Student Learning Summary Form AY2015-16

Due to your dean by June 1
Due from dean to assessment office by June 15

Degree Program Name:B.S. Science Education **Contact Name and Email: Eulsun Seung, Eulsun.seung@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.

Part One

a. What learning outcomes did you assess this year? **If this is a graduate program, indicate the Graduate Student Learning Outcome* each outcome aligns with.**	**b. (1) What method(s)s 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 expectations did you establish for achievement of the outcome?**	**d. What were the actual results?**	**e. (1) Who was responsible for collecting and analyzing the results? (2) How were they shared with the program's faculty?**
2.1 (a). understand curricular recommendations	(1) Lesson plan • Standards • Objectives Teaching portfolio • Curriculum (2) SCED 396L (Spring)	All students who are enrolled in SCED 396L (5 students) should Meet Expectations (M) or Exceed Expectations (E) on related components of lesson plan and teaching portfolio. The achievement was evaluated based on the rubric (Rubric #1, 2).	Lesson plan • Standards: E(4) M(1) D(0) • Objectives: E(5) M(0) D(0) Teaching portfolio • Curriculum: E(4) M(1) D(0)	(1) Eulsun Seung, instructor of SCED 396L (2) No other faculty in our program
2.1 (b). plan and implement units of study	(1) Lesson plan • Standards • Objectives • Learning Cycle Teaching portfolio • Curriculum (2) SCED 396L (Spring)	All students who are enrolled in SCED 396L (5 students) should Meet Expectations (M) or Exceed Expectations (E)on related components of lesson plan and teaching portfolio. The achievement was evaluated based on the rubric (Rubric #1, 2).	Lesson plan • Standards: E(4) M(1) D(0) • Objectives: E(5) M(0) D(0) • Learning Cycle E(3) M(2) D(0) Teaching portfolio • Curriculum: E(4) M(1) D(0)	(1) Eulsun Seung, instructor of SCED 396L (2) No other faculty in our program
3.1 (a). understand methods of inquiry	(1) Teaching portfolio • Science Inquiry Survey for experience of scientific investigation • Developing a	All students who are enrolled in SCED 396L (5 students) should Meet Expectations (M) or Exceed Expectations (E)on related components of teaching	Teaching portfolio • Science Inquiry: E(4) M(1) D(0) Scientific Investigation • Developing a research	(1) Eulsun Seung, instructor of SCED 396L (2) No other faculty in our program

	research problem(s) • Literature review • Designing the research (or experiment) • Collecting/organizing data • Analyzing/interpreting data • Reporting the data/conclusion (2) SCED 396L (Spring)	portfolio and survey. The achievement was evaluated based on the rubric (Rubric #2, 5).	problem(s) E(2) M(0) D(3) • Literature review E(2) M(0) D(3) • Designing the research (or experiment) E(2) M(0) D(3) • Collecting/organizing data E(5) M(0) D(0) • Analyzing/interpreting data E(5) M(0) D(0) • Reporting the data/conclusion E(5) M(0) D(0)	
3.1 (b). engage students in inquiries	1) Lesson plan • Inquiry Activities • Learning Cycle Teaching portfolio • Science Inquiry (2) SCED 396L (Spring)	All students who are enrolled in SCED 396L (5 students) should Meet Expectations (M) or Exceed Expectations (E) on related components of lesson plan, teaching portfolio, and survey. The achievement was evaluated based on the rubric (Rubric #1, 2).	Lesson plan • Inquiry activities: E(3) M(0) D(2) • Learning cycle: E(3) M(2) D(0) Teaching portfolio • Science Inquiry: E(4) M(1) D(0)	(1) Eulsun Seung, instructor of SCED 396L (2) No other faculty in our program
3.2 (a). vary teaching methods	(1) Lesson plan • Learning Cycle Teaching portfolio • Student learning • Teaching skills (2) SCED 396L (Spring)	All students who are enrolled in SCED 396L (5 students) should Meet Expectations (M) or Exceed Expectations (E)on related components of lesson plan and teaching portfolio. The achievement was evaluated based on the rubric (Rubric #1, 2).	Lesson plan Learning cycle: E(3) M(2) D(0) Teaching portfolio • Student learning: E(1) M(4) M(0) • Teaching skills: E(3) M(2) M(0)	(1) Eulsun Seung, instructor of SCED 396L (2) No other faculty in our program
3.2 (b). promote the learning of science by diverse students	(1) Lesson plan • Learning Cycle Teaching portfolio • Student learning • Teaching skills (2) SCED 396L (Spring)	All students who are enrolled in SCED 396L (5 students) should Meet Expectations (M) or Exceed Expectations (E)on related components of lesson plan, and teaching portfolio. The achievement was evaluated based on the rubric (Rubric #1, 2).	Lesson plan • Learning cycle: E(3) M(2) D(0) Teaching portfolio • Student learning: E(1) M(4) D(0) • Teaching skills: E(3) M(2) D(0)	(1) Eulsun Seung, instructor of SCED 396L (2) No other faculty in our program

3.2 (c). Use technological tools	(1) Website analysis project (2) SCED 396L (Spring)	All students who are enrolled in SCED 396L (5 students) should Meet Expectations (M) or Exceed Expectations (E) on their website analysis project. The achievement was evaluated based on the rubric (Rubric # 3)	Website analysis project • Number: E(5) M(0) D(0) • Information: E(5) M(0) D(0) • Analysis: E(3) M(2) D(0)	(1) Eulsun Seung, instructor of SCED 396L (2) No other faculty in our program
4.1 (a). understand student prior knowledge	(1) Teaching portfolio • Assessment Student interview Project (2) SCED 396L (Spring)	All students who are enrolled in SCED 396L (5 students) should Meet Expectations (M) or Exceed Expectations (E)on related components of lesson plan and teaching portfolio. All students should earn at least 80 out of 100 possible points on their student interview project. The achievement was evaluated based on the rubric (Rubric #4).	Teaching portfolio • Assessment: E(4) M(1) D(0) Student interview project 90-100 (3) 80-90 (2)	(1) Eulsun Seung, instructor of SCED 396L (2) No other faculty in our program
4.2 (a). use multiple assessment tools	(1) Lesson plan • Assessment Teaching portfolio • Assessment (2) SCED 396L (Spring)	All students who are enrolled in SCED 396L (5 students) should Meet Expectations (M) or Exceed Expectations (E) on related components of lesson plan and teaching portfolio (Rubric #1, 2).	Lesson plan • Assessment: E(5) M(0) D(0) Teaching portfolio • Assessment: E(4) M(1) D(0)	(1) Eulsun Seung, instructor of SCED 396L (2) No other faculty in our program
4.2 (b). use assessment results to guide instruction	1) Lesson plan • Reflection (2) SCED 396L (Spring)	All students who are enrolled in SCED 396L (5 students) should Meet Expectations (M) or Exceed Expectations (E) on related components of lesson plan. The achievement was evaluated based on the rubric (Rubric # 1)	Lesson plan • Reflection: E(5) M(0) D(0)	(1) Eulsun Seung, instructor of SCED 396L (2) No other faculty in our program
Science Teaching licensure test	Pearson Content Test	All students who completed Science Ed program should pass the science teaching licensure test.	Of the three students who graduated in 2015, two have already passed the Pearson Content Test in the Biology and Earth Space Science area.	(1) Eulsun Seung, Director of Center for Science Education

* See https://www2.indstate.edu/graduate/forms/review.pdf.

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.

Part Two

If you would like to reference any supporting materials (departmental meeting minutes, detailed assessment results, etc.), please provide the URL at which they can be found.
L:\College of Arts and Sciences\Science Education - Faculty-Staff\Rubrics

Science Education students are required to take two science methods courses: SCED396L and SCED398L in their junior and senior year. After taking these two courses, they are eligible to take the student teaching course (SCED402). Currently we have 25 students in the Science Education program, and only 5 students were enrolled in SCED 396L in Spring 2016.

Most of the learning outcomes in this report are assed via students' lesson plans and teaching portfolios. The lesson plans are developed by students who are enrolled in SCED 396L. During the field experience period for SCED396L, students are required to teach at least five science lessons in a middle school based on their lesson plans. For the Teaching Portfolio, students collect evidence of their growth and achievement throughout the year during which they take the two science methods courses (i.e., SCED396L and SCED398L). The ten sections of the Teaching Portfolio were selected to meet the NSTA standards and topics of SCED396L and SCED398L. The Teaching Portfolio is assessed twice, at the end of both the SCED396L semester and the SCED389L semester. Here, we only present the assessment data, which we collected at the end of SCED396L in Spring 2016. Two student projects and one survey are also used to assess if our learning outcomes are well accomplished (i.e., middle school student interview project, science website analysis project, and survey for experience of scientific investigation) during SCED 396L.

For the eight learning outcomes among 10 (i.e, 2.1(a), 2.1(b), 3.2(a), 3.2(b), 3.2(c), 4.1(a), 4.2(a), 4.2(b)), all five students were evaluated as Meet Expectations (M) or Exceed Expectations, or 80 out of 100 points on related components of their lesson plan, teaching portfolio, or projects. However, some students were evaluated as Does not Meet Expectations (D) for the learning outcomes of 3.1(a) (i.e., understand methods of inquiry) and 3.1(b) (i.e., engage students in inquiries).

Regarding 3.1(a), during SCED396L, we surveyed our students' experience with conducting science research in their field using open ended survey. In order to understand methods of inquiry, we believe that our students should have their own experience of scientific investigation. Students were asked to describe their experiences with scientific research such as any research project (either individual or group) or an independent study in which they conducted scientific research. In total, there were 17 scientific research experiences. Among 5 students, only 2 students have been involved in all the components of scientific research. While all students have been involved in collecting/organizing data, analyzing/interpreting data, and reporting the data/conclusion, only 2 students have developed a research problem/literature review and have designed research. In many cases, the instructor provides research questions or topics and provides the procedure for research due to time limitations. Thus, we will work with the science departments at ISU to provide more opportunities for undergraduate scientific research experience in which our students develop their own research questions and design the research by themselves. Regarding 3.1(b), two students were evaluated as Does not Meet Expectations (D) because they did not describe the section of inquiry activities in their lesson plans. However, the learning cycle of their lesson plans and other assignments in their teaching portfolio showed that they have enough knowledge of science teaching as inquiry. We will encourage our students to describe their inquiry activities in their lesson plans.

Of the three students who graduated in 2015, two have already passed the science teaching licensure test and the third remaining student has indicated that she will take the test soon. We will keep track of our graduates if they pass the licensure test. We will provide our students with workshops and study guides to increase the passing rate of the licensure tests.

Student Learning Summary Report Rubric :: Office of Assessment & Accreditation :: Indiana State University

Degree Program: BS in Science Education Date: 8.25.16

	Level 0 – Undeveloped	Level 1 – Developing	Level 2 – Mature	Level 3 – Exemplary
1. Student Learning Outcomes	☐ No outcomes are identified. ☐ No Curriculum Map was provided.	☒ Outcomes were identified. ☒ Some of the outcomes are specific, measurable, student-centered, program-level outcomes. ☐ A Curriculum Map was provided.	☐ Outcomes are specific, measurable, student-centered, program-level outcomes. ☒ Outcomes at least indirectly support Foundational Studies Learning Outcomes or the Graduate Learning Goals. ☐ The Curriculum Map identifies where/to what extent each outcome is addressed. ☐ At least one outcome was assessed in this cycle.	☐ Outcomes are specific, measurable, student-centered program-level outcomes that span multiple learning domains. ☐ Outcomes directly integrate with Foundational Studies Learning Outcomes or the Graduate Learning Goals. ☒ Outcomes reflect the most important results of program completion (as established by an accreditor or other professional organization). ☐ Learning outcomes are consistent across different modes of delivery (face-to-face and online.) ☐ Outcomes are regularly reviewed (and revised, if necessary) by the faculty and other stakeholders. ☒ The Curriculum Map identifies where/to what extent each outcome is addressed and offers evidence that students have sufficient opportunity to master the associated learning outcomes. ☒ Two or more outcomes were

				assessed in this cycle.
2. Measures & Performance Goals	☐ No measures are provided. ☐ No goals for student performance are identified.	☐ Measures are provided, but some are vague and/or do not clearly assess the associated outcomes. ☐ Measures are primarily indirect. ☐ Measures include course and/or assignment grades, but there is no evidence that grades are calibrated to the outcomes. ☐ Performance goals are identified, but they are unclear or inappropriate.	☐ At least one direct measure was provided for each outcome. ☐ Some information is provided to suggest that measures are appropriate to the outcomes being assessed. ☐ Measures include course and/or assignment grades, and general information is provided to indicate that grades are calibrated to the outcomes. ☒ Clear and appropriate standards for performance are identified. ☐ Mechanisms (rubrics, checklists, criterion-referenced exams, etc.) were provided.	☒ Multiple measures were provided, and a majority are direct. ☒ Detailed information is provided to show that measures are appropriate to the outcomes being assessed. ☐ Measures include course and/or assignment grades, and specific evidence is provided to demonstrate that grades are calibrated to the outcomes. ☐ Clear and appropriate standards for performance are identified and justified. ☒ If students are required to pass a certification or licensure exam to practice in the field, this was included as a measure. ☒ Measures assess some high impact practices (internships, capstone course projects, undergraduate research, etc.) ☒ Some measures allow performance to be gauged over time, not just in a single course. ☐ Mechanisms (rubrics, checklists, criterion-referenced exams, etc.) were provided that demonstrate that the measure provides clear evidence of what students know/can do.

				☐ If a measure is used to assess more than one outcome, a clear explanation is offered to substantiate how this is effective.
3. Results	☐ No data are being collected. ☐ No information is provided about the data collection process. ☐ No results are provided. ☐ Students are meeting few of the performance standards set for them.	☐ Some data are being collected and analyzed. ☐ Some results are provided. ☐ Insufficient information is offered to demonstrate that data collection, analysis, and interpretation processes are valid. ☐ Students are achieving some of the performance standards expected of them.	☐ Data are being collected and analyzed. ☐ Results are provided. ☐ Some information is offered to demonstrate that data collection, analysis, and interpretation processes are valid and meaningful. ☒ Students generally are achieving the performance standards expected of them.	☒ Clear, specific, and complete details about data collection, analysis, and interpretation of results are provided to demonstrate the validity and usefulness of the assessment process. ☐ Students generally are achieving the performance standards expected of them and demonstrate continuous improvement on standards they have yet to achieve/achieve less well. ☒ If students are required to pass a certification or licensure exam to practice in the field, the pass rate meets the established benchmark.
4. Engagement & Improvement	☐ No one is assigned responsibility for assessing individual measures. ☐ Assessment primarily is the responsibility of the program chair. ☐ No improvements (planned or actual) are identified. ☐ No reflection is offered about previous results or	☐ The same faculty member is responsible for collecting and analyzing most/all assessment results. ☐ It is not clear that results are shared with the faculty as a whole on a regular basis. ☐ Plans for improvement are provided, but they are not specific and/or do not clearly connect to the results.	☐ Multiple faculty members are engaged in collecting and analyzing results. ☐ Results regularly are shared with the faculty. ☐ The faculty regularly engages in meaningful discussions about the results of assessment. ☐ These discussions lead to the development of specific, relevant plans for improvement.	☒ All program faculty members are engaged in collecting and analyzing results. ☒ Faculty regularly and specifically reflect on students' recent achievement of performance standards and implement plans to adjust activities, performance goals, outcomes, etc. according to established timelines. ☐ Faculty and other important

	plans.	☐ Little reflection is offered about previous results or plans.	☐ Improvements in student learning have occurred as the result of assessment.	stakeholders reflect on the history and impact of previous plans, actions, and results, and participate in the development of recommendations for improvement. ☐ Continuous improvement in student learning occurs as the result of assessment. ☐ Outcomes and results are easily accessible to stakeholders on/from the program website. ☒ Assessment is integrated with teaching and learning.
Overall Rating	☐ **Level 0 – Undeveloped**	☐ **Level 1 - Developing**	☒ **Level 2 – Mature**	☐ **Level 3 – Exemplary**

COMMENTS
Strengths, Concerns, Recommendations for Improvement

1. **Learning Outcomes**
   While some of the eleven outcomes are specific and measurable (e.g., 2.1.b), others do not identify the specific action students should take to demonstrate attainment (e.g., 2.1.a) or they are incomplete (e.g., 3.2.c). But all are program-level outcomes that address knowledge and skills important to the discipline.

2. **Measures & Performance Goals**
   Four discrete measures were used to assess students' performance in the past year, including a lesson plan used to assess multiple outcomes and the state certification exam. All of them clearly are appropriate to their associated outcomes. Expectations for achievement are set appropriately high, though I would ask if passing the state exam is sufficient? Should students at least exceed the state average? Next year, please provide the rubrics used (include them as separate documents in the college's Blackboard site).

3. **Results**
   I am very pleased with how well results are detailed. Not only are the numerical results very clear, but you also explained what they mean (i.e., that students understand how to incorporate standards, write learning objectives. etc. for the lesson plan, for example, but performed less well at developing a research project). Furthermore, Part Two offers a potential solution to improve performance on outcome 3.1.a.

4. **Engagement & Improvement**
   I can safely say that all program faculty are involved in collecting and assessing data about student learning, though there is no indication that results are shared with those contributing courses to the major. Part Two describes a very healthy assessment program geared to NSTA standards and providing students with ample opportunity to receive feedback designed to help them perfect their knowledge and skills. I would appreciate knowing more about their success overall: Do they meet all outcomes? Is there evidence that learning continuously improves? Are they successful after graduation?

   You collect meaningful data and you put it to use. Thank you!