NATIONAL RECOGNITION REPORT
Initial Preparation of Science Teachers

NCATE recognition of this program is dependent on the review of the program by representatives of the National Science Teachers Association.

COVER PAGE

Name of Institution

Arkansas State University

Date of Review

MM DD YYYY

02 / 01 / 2009

This report is in response to a(n):

- Initial Review
- Revised Report
- Response to Conditions Report

Program Covered by this Review

Dual License: Chemistry/Earth; Biology/Earth; Physics/Earth

Program Type

Undergraduate

Award or Degree Level

- Baccalaureate
- Post Baccalaureate
- Master's

PART A - RECOGNITION DECISION

SPA Decision on NCATE Recognition of the Program(s):

- Nationally recognized
- Nationally recognized with conditions
- Further development required **OR** Nationally recognized with probation [See Part G]
- Not nationally recognized

Test Results (from information supplied in Assessment #1, if applicable)

The program meets or exceeds an 80% pass rate on state licensure exams:

- Yes
- No
- Not applicable
- Not able to determine

Comment:

Summary of Strengths:

PART B - STATUS OF MEETING SPA STANDARDS

Standard 1. Content. Teachers of science understand and can articulate the knowledge and practices of contemporary science. They can interrelate and interpret important concepts, ideas, and applications in their fields of licensure; and can conduct scientific investigations. To show that they are prepared in content, teachers of science must demonstrate that they:

(a) understand and can successfully convey to students the major concepts, principles, theories, laws, and interrelationships of their fields of licensure and supporting fields as recommended by the National Science Teachers Association;
(b) understand and can successfully convey to students the unifying concepts of science delineated by the National Science Education Standards;
(c) understand and can successfully convey to students important personal and technological applications of science in their fields of licensure;
(d) understand research and can successfully design, conduct, report evaluate investigations in science;
(e) understand and can successfully use mathematics to process and report data, and solve problems, in their field(s) of licensure.

Met	Met with Conditions	Not Met

Comment:

Evidence is provided that candidates understand the content portion of the standards (Assessments 1 and 2) but Assessments 3 and 5 do not provide evidence that candidates are able to use pedagogy (Assessment 3) to successfully convey (Assessment 5- Impact on Student Learning) to students science specific concepts.
Assessment 3 does not provide evidence of Standard 1b, Unifying Concepts of Science.
Assessment 7 does not provide convincing evidence of candidates' ability to design, conduct, report evaluate investigations in science and use mathematics to process and report data, and solve problems in science as presented in the standard (d-e).

Standard 2. Nature of Science. Teachers of science engage students effectively in studies of the history, philosophy, and practice of science. They enable students to distinguish science from nonscience, understand the evolution and practice of science as a human endeavor, and critically analyze assertions made in the name of science. To show they are prepared to teach the nature of science, teachers of science must demonstrate that they:

(a) understand the historical and cultural development of science and the evolution of knowledge in their discipline;
(b) understand the philosophical tenets, assumptions, goals, and values that distinguish science from technology and from other ways of knowing the world;
(c) engage students successfully in studies of the nature of science including, when possible, the critical analysis of false or doubtful assertions made in the name of science.

Met	Met with Conditions	Not Met
j	j	j

Comment:

Standard 2 is not met. The assessments used to provide evidence for this standard are not science specific therefore they cannot address candidates' knowledge of the Nature of Science (Assessment 8), use of pedagogy for the teaching of the Nature of Science (Assessment 3), nor assess candidates' impact on students' knowledge of the Nature of Science (Assessment 5).
Assessment 5 mentions the Nature of Science in the instructions, but does not evaluate whether the candidate includes the Nature of Science in the scoring guide.

Standard 3. Inquiry. Teachers of science engage students both in studies of various methods of scientific inquiry and in active learning through scientific inquiry. They encourage students, individually and collaboratively, to observe, ask questions, design inquiries, and collect and interpret data in order to develop concepts and relationships from empirical experiences. To show that they are prepared to teach through inquiry, teachers of science must demonstrate that they:

(a) understand the processes, tenets, and assumptions of multiple methods of inquiry leading to scientific knowledge;
(b) engage students successfully in developmentally appropriate inquiries that require them to develop concepts and relationships from their observations, data, and inferences in a scientific manner.

Met	Met with Conditions	Not Met
j	j	j

Comment:

Standard 3 is not met. The assessments used to provide evidence for this standard are not science specific therefore they cannot address candidates' pedagogical knowledge of inquiry (Assessment 3), assess candidates' ability to engage students successfully in developmentally appropriate inquiries (Assessment 5) nor candidates' knowledge of inquiry (Assessment 8).
Assessment 5 mentions the Inquiry in the instructions, but does not evaluate whether the candidate uses Inquiry Lessons during the evidence of student learning Action Research project.

Standard 4. Issues. Teachers of science recognize that informed citizens must be prepared to make decisions and take action on contemporary science- and technology-related issues of interest to the general society. They require students to conduct inquiries into the factual basis of such issues and to assess possible actions and outcomes based upon their goals and values. To show that they are prepared to engage students in studies of issues related to science, teachers of science must demonstrate that they:

(a) understand socially important issues related to science and technology in their field of licensure, as well as processes used to analyze and make decisions on such issues;
(b) engage students successfully in the analysis of problems, including considerations of risks, costs, and benefits of alternative solutions; relating these to the knowledge, goals and values of the students.

Met	Met with Conditions	Not Met

Comment:

Standard 4 is not met. The assessments used to provide evidence for this standard are not science specific therefore they cannot address candidates' knowledge and ability to understand socially important issues related to science and technology in their field of licensure (Assessment 8), as well as processes used to analyze and make decisions on such issues and engage students successfully in the analysis of problems, including considerations of risks, costs, and benefits of alternative solutions; relating these to the knowledge, goals and values of the students (Assessment 5).
Assessment 3 includes lesson planning in Issues in Science.
Assessment 5 does not include Issues in Science in the scoring guide.

Standard 5. General Skills of Teaching. Teachers of science create a community of diverse learners who construct meaning from their science experiences and possess a disposition for further exploration and learning. They use, and can justify, a variety of classroom arrangements, groupings, actions, strategies, and methodologies. To show that they are prepared to create a community of diverse learners, teachers of science must demonstrate that they:

(a) vary their teaching actions, strategies, and methods to promote the development of multiple student skills and levels of understanding;
(b) successfully promote the learning of science by students with different abilities, needs, interests, and backgrounds;
(c) successfully organize and engage students in collaborative learning using different student group learning strategies;
(d) successfully use technological tools, including but not limited to computer technology, to access resources, collect and process data, and facilitate the learning of science;
(e) understand and build effectively upon the prior beliefs, knowledge, experiences, and interests of students;
(f) create and maintain a psychologically and socially safe and supportive learning environment.

Met	Met with Conditions	Not Met

Comment:

Standard 5 is met. Assessment 4 provides evidence that candidates will have mastered the general skills of teaching as presented in the standard.

Standard 6. Curriculum. Teachers of science plan and implement an active, coherent, and effective curriculum that is consistent with the goals and recommendations of the National Science Education Standards. They begin with the end in mind and effectively incorporate contemporary practices and resources into their planning and teaching. To show that they are prepared to plan and implement an effective science curriculum, teachers of science must demonstrate that they:

(a) understand the curricular recommendations of the National Science Education Standards, and can identify, access, and/or create resources and activities for science education that are consistent with the standards;
(b) plan and implement internally consistent units of study that address the diverse goals of the National Science Education Standards and the needs and abilities of students.

Met	Met with Conditions	Not Met
j	j	j

Comment:

Standard 6 is met. Evidence demonstrates that candidates understand the State curricular requirements. However, the assessment is lacking evidence that candidates understand the curricular recommendations of the National Science Education Standards and can plan to use resources and activities for science education that are consistent with the standards. Assessment 3 has no required use and understanding of the National Science Education Standards.

Standard 7. Science in the Community. Teachers of science relate their discipline to their local and regional communities, involving stakeholders and using the individual, institutional, and natural resources of the community in their teaching. They actively engage students in science-related studies or activities related to locally important issues. To show that they are prepared to relate science to the community, teachers of science must demonstrate that they:

(a) identify ways to relate science to the community, involve stakeholders, and use community resources to promote the learning of science;
(b) involve students successfully in activities that relate science to resources and stakeholders in the community or to the resolution of issues important to the community.

Met	Met with Conditions	Not Met
j	j	j

Comment:

Standard 7 is not met. The assessments used to provide evidence for this standard are not science specific therefore they cannot address candidates' knowledge and ability to identity ways to relate science to the community, involve stakeholders and use the resources to promote the learning of science, or involve students successfully.

Standard 8. Assessment. Teachers of science construct and use effective assessment strategies to determine the backgrounds and achievements of learners and facilitate their intellectual, social, and personal development. They assess students fairly and equitably, and require that students engage in ongoing self-assessment. To show that they are prepared to use assessment effectively, teachers of science must demonstrate that they:

(a) use multiple assessment tools and strategies to achieve important goals for instruction that are aligned with methods of instruction and the needs of students;
(b) use the results of multiple assessments to guide and modify instruction, the classroom environment, or the assessment process;
(c) use the results of assessments as vehicles for students to analyze their own learning, engaging students in reflective self-analysis of their own work.

Met	Met with Conditions	Not Met
j	j	j

Comment:

Standard 8 is met. Assessments 3 and 5 include sufficient evidence that candidates will have mastered

the ability to use multiple assessment tools, use the results of assessments to guide and modify instruction, and use the results as vehicles for students to analyze their own work as presented in the standard (8a, 8b, and 8c).

Standard 9. Safety and Welfare. Teachers of science organize safe and effective learning environments that promote the success of students and the welfare of all living things. They require and promote knowledge and respect for safety, and oversee the welfare of all living things used in the classroom or found in the field. To show that they are prepared, teachers of science must demonstrate that they:

(a) understand the legal and ethical responsibilities of science teachers for the welfare of their students, the proper treatment of animals, and the maintenance and disposal of materials.
(b) know and practice safe and proper techniques for the preparation, storage, dispensing, supervision, and disposal of all materials used in science instruction;
(c) know and follow emergency procedures, maintain safety equipment, and ensure safety procedures appropriate for the activities and the abilities of students;
(d) treat all living organisms used in the classroom or found in the field in a safe, humane, and ethical manner and respect legal restrictions on their collection, keeping, and use.

Met	Met with Conditions	Not Met
○	●	○

Comment:

Assessment 6 lacks substance and scope that ensures the collection or purchase, care, use, and disposition of living things.
Assessment 4, Student Teaching Observation Form is required to clearly address all components of Standard 9: 9a, 9b, 9c, 9d. Generic student teaching observation forms are not sufficient.
Reflections on improving the program in the area of safety are clear. However, data must be included in the data table for the time period the assessment has been implemented.

Standard 10. Professional Growth. Teachers of science strive continuously to grow and change, personally and professionally, to meet the diverse needs of their students, school, community, and profession. They have a desire and disposition for growth and betterment. To show their disposition for growth, teachers of science must demonstrate that they:

(a) Engage actively and continuously in opportunities for professional learning and leadership that reach beyond minimum job requirements;
(b) reflect constantly upon their teaching and identify ways and means through which they may grow professionally;
(c) use information from students, supervisors, colleagues and others to improve their teaching and facilitate their professional growth;
(d) interact effectively with colleagues, parents, and students; mentor new colleagues; and foster positive relationships with the community.

Met	Met with Conditions	Not Met
●	○	○

Comment:

PART C - EVALUATION OF PROGRAM REPORT EVIDENCE

C.1. Candidates' knowledge of content

Assessment 7 does not provide convincing evidence of candidates' ability to design, conduct, report evaluate investigations in science and use mathematics to process and report data, and solve problems in science as presented in the standard (d-e).

C.2. Candidates' ability to understand and apply pedagogical and professional content knowledge, skills, and dispositions

Assessment instrument 3 and criteria do not address the science-specific dimensions of the standards. The scoring portion of the rubric must include science-specific language and reflect the science-specific expectations of the standards. Minimum levels of performance in each of the required standards are needed (1.2, 2.3, 3.2, 7, and 8).
Assessment 6 provides evidence of safety for 3 of the four standards. However, animal care and use is not sufficiently evaluated.
Assessment 4 provides evidence that candidates implement safe science teaching practices during student teaching.

C.3. Candidate effects on P-12 student learning

Assessment 5 uses a generic scoring guide to show evidence of k-12 student learning. However, requirements to show science specific alignment are not present (standard 1a, 2c, 3b and 4b)

PART D - EVALUATION OF THE USE OF ASSESSMENT RESULTS

Evidence that assessment results are evaluated and applied to the improvement of candidate performance and strengthening of the program (as discussed in Section V of the program report)

Evidence of assessment results being used to evaluate and improve the program is presented, but the data are not sufficient in that they do not show science specific data.

PART E - AREAS FOR CONSIDERATION

Areas for consideration

PART F - ADDITIONAL COMMENTS

F.1. Comments on Section I (Context) and other topics not covered in Parts B-E:

F.2. Concerns for possible follow-up by the Board of Examiners:

PART G -DECISIONS

Please select final decision:

- [ ] Program is nationally recognized with conditions. The program will be listed as nationally recognized on websites and/or other publications of the SPA and NCATE. The institution may designate its program as nationally recognized by NCATE, through the time period specified below, in its published materials. National recognition is dependent upon NCATE accreditation.

NATIONAL RECOGNITION WITH CONDITIONS

The program is recognized through:

MM DD YYYY

02 / 01 / 2011

Subsequent action by the institution: To retain national recognition, a report addressing the conditions to recognition must be submitted on or before the date cited below.

The program has **up to two opportunities** to address conditions within an 18 month period.

If the program is submitting a Response to Conditions Report **for the first time**, the range of possible deadlines for submitting that report are 4/15/09, 9/15/09, 2/1/10, or 9/15/10. *Note that the opportunity to submit a second Response to Conditions report (if needed), is only possible if the first Response to Conditions report is submitted on or before the 9/15/09 submission date noted above. However, the program should NOT submit its Response to Conditions until it is confident that it has addressed all the conditions in Part G of this recognition report.*

If the program is currently Recognized with Conditions and is submitting a **second** Response to Conditions Report, the report must be submitted by the date below.

Failure to submit a report by the date below will result in loss of national recognition.

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09 / 15 / 2010

The following conditions must be addressed within 18 months (or within the time period specified above if the program's recognition with conditions has been continued). See above for specific date.

1) The Unit Plan should also explicitly include science specific Standards 1b, 2c, 3b, and 7 (generally Assessment 3).
2) Evaluation of Student Learning is required to evaluate in the scoring guide standards 1a, 2c, 3a, and 4b (generally Assessment 5).
3) Science Research is required to have a single assessment (scoring guide) for use by all candidates. Working with Arts and Sciences departments is essential to developing quality science teachers (generally Assessment 7).
4) Assessment 6 does not adequately cover the care and treatment of living things. Data is required for next review.
5) Contact Dr. Erica Brownstein at ebrownst@capital.edu for help or find information at www.nsta.org/preservice.

Please click "Next"

This is the end of the report. Please click "Next" to proceed.