary	□ Mature	x Developing	□ Undeveloped

Student Success Activities Report Rubric (Part 2 of Student Outcomes Assessment Report)**Unit/Program:**
Office of Student Success/Office of Assessment & Accreditation Evaluation Date:

Evaluation Criteria	0 Undeveloped	1 Developing	2 Mature	3 Exemplary
Goals/ Objectives	No goals/objectives are identified.	Goals/objectives are poorly suited to addressing student performance, retention, persistence, and/or completion. Goals/objectives may also be modest at best such that little effort is required.	Goals/objectives are generally clear and reasonably well suited to addressing student performance, retention, persistence, and/or completion. Goals/objectives are also generally at least moderately aggressive such that appropriate effort is required.	Goals/objectives are all clear and well suited to addressing student performance, retention, persistence, and/or completion. Goals/objectives are also at least moderately aggressive in all cases such that appropriate effort is required.
Action Steps	No action steps are identified.	Action steps are weak, underdeveloped, and/or poorly suited to making progress on goals/objectives. No person(s) or group(s) indicated who will be responsible for the actions.	Action steps are generally clear and reasonably well suited to making progress on goals/objectives. Person(s) or group(s) responsible for the actions are indicated in most cases.	Action steps are all clear and well suited to making progress on goals/objectives Person(s) or group(s) responsible for each action are indicated, ideally with a timeline.
Data that Informs Progress on Each Goal/Objective	No data, quantitative or qualitative, is identified.	Data to inform progress are poorly suited to measure progress on goals/objectives.	Data to inform progress are generally well suited to measure progress on goals/objectives.	Data to inform progress are all well suited to measure progress on goals/objectives.
Assessment of Outcomes and Continuous Improvement	For goals/objectives in place the prior year, no reflection provided on achievements/challenges, sharing results, and/or plans for improvement or change based on results. No reflection on outcome assessment plan for continuous improvement provided for new goals/objectives.	For goals/objectives in place the prior year, modest at best reflection provided (and/or is vague or of questionable connection to results) on achievements/challenges, sharing results, and/or plans for improvement or change based on results. Modest at best reflection on assessment plan for continuous improvement provided for new goals/objectives.	For goals/objectives in place the prior year, generally appropriate reflection provided (and is reasonably well connected to results) on achievements/ challenges, sharing results, and/or plans for improvement or change based on results. Reasonable reflection on assessment plan for continuous improvement provided for new goals/objectives.	For goals/objectives in place the prior year, strong reflection is provided in all cases (and is well connected to results) on achievements/challenges, sharing results, and/or plans for improvement or change based on results. Well-developed reflection on assessment plan for continuous improvement provided for new goals/objectives.
Overall Rating	□ **Undeveloped**	□ **Developing**	□ **Mature**	□ **Exemplary**