

# 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

University of Louisiana at Monroe

#### 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

Single Field Licensure: Biology, Chemistry, Earth Science

#### Program Type

First Teaching License

#### 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:

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

**Comment:**

Only two of the three years of required data was provided. The program reported results from 2 of the 3 completers in biology, yet the subscore data gave results from three completers. There were 17 candidates enrolled in 2006-2007, but only one completer. The next year there were 16 candidates and 2 completers.

Also, there is one completer in Earth Science, but no standardized test. Even though the state of Louisiana does not require a Praxis test, some test should be given to candidates with an expectation of a minimum passing score. This does not have to be Praxis, it could be the Major Field Test or a comprehensive test developed by the science professors.

Subscore data is appreciated, however results should be aggregated, not show individual candidate scores.

**Summary of Strengths:**

The program puts a high priority on collaborating with the science departments.

**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
jn	jn	jn

**Comment:**

PRAXIS II and content alignment form provided. The NSTA Content Analysis Form was completed, however clarification is needed. Giving course numbers is a start, but course names are needed. And in areas that are atypical content being covered, an official University course description is needed. For example, physics concepts being addressed in chemistry courses does not match the standard chemistry curriculum in the nation. Therefore, a course description is required.

Evidence of student learning in science concepts and principles is not clear in the TWS.

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). Research in the classroom is educational research, not research in the science discipline.

**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
jñ	jñ	jñ

**Comment:**

Evidence of Unit Planning for standard 2c is met. Evidence of student learning in the nature of science is not clear in the TWS.  
Assessment 8: The assessment used does not address the candidates' knowledge and understanding of the nature of science, Standard 2a. Generally, lesson plans demonstrate pedagogical knowledge but do not demonstrate background knowledge needed to understand the concepts.  
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**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
jñ	jñ	jñ

**Comment:**

Evidence of Unit Planning for standard 3b is met. Evidence of student learning in inquiry is not clear in the TWS.  
Assessment 8: The assessment used does not address the candidates' knowledge and understanding of

inquiry.

Assessment 8: The assessment used does not address the candidates' knowledge and understanding of the science inquiry, Standard 3a. Generally, lesson plans demonstrate pedagogical knowledge but do not demonstrate background knowledge needed to understand the concepts.

**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

jn

jn

jn

**Comment:**

Assessment 3 addresses the candidates' ability to develop lesson plans that address this standard, 4b. Assessment 5 does not assess candidates' ability to provide evidence of student learning in issues in science through the analysis of problems and relating these to the knowledge, goals, and values of the students.

Assessment 8 does not address the candidates' knowledge and understanding of the issues, Standard 4a. Generally, lesson plans demonstrate pedagogical knowledge but do not demonstrate background knowledge needed to 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.

**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

jn

jn

jn

**Comment:**

**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
jn	jn	jn

**Comment:**

**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
jn	jn	jn

**Comment:**

Assessment 3: Assessment 3 addresses the science specific goals or substance of standard 7b

**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 <sub>n</sub>	j <sub>n</sub>	j <sub>n</sub>

**Comment:**

**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
j <sub>n</sub>	j <sub>n</sub>	j <sub>n</sub>

**Comment:**

Standard 9: Standard is not met. There is no convincing evidence that all elements of the standard have been addressed.  
Rationale  
Assessment 4, states that "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." Student Teaching Observation Form is required to clearly address all components of Standard 9: 9a, 9b, 9c, 9d as implementation in the classroom. Evidence should be collected for each additional area of safety: Safety procedures, chemical use and storage, and legal and ethical. Criteria should be defined in operational terms. Minimum levels of performance need to be established. An example is provided online at [www.nsta.org/preservice](http://www.nsta.org/preservice). This is just an example (not required).  
Assessment 6 is to address Standard 9. Candidates are required to have competency in all dimensions of Standard 9. The portfolio of assessments was provided.

**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
jñ	jñ	jñ

**Comment:**

**PART C - EVALUATION OF PROGRAM REPORT EVIDENCE**

**C.1. Candidates’ knowledge of content**

Assessment one provides evidence of candidates knowledge of content. Research in science discipline and content understanding of nature of science, inquiry and issues in science is needed.

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

Assessment 3 is weakly addressed in the TWS. For Assessments 4 and 5, the scoring guide needs to have measurable criteria that ensure inter-rater reliability. Assessment 6 has a series of assignments to evaluate understanding in safety.

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

Assessment 5 does not clearly require candidate collection of data to show evidence of student learning. Distribution of scores indicates assessments may not be adequately discriminating different levels of performance.  
 The TWS is used for the Unit Plan and the Evidence of Student Learning. While evidence of planning is provided in the scoring guide, assessment of candidate providing evidence of learning in science concepts and principles, nature of science and issues in science is not clear.

**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)**

No evidence given of intent to make changes based on a review of goals and self-analysis.

**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:**

For further assistance, go to [www.nsta.org/preservice](http://www.nsta.org/preservice), For further assistance, contact the Program Coordinator, Erica M. Brownstein at [ebrownst@capital.edu](mailto:ebrownst@capital.edu).

## 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:

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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) Clarification of the Content Analysis Form is needed through the inclusion of the names of science courses and course descriptions in unusual meeting of the standards (general physics concepts being met through chemistry coursework, for example).
- 2) The Teacher Work Sample used by the program has some science specific areas. However, it is not

clear that candidates are required to provide evidence of student learning in science concepts and principles, nature of science and issues in science.

3) Assessment 4, the student teacher observation form, needs to evaluate safety performance during teaching. Areas that are lacking include: legal and ethical, safety procedures and chemical use, preparation and storage.

4) Research in science is a content assessment that occurs within the science discipline, generally in the Science and is evaluated by a scientist. A separate assessment will need to be developed with an accompanying scoring guide.

5) Content assessment for the Nature of science, Inquiry and Issues in science is needed.

**Please click "Next"**

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