

ASSOCIATION REPORT AND RECOMMENDATIONS**Professional Organization:** National Science Teachers Association**Date of Review:** November 2002**Institution Submitting Program:** Eastern Michigan University**State:** MI**Program(s):** UG 7-12 science education (SF biology, chemistry, physics and earth science; BF general science)
PB 7-12 science education (SF biology, chemistry, physics and earth science; BF general science)

RECOMMENDATIONS ON THE PROGRAM: The Undergraduate and Post-baccalaureate 7-12 SF Biology, chemistry, physics and earth science; and BF general science, science education program at Eastern Michigan University are not recommended by the NSTA for national recognition.

RATINGS ON THE STANDARDS:

#	Standard	Program: UG		Program: PB	
		Met	Not Met	Met	Not Met
1	Content	X		X	
2	Nature of Science		X		X
3	Inquiry		X		X
4	Context of Science		X		X
5	Skills of Teaching		X		X
6	Science Curriculum		X		X
7	Social Context of Science		X		X
8	Assessment		X		X
9	Environment for Learning		X		X

10	Professional Practice		X		X
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COMMENTS: For institutions whose programs are being reviewed in November 2002, levels 1 and 2 for each standard must be met for the standard to be met. NCATE guidelines require institutions at this time to show both that the standard is accounted for in the program and that the program has a performance assessment system in place or planned for collecting data to assess candidate performance in relation to each standard. The performance assessment system must include assurance that all candidates achieve an adequate performance level in relation to each standard. It is not enough merely to provide data. Some weaknesses may be cited for levels one and two (and higher levels), even if the standard is met overall. Weaknesses must be addressed by the next review, in five years, regardless of the rating. If weaknesses have not been adequately addressed in that time, the recommendation may be rescinded. All standards should be met for a program to be recommended.

If you have any questions of concerns about the contents of this report, you may contact the program review coordinator via e-mail at swgilbert@vt.edu. NSTA provides regular training in the form of institutes for report writers that may also assist you in preparing rejoinders. A schedule of institutes is available on the NSTA web site (www.nsta.org).

Even though programs may have met specific levels, any noted weaknesses are provided at all levels to help programs progress toward more complete performance based procedures.

RATINGS AND WEAKNESSES, BY STANDARD

Rationale

Provide an analysis of the science content required in each licensure area showing that such content is consistent with the recommendations of the National Science Education Standards and NSTA recommendations, or state standards that are aligned with the NSES or other appropriate national professional standards, and any special the needs of the community you serve.

Weaknesses:

The use of the National Science Education Standards and Michigan Curriculum framework provides a strong model of content. It is unclear what theoretical framework is used to guide the program. A richer description of this framework would be helpful to reviewers.

Standard 1 Content

The program prepares candidates to structure and interpret the concepts, ideas and relationships in science that are needed to advance student learning in the area of licensure as defined by state and national standards developed by the science education community. Content refers to concepts and principles understood through science; concepts and relationships unifying science domains; processes of investigation in a science discipline; and applications of mathematics in science research.

NSTA/NCATE Expectations	Program Weaknesses	Reviewer Explanation and Comments
<p>Level 1: Performance Requirements. The program has structured experiences and/or requirements to ensure candidates are prepared and required to:</p> <ul style="list-style-type: none">• Know and understand the major concepts and principles of the teaching discipline(s) as defined by state and national standards of the science education community.• Know and understand major concepts and principles unifying science disciplines. (See National Science Education Standards Unifying Concepts).• Design, conduct and report investigations within a science discipline• Apply mathematics in problem-solving and scientific investigation	<p>Criteria for judging candidate performances are not identified or clearly defined..</p> <p>Criteria on assessments are poorly defined for several of the assignments referenced in the matrix. In future reviews this information must be provided.</p>	<p>Met</p> <p>Folio needs to show aggregated data and not just summative data in the matrix.</p>

<p>Level 2: Assessment plan or system. The program has, or has plans for adequate multiple assessments of candidate knowledge and abilities in relation to the requirements for the content standard as identified under Level 1, and shows such evidence will be used to make decisions about the program and its candidates.</p>	<p>It is not clear how the assessment system leads to summative decisions on the candidates and the program.</p>	<p>Met conditionally.</p>
<p>Level 3: Data collection and decision-making. The program systematically collects valid and reliable performance data and provides summary evidence of candidate preparation in relation to each of the dimensions of the standard and uses this evidence to make decisions about its candidates.</p>	<p>Summary evidence is not provided demonstrating an adequate level of preparation in relation to each dimension of the standard.</p> <p>Distribution of scores indicates assessments may not be adequately discriminating different levels of performance.</p> <p>Evidence is not being used to make decisions about candidates.</p>	<p>Not met</p> <p>Criteria and rating scales on many of the assignments referenced need to be further defined.</p>
<p>Level 4: Assurance of preparation and program self-assessment. Summary evidence affirms that candidates from this program are prepared in relation to the standard and the program is engaged in data-based self-assessment intended to improve its practices</p>	<p>Summary evidence is incomplete or inadequate to affirm that all candidates are prepared in relation to the standard.</p> <p>Summary evidence is incomplete or inadequate to affirm that the program is engaged in data based self-assessment.</p>	<p>Not met</p>

Standard 2 Nature of Science

The program prepares teachers to engage students in activities to define the values, beliefs and assumptions inherent to the creation of scientific knowledge within the scientific community, and contrast science to other ways of knowing. Nature of science refers to characteristics distinguishing science from other ways of knowing; characteristics distinguishing basic science, applied science, and technology; processes and conventions of science as a professional activity; and standards defining acceptable evidence and scientific explanation.

NSTA/NCATE Expectations	Program Weaknesses	Reviewer Explanation and Comments
<p>Level 1: Performance Requirements. The program has structured experiences and/or requirements to ensure candidates are prepared and required to:</p> <ul style="list-style-type: none"> • Know and understand the philosophical nature of science and the conventions of scientific explanation. • Engage students effectively in studies of the nature of science and conventions of scientific explanation 	<p>Performance assessments are not in place or planned.</p> <p>Performance assessments are not clearly or completely described.</p> <p>The number or quality of performance assessments is insufficient to validate preparation.</p> <p>Minimum performance levels and/or acceptable criteria for judging candidate performances are not identified.</p> <p>Criteria on assessments are poorly defined.</p>	<p>Not met</p> <p>Nature of science as highlighted in the documentation does not appear to be consistent with definitions provided by the National Science Education Standards or the Michigan Curriculum Framework.</p> <p>The FETE and Student Teaching evaluation forms do not specifically address or assess the Nature of Science.</p>
<p>Level 2: Assessment plan or system. The program has means or plans to systematically assess and evaluate candidate preparation and teaching of the nature of science and to use this evidence to make decisions about the program and its candidates.</p>	<p>There is no evidence that assessments are unified into a comprehensive assessment system administered by the programs.</p> <p>The assessment system does not clearly ensure adequate preparation of candidates in relation to all dimensions of the standard for both programs.</p>	<p>Not met</p>

	It is not clear how the assessment system leads to summative decisions on the candidates and the program.	
Level 3: Data collection and decision-making. The program systematically collects performance data and presents summary evidence of the willingness and ability of candidates to engage students in effective study of the nature of science and uses this evidence to make decisions about its candidates.	<p>Data are not being systematically collected.</p> <p>Summary evidence is not provided demonstrating an adequate level of preparation in relation to each dimension of the standard.</p> <p>Distribution of scores indicates assessments may not be adequately discriminating different levels of performance.</p> <p>Evidence is not being used to make decisions about candidates.</p>	Not met
Level 4: Assurance of preparation and program self-assessment. Summary evidence affirms that candidates from this program are prepared in relation to the standard and the program is engaged in data-based self-assessment intended to improve its practices	<p>Summary evidence is incomplete or inadequate to affirm that all candidates are prepared in relation to the standard.</p> <p>Summary evidence is incomplete or inadequate to affirm that the program is engaged in data based self-assessment.</p>	Not met

Standard 3 Inquiry

The program prepares candidates to engage students regularly and effectively in science inquiry and facilitate understanding of the role inquiry plays in the development of scientific knowledge. Inquiry refers to questioning and formulating solvable problems; reflecting on, and constructing, knowledge from data; collaborating and exchanging information while seeking solutions; and

developing concepts and relationships from empirical experience.

NSTA/NCATE Expectations	Program Weaknesses	Reviewer Explanation and Comments
<p>Level 1: Performance Requirements. The program has structured experiences and/or requirements to ensure candidates are prepared and required to:</p> <ul style="list-style-type: none"> • Know and understand scientific inquiry and its relationship to the development of scientific knowledge. • Engage students effectively in scientific inquiry as appropriate for their grade and abilities. 	<p>Performance assessments are not in place or planned.</p> <p>Performance assessments are not clearly or completely described for how inquiry is learned and then implemented by the candidates into the classroom.</p> <p>The number or quality of performance assessments is insufficient to validate preparation.</p> <p>Minimum performance levels and/or acceptable criteria for judging candidate performances are not identified for content assignments.</p> <p>Criteria on assessments are poorly defined.</p>	<p>Not met</p> <p>Inquiry as highlighted in the documentation does not appear to be consistent with definitions provided by the National Science Education Standards or the Michigan Curriculum Framework.</p> <p>The FETE and Student Teaching evaluation forms do not specifically address or assess the science specific items.</p> <p>The content classroom assignments do not adequately reflect inquiry from a NSES position. Evidence provided for the content courses does not show candidate understanding of inquiry, and it is information rather than an actual assignment in many instances. In addition, there is no rubric for scoring candidates' work.</p>
<p>Level 2: Assessment plan or system. The program has means or plans to systematically assess and evaluate candidate performances in relation to inquiry, and to use this evidence to make decisions about the program and its candidates.</p>	<p>There is no evidence that assessments are unified into a comprehensive assessment system administered by the program.</p> <p>The assessment system does not clearly ensure adequate preparation of candidates in relation to all dimensions of the standard for both programs.</p>	<p>Not met</p>

	It is not clear how the assessment system leads to summative decisions on the candidates and the program.	
Level 3: Data collection and decision-making. The program systematically collects data and presents summary evidence of the willingness and ability of candidates to engage students in appropriate and effective science inquiry and uses this evidence to make decisions about its candidates.	<p>Data are not being systematically collected.</p> <p>Summary evidence is not provided demonstrating an adequate level of preparation in relation to each dimension of the standard.</p> <p>Distribution of scores indicates assessments may not be adequately discriminating different levels of performance.</p> <p>Evidence is not being used to make decisions about candidates.</p>	Not met
Level 4: Assurance of preparation and program self-assessment. Summary evidence affirms that candidates from this program are prepared in relation to the standard and the program is engaged in data-based self-assessment intended to improve its practices	<p>Summary evidence is incomplete or inadequate to affirm that all candidates are prepared in relation to the standard.</p> <p>Summary evidence is incomplete or inadequate to affirm that the program is engaged in data based self-assessment.</p>	Not met

Standard 4 Context of Science

The program prepares candidates to relate science to the daily lives and interests of students and to a larger framework of human
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endeavor and understanding. The context of science refers to relationships among systems of human endeavor including science and technology; relationships among scientific, technological, personal, social and cultural values; and the relevance and importance of science to the personal lives of students

NSTA/NCATE Expectations	Program Weaknesses	Reviewer Explanation and Comments
<p>Level 1: Performance Requirements. The program has structured experiences and/or requirements to ensure candidates are prepared and required to:</p> <ul style="list-style-type: none"> • Know and understand the relationship of science to other human values and endeavors. • Engage students effectively in the study of the relationship of science to other human values and endeavors. • Relate science to the personal lives, needs and interests of their students. 	<p>Performance assessments are not in place or planned.</p> <p>Performance assessments are not clearly or completely described for how inquiry is learned and then implemented by the candidates into the classroom.</p> <p>The number or quality of performance assessments is insufficient to validate preparation.</p> <p>Minimum performance levels and/or acceptable criteria for judging candidate performances are not identified for content assignments.</p> <p>Criteria on assessments are poorly defined.</p>	<p>Not Met</p> <p>Folio needs to show aggregated data and not just summative data in the matrix.</p> <p>The FETE and Student Teaching evaluation forms do not specifically address or assess science specific items.</p> <p>Rubrics and aggregated data for assignments need to be included.</p>
<p>Level 2: Assessment plan or system. The program has means or plans to systematically assess and evaluate candidate performances in relation to study of the contexts of science and to use this evidence to make decisions about the program and its candidates.</p>	<p>It is not clear how the assessment system leads to summative decisions on the candidates and the program.</p>	<p>Not Met.</p>
<p>Level 3: Data collection and decision-</p>	<p>Summary evidence is not provided</p>	<p>Not met</p>

<p>making. The program systematically collects data and presents summary evidence of the willingness and ability of candidates to engage students in effective study of the multiple contexts of sciences and uses this evidence to make decisions about its candidates.</p>	<p>demonstrating an adequate level of preparation in relation to each dimension of the standard.</p> <p>Distribution of scores indicates assessments may not be adequately discriminating different levels of performance.</p> <p>Evidence is not being used to make decisions about candidates.</p>	<p>Criteria and rating scales on many of the assignments referenced need to be further defined.</p>
<p>Level 4: Assurance of preparation and program self-assessment. Summary evidence affirms that candidates from this program are prepared in relation to the standard and the program is engaged in databased self-assessment intended to improve its practices.</p>	<p>Summary evidence is incomplete or inadequate to affirm that all candidates are prepared in relation to the standard.</p> <p>Summary evidence is incomplete or inadequate to affirm that the program is engaged in data based self-assessment.</p>	<p>Not met</p>

Standard 5 Skills of Teaching

The program prepares candidates to create a community of diverse student learners who can construct meaning from science experiences and possess a disposition for further inquiry and learning. Skills of Teaching refers to science teaching actions, strategies and methodologies; interactions with students that promote learning and achievement; effective organization of classroom experiences; use of advanced technology to extend and enhance learning; and the use of prior conceptions and student interests to promote new learning.

NSTA/NCATE Expectations	Program Weaknesses	Reviewer Explanation and Comments
<p>Level 1: Performance Requirements. The program has structured experiences and/or requirements to ensure candidates are prepared and required to demonstrate the ability to</p> <ul style="list-style-type: none"> • Use diverse and effective science teaching actions, strategies and methodologies to teach science. • Interact effectively with students to promote learning and demonstrate student achievement. • Organize and manage science activities effectively in different student groupings. • Use advanced technology to teach students science. • Use prior conceptions and student interests to promote learning. 	<p>Performance assessments are not clearly or completely described for science specific items.</p> <p>The number or quality of performance assessments is insufficient to validate preparation.</p> <p>Minimum performance levels and/or acceptable criteria for judging candidate performances are not identified.</p> <p>Criteria on assessments are poorly defined.</p>	<p>Not met</p> <p>It is commendable that PHY 325 has candidates perform lessons. The lesson seems to be very traditional. The rubric for assessment is too general and does not have science specific criteria. Where is the evidence that this knowledge is applied to the K-12 setting?</p> <p>The FETE and Student Teaching evaluation forms do not specifically address or assess science specific items.</p> <p>Technology knowledge needs to be implemented with K-12 students.</p>
<p>Level 2: Assessment plan or system. The program has the means or a plan to systematically assess and evaluate the ability of candidates to organize the classroom and teach effectively as defined by the standard and to use this evidence to make decisions about the program and its candidates.</p>	<p>There is no evidence that assessments are unified into a comprehensive assessment system administered by the program.</p> <p>The assessment system does not clearly ensure adequate preparation of candidates in relation to all dimensions of the standard for the programs.</p> <p>It is not clear how the assessment system</p>	<p>Not met</p>

	leads to summative decisions on the candidates and the program.	
Level 3: Data collection and decision-making. The program systematically collects data and presents summary evidence of the ability and willingness of candidate abilities to perform effectively in relation to the elements in this standard and uses this evidence to make decisions about its candidates.	<p>Data are not being systematically collected.</p> <p>Summary evidence is not provided demonstrating an adequate level of preparation in relation to each dimension of the standard.</p> <p>Distribution of scores indicates assessments may not be adequately discriminating different levels of performance.</p> <p>Evidence is not being used to make decisions about candidates.</p>	Not met
Level 4: Assurance of preparation and program self-assessment. Summary evidence affirms that candidates from this program are prepared in relation to the standard and the program is engaged in data-based self-assessment intended to improve its practices	<p>Summary evidence is incomplete or inadequate to affirm that all candidates are prepared in relation to the standard.</p> <p>Summary evidence is incomplete or inadequate to affirm that the program is engaged in databased self-assessment.</p>	Not met

Standard 6 Curriculum

The program prepares candidates to develop and apply a coherent, focused science curriculum that is consistent with state and national standards for science education and appropriate for addressing the needs, abilities and interests of students. Science curriculum refers to an extended framework of goals, plans, materials, and resources for instruction and the instructional context, both in and out of school, within which pedagogy is embedded.

NSTA/NCATE Expectations	Program Weaknesses	Reviewer Explanation and Comments
<p>Level 1: Performance Requirements. The program has structured experiences and/or requirements to ensure candidates are prepared and required to:</p> <ul style="list-style-type: none"> • Develop coherent, meaningful goals, plans, and materials and find resources. • Relate plans and resources to professionally-developed state and national standards, including the National Science Education Standards • Plan and develop science curriculum addressing the needs, interests and abilities of all students. 	<p>Performance assessments are not in place or planned.</p> <p>Performance assessments are not clearly or completely described.</p> <p>The number or quality of performance assessments is insufficient to validate preparation.</p> <p>Minimum performance levels and/or acceptable criteria for judging candidate performances are not identified for all dimensions.</p> <p>Criteria on assessments are poorly defined or absent.</p>	<p>Not met</p> <p>CURR 305 hs students develop and assess items, but there are no specific rubrics with criteria, especially science specific.</p> <p>Where is the evidence that this knowledge is applied to the K-12 setting?</p> <p>The FETE and Student Teaching evaluation forms do not specifically address or assess science specific items as it relates to curriculum.</p> <p>Dimensions B and C are well done, but the assessment instruments need more clarification on the scale.</p>
<p>Level 2: Assessment plan or system. The program has the means or a plan to systematically assess and evaluate the ability of candidates to plan and provide a curriculum consistent with state and national standards and to use this evidence to make decisions about the program and its candidates.</p>	<p>There is no evidence that assessments are unified into a comprehensive assessment system administered by the program.</p> <p>The assessment system does not clearly ensure adequate preparation of candidates in relation to all dimensions of the standard for both programs.</p> <p>It is not clear how the assessment system leads to summative decisions on the candidates and the program.</p>	<p>Not met</p>

<p>Level 3: Data collection and decision-making. The program systematically collects data and presents summary evidence of the ability of candidates in relation to science curriculum and uses this evidence to make decisions about its candidates.</p>	<p>Data are not being systematically collected.</p> <p>Summary evidence is not provided demonstrating an adequate level of preparation in relation to each dimension of the standard.</p> <p>Distribution of scores indicates assessments may not be adequately discriminating different levels of performance.</p> <p>Evidence is not being used to make decisions about candidates.</p>	<p>Not met</p>
<p>Level 4: Assurance of preparation and program self-assessment. Summary evidence affirms that candidates from this program are prepared in relation to the standard and the program is engaged in data-based self-assessment intended to improve its practices</p>	<p>Summary evidence is incomplete or inadequate to affirm that all candidates are prepared in relation to the standard.</p> <p>Summary evidence is incomplete or inadequate to affirm that the program is engaged in databased self-assessment.</p>	<p>Not met</p>

Standard 7 Social Context

The program prepares candidates to relate science to the community and to use human and institutional resources in the community to advance the education of their students in science. The social context of science teaching refers to the social and community support network within which science teaching and learning occur; relationship of science teaching and learning to the needs and values of the community; and involvement of people and institutions from the community in the teaching of science.

NSTA/NCATE Expectations	Program Weaknesses	Reviewer Explanation and Comments
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<p>Level 1: Performance Requirements. The program has structured experiences and/or requirements to ensure candidates are prepared and required to:</p> <ul style="list-style-type: none"> • Know and understand the values and needs of the community and their effect on the teaching and learning of science. • Use community human and institutional resources to advance the learning of science in the classroom and field. 	<p>Performance assessments are not in place or planned for dimension B.</p> <p>Performance assessments are not clearly or completely described for Dimension B.</p> <p>The number or quality of performance assessments is insufficient to validate preparation for Dimension B.</p> <p>Minimum performance levels and/or acceptable criteria for judging candidate performances are not identified for Dimension B.</p> <p>Criteria on assessments are poorly defined for Dimension B.</p>	<p>Not met</p> <p>The writing assignment for SOFD 328 is commendable, especially with the detailed rubric.</p> <p>The definition of social context and resources goes beyond the library to parents, scientists, and other community members.</p>
<p>Level 2: Assessment plan or system. The program has a functional plan to systematically assess and evaluate the ability and willingness of candidates to relate science to the community and to include community resources in teaching and to use this evidence to make decisions about the program and its candidates.</p>	<p>There is no evidence that assessments are unified into a comprehensive assessment system administered by the program.</p> <p>The assessment system does not clearly ensure adequate preparation of candidates in relation to all dimensions of the standard for both programs.</p> <p>It is not clear how the assessment system leads to summative decisions on the candidates and the program.</p>	<p>Not met</p>
<p>Level 3: Data collection and decision-making. The program systematically collects data and presents summary</p>	<p>Data are not being systematically collected.</p> <p>Summary evidence is not provided</p>	<p>Not met</p>

evidence of the ability and willingness of candidates to relate science to the community and use community resources in teaching, and uses these data to make decisions about its candidates.	<p>demonstrating an adequate level of preparation in relation to each dimension of the standard.</p> <p>Distribution of scores indicates assessments may not be adequately discriminating different levels of performance.</p> <p>Evidence is not being used to make decisions about candidates.</p>	
Level 4: Assurance of preparation and program self-assessment. Summary evidence affirms that candidates from this program are prepared in relation to the standard and the program is engaged in data-based self-assessment intended to improve its practices	<p>Summary evidence is incomplete or inadequate to affirm that all candidates are prepared in relation to the standard.</p> <p>Summary evidence is incomplete or inadequate to affirm that the program is engaged in data based self-assessment.</p>	Not met

Standard 8 Assessment

The program prepares candidates to use a variety of contemporary assessment strategies to evaluate the intellectual, social, and personal development of the learner in all aspects of science. Assessment refers to the alignment of goals, instruction and outcomes; measurement and evaluation of student learning in a variety of dimensions; and the use of outcome data to guide and change instruction.

NSTA/NCATE Expectations	Program Weaknesses	Reviewer Explanation and Comments
Level 1: Performance Requirements. The program has structured experiences and/or requirements to ensure candidates are	Performance assessments are not in place or planned for all dimensions.	<p>Not met</p> <p>If a rubric were provided for the Student</p>

<p>prepared and required to:</p> <ul style="list-style-type: none"> • Align science goals, instruction and outcomes. • Use a variety of contemporary science assessment strategies to determine student needs and levels of learning and development. • Use assessment appropriately to determine, guide and change science instruction 	<p>Performance assessments are not clearly or completely described for all dimensions.</p> <p>The number or quality of performance assessments is insufficient to validate preparation for all dimensions.</p> <p>Minimum performance levels and/or acceptable criteria for judging candidate performances are not identified for all dimensions.</p> <p>Criteria on assessments are poorly defined for all dimensions.</p>	<p>Teaching Unit, then these dimensions would be met.</p>
<p>Level 2: Assessment plan or system. The program has the means or a plan to systematically assess and evaluate the ability and willingness of candidates to use a variety of assessment tools and strategies effectively and to use this evidence to make decisions about the program and its candidates.</p>	<p>There is no evidence that assessments are unified into a comprehensive assessment system administered by the program.</p> <p>The assessment system does not clearly ensure adequate preparation of candidates in relation to all dimensions of the standard for both programs</p> <p>It is not clear how the assessment system leads to summative decisions on the candidates and the program.</p>	<p>Not met</p>
<p>Level 3: Data collection and decision-making. The program systematically collects data and presents summary evidence of the ability and willingness of candidates to use a variety of assessment</p>	<p>Data are not being systematically collected.</p> <p>Summary evidence is not provided demonstrating an adequate level of preparation in relation to each dimension of</p>	<p>Not met</p>

tools and strategies effectively, and uses these data to make decisions about its candidates.	<p>the standard.</p> <p>Distribution of scores indicates assessments may not be adequately discriminating different levels of performance.</p> <p>Evidence is not being used to make decisions about candidates.</p>	
Level 4: Assurance of preparation and program self-assessment. Summary evidence affirms that candidates from this program are prepared in relation to the standard and the program is engaged in data-based self-assessment intended to improve its practices	<p>Summary evidence is incomplete or inadequate to affirm that all candidates are prepared in relation to the standard.</p> <p>Summary evidence is incomplete or inadequate to affirm that the program is engaged in data based self-assessment.</p>	Not met

Standard 9 Environment for Learning

The program prepares candidates to design and manage safe and supportive learning environments reflecting high expectations for the success of all students. Learning environments refers to the physical spaces within which learning of science occurs; psychological and social environment of the student engaged in learning science; treatment and ethical use of living organisms; and safety in all areas related to science instruction.

NSTA/NCATE Expectations	Program Weaknesses	Reviewer Explanation and Comments
Level 1: Requirements. The program has structured experiences and/or requirements to ensure candidates are prepared and	Performance assessments are not in place or planned for all dimensions.	<p>Not met</p> <p>The FETE assessment instrument does not</p>

<p>required to:</p> <ul style="list-style-type: none"> • Create and maintain a psychologically and socially safe and supportive learning environment. • Manage the activities and materials of science safely in storage areas, labs and field. • Keep and use living organisms as in the classroom in a safe, ethical and appropriate manner 	<p>Performance assessments are not clearly or completely described for all dimensions.</p> <p>The number or quality of performance assessments is insufficient to validate preparation for all dimensions.</p> <p>Minimum performance levels and/or acceptable criteria for judging candidate performances are not identified for all dimensions.</p> <p>Criteria on assessments are poorly defined for all dimensions.</p>	<p>seem to provide evidence for this standard.</p> <p>Dimensions B and C are not found in any rubric and cannot be evaluated.</p>
<p>Level 2: Assessment plan or system. The program has the means or a plan to systematically assess and evaluate the knowledge and abilities of candidates to design and manage safe and supportive learning environments and to use this evidence to make decisions about the program and its candidates.</p>	<p>There is no evidence that assessments are unified into a comprehensive assessment system administered by the program.</p> <p>The assessment system does not clearly ensure adequate preparation of candidates in relation to all dimensions of the standard for both programs.</p> <p>It is not clear how the assessment system leads to summative decisions on the candidates and the program.</p>	<p>Not met</p>
<p>Level 3: Data collection and decision-making. The program systematically collects data and presents summary evidence of the knowledge and abilities of candidates to design and manage safe and</p>	<p>Data are not being systematically collected.</p> <p>Summary evidence is not provided demonstrating an adequate level of preparation in relation to each dimension of</p>	<p>Not met</p>

supportive learning environments, and uses these data to make decisions about its candidates.	<p>the standard.</p> <p>Distribution of scores indicates assessments may not be adequately discriminating different levels of performance.</p> <p>Evidence is not being used to make decisions about candidates.</p>	
Level 4: Assurance of preparation and program self-assessment. Summary evidence affirms that candidates from this program are prepared in relation to the standard and the program is engaged in data-based self-assessment intended to improve its practices	<p>Summary evidence is incomplete or inadequate to affirm that all candidates are prepared in relation to the standard.</p> <p>Summary evidence is incomplete or inadequate to affirm that the program is engaged in data based self-assessment.</p>	Not met

Standard 10 Professional Practice

The program prepares candidates to participate in the professional community, improving practice through their personal actions, education and development. Professional practice refers to knowledge of, and participation in, the activities of the professional community; ethical behavior consistent with the best interests of students and the community; reflection on professional practices and continuous efforts to ensure the highest quality of science instruction; and willingness to work with students and new colleagues as they enter the profession.

NSTA/NCATE Expectations	Program Weaknesses	Reviewer Explanation and Comments
Level 1: Requirements. The program has structured experiences and/or requirements to ensure candidates are prepared and required to:	<p>Performance assessments are not in place or planned for all dimensions.</p> <p>Performance assessments are not clearly or</p>	<p>Not met</p> <p>The FETE assessment instrument does not seem to provide evidence for this standard.</p>

<ul style="list-style-type: none"> • Know and participate in professional organizations and activities of the science education community beyond the classroom. • Behave ethically and in best interests of students and the community. • Engage in reflective practices and make continuous efforts to improve in practice. • Work willingly with peers, supervisors and others in a professional manner. 	<p>completely described for all dimensions.</p> <p>The number or quality of performance assessments is insufficient to validate preparation for all dimensions.</p> <p>Minimum performance levels and/or acceptable criteria for judging candidate performances are not identified for all dimensions.</p> <p>Criteria on assessments are poorly defined for all dimensions.</p>	<p>Data for each of the dimensions should be collected and analyzed.</p> <p>The community activity described appears to reference the science education community. The standard refers to the community as a whole. This has the potential for being a strong activity but a rubric for assessment has not been provided.</p> <p>Reflective journals can also be a powerful tool, but a rubric for assessment is needed</p>
<p>Level 2: Assessment plan or system. The program has the means or a plan to systematically assess and evaluate the engagement of candidates in reflection and professional practices and use this evidence to make decisions about the program and its candidates.</p>	<p>There is no evidence that assessments are unified into a comprehensive assessment system administered by the program.</p> <p>The assessment system does not clearly ensure adequate preparation of candidates in relation to all dimensions of the standard in both programs.</p> <p>It is not clear how the assessment system leads to summative decisions on the candidates and the program.</p>	<p>Not met</p>
<p>Level 3: Data collection and decision-making. The program systematically collects data and presents summary evidence of the degree to which candidates</p>	<p>Data are not being systematically collected.</p> <p>Summary evidence is not provided demonstrating an adequate level of</p>	<p>Not met</p>

<p>engage in behaviors identified by this standard and use these data to make decisions about its candidates.</p>	<p>preparation in relation to each dimension of the standard.</p> <p>Distribution of scores indicates assessments may not be adequately discriminating different levels of performance.</p> <p>Evidence is not being used to make decisions about candidates.</p>	
<p>Level 4: Assurance of preparation and program self-assessment. Summary evidence affirms that candidates from this program are prepared in relation to the standard and the program is engaged in data-based self-assessment intended to improve its practices</p>	<p>Summary evidence is incomplete or inadequate to affirm that all candidates are prepared in relation to the standard.</p> <p>Summary evidence is incomplete or inadequate to affirm that the program is engaged in data based self-assessment.</p>	<p>Not met</p>

Summary and Self-Analysis

Discuss how you have used the data collected from candidate assessment and other sources to change and improve your program since the last review, and briefly identify your goals for improvement over the next five years.

Documentation provided does not provide reviewers with a clear picture of how data will be collected and analyzed for programmatic changes over the next 5 years.

Weaknesses:

\$ No evidence the program uses diverse sources of data as the basis for making changes in the program.

\$ No evidence of changes made based on analysis of data and other sources.

- \$ No evidence of well-defined goals based on a careful analysis of need.
- \$ No evidence of intent to make changes based on a review of goals and self-analysis.
- \$ No evidence of a concrete long-term program improvement plan.

Additional Comments:

Assignments and grading check sheets were provided for several of the courses, this is a good beginning. The documentation provided did not provide the level of detail and criteria for distinction for levels of competency needed to verify compliance with the standards.

Many assignments have stated criteria and directions, but there is no rubric to go with the directions. The writers of the folio keep making reference to rubrics that are not found in the supporting documents or evidence (i.e., page 120).

Evidence included for many of the standards provides little insight into how candidates are assessed nor does it highlight decisions about progress and completion of the program. Performance data are needed for both review of candidates and the program.

REJOINDERS: A rejoinder may be filed with NCATE if you feel additional information may result in a change in one or more ratings or removal of weaknesses. Please include a clarification directly addressing the review *and all supporting evidence* needed for the reassessment. *Do not refer to previous folios.* Please do not send a rejoinder unless explanations support a case for changing the rating(s). **Three copies of a rejoinder are needed.**

RATING SYSTEMS:

For Program(s)

Not Recommended for Recognition. The program does not provide acceptable preparation in relation to all standards and/or does not appear to be moving toward implementation of a performance-based assessment system, or has not achieved a level of assessment that meets current NCATE guidelines. There is no evidence that assessments are in place or planned to systematically monitor candidate and program performance for all standards.