Program Report for the Preparation of Science Teachers
National Science Teachers Association (NSTA)

NATIONAL COUNCIL FOR ACCREDITATION OF TEACHER EDUCATION

COVER SHEET

1. Institution Name

Rhode Island College

2. State

Rhode Island

3. Date submitted

MM DD YYYY

09 / 15 / 2010

4. Report Preparer's Information:

Name of Preparer:

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6. Name of institution's program

Secondary Education- Physics

7. NCATE Category

Science Education-Physics

8. Grade levels[1] for which candidates are being prepared

7-12

(1) e.g. K-6, 7-9, 7-12, K-12

9. Program Type

- First Teaching License
- Unspecified

10. Degree or award level

- Baccalaureate
- Post Baccalaureate
- Master's
- Post Master's
- Specialist or C.A.S.
- Doctorate
- Endorsement only

11. Is this program offered at more than one site?

- Yes
- No

12. If your answer is "yes" to above question, list the sites at which the program is offered

13. Title of the state license for which candidates are prepared, including science areas licensed to teach (i.e., Biology, Chemistry, Physics, Broad Field, etc.)

Physics

14. Program report status:

- Initial Review
- Response to One of the Following Decisions: Further Development Required or Recognition with Probation
- Response to National Recognition With Conditions

15. State Licensure requirement for national recognition:
NCATE requires 80% of the program completers who have taken the test to pass the applicable state licensure test for the content field, if the state has a testing requirement. Test information and data must be reported in Section III. Does your state require such a test?

- Yes
- No

SECTION I - CONTEXT

1. Provide the following contextual information:

Description of any state or institutional policies that may influence the application of NSTA standards. (Response limited to 4,000 characters.)

Rhode Island College is the oldest of the three public institutions of higher education in the state of Rhode Island. When the college was established in 1854 as the Rhode Island State Normal School, its goal was to provide teacher preparation to young people from Rhode Island. With the dedication of a new building in 1898, the institution began a period of steady growth, evolving first into a teachers' college, the Rhode Island College of Education. In the 1958-59 academic year the college moved to its current campus, and in 1959 was renamed Rhode Island College to reflect its new purpose as a comprehensive institution of higher education.
Rhode Island College has undergone expansion in recent decades at the undergraduate and graduate levels. With an enrollment predominantly from Rhode Island and nearby Massachusetts and Connecticut, the institution historically has served as a "College of Opportunity" for first-generation college students. The college now serves approximately 9,000 students in courses and programs on and off campus, and is one of the region's leading comprehensive public colleges. Our mission is to offer accessible higher education of the finest quality to traditional and non-traditional students from around the state, the region, and beyond.

The state of Rhode Island certifies secondary science teachers in four areas: biology, chemistry, physics, and general science. Teaching at the middle school level requires an additional middle school endorsement, which can be earned by teacher candidates in either elementary or secondary education. For this reason, no information will be presented on middle school teachers as an independent category, because that category does not exist in Rhode Island.

Within RIC's Educational Studies department, we have two groups of students. The first are traditional undergraduate teacher candidates, who complete a major in biology and also complete a sequence of education classes, listed below in #2. The second group is enrolled in the Rhode Island Teacher Education program (RITE), and composed of students who have earned a bachelor's degree in Biology or a closely related field. These students have little or no content requirements, as determined by transcript analysis, but do need to complete the sequence of education classes. As the sequence of education classes is the same, both groups of students enroll in the same education classes. As requested by NCATE, data from these students is disaggregated.

2. Description of the field and clinical experiences required for the program, including the number of hours for early field experiences and the number of hours/weeks for student teaching or internships. Describe setting of student teaching (i.e., student teaching occurs in a science classroom). (Response limited to 8,000 characters.)

Field and clinical experiences include the following:

FNED 346 Schooling in a Democratic Society
SED 406 Instructional Methods, Design, and Technology
CEP 315 Educational Psychology
SED 407 Instructional Methods, Design, and Literacy
SPED 433 Adaptive Instruction for Inclusive Education
SED 410 Practicum in Secondary Science Methods
SED 421 Student Teaching in Secondary School
SED 422 Student Teaching Seminar

Candidates must take and pass FNED 346: Schooling in a Democratic Society with a minimum grade of B- in order to be considered for entry into the Feinstein School of Education and Human Development (FSEHD). One requirement of this class is that candidates spend a minimum of 20 hours in an urban setting tutoring students. The primary aim of the pre-professional experience is for teacher candidates to develop an understanding of working with adolescent learners and how social, economic and cultural factors affect teaching and learning. Candidates must receive positive recommendations from their course instructor and cooperating teacher in order to be accepted into the FSEHD.

Most candidates begin the Secondary Education Professional Sequence in their junior year, as it is a two-year program. During the first semester, they take CEP 315: Educational Psychology, a course in which they study various theories of learning and development, and also take the first course in the methods sequence: SED 406: Instructional Methods, Design, and Technology. Candidates learn about lesson planning, applying standards, utilizing technology, practice teaching with their peers, and spend four hours observing a master teacher in the field. Candidates write reflections on their observations and make connections between the theories they are learning about on campus and the practices they are seeing in real-world classrooms. SED 406 is followed by SED 407: Instructional Methods, Design, and Literacy. Here, candidates deepen their knowledge through learning how to meet the needs of diverse learners, address the literacy practices required in their respective content areas, and gain their first experience designing and implementing lessons for real students. Candidates spend ten hours working with an expert teacher in the field. This field experience includes observation and teaching one reading and one writing lesson. Candidates often work with a partner and are evaluated by the cooperating teacher.

In the semester prior to student teaching, candidates take SED 410 in which they focus on putting pedagogical theory and science content knowledge into practice. SED 410 meets 6-10 hours per week and includes two separate field experiences: one 30 hour, three-week experience in a high school, and one 30 hour, three-week experience in a middle school. Most candidates spend one placement in an urban setting and one placement in a suburban setting. Candidates develop and teach lessons aligned with NCTE and RIPTS standards, and are observed and evaluated by both the classroom teacher and college supervisor. The candidates are evaluated on their ability to effectively plan, teach, and reflect on their experiences, and these products become part of the Preparing to Teach portfolio, which candidates must successfully complete in order to student teach. All field experiences are set in science classrooms under the direction of experienced science teachers, who are carefully chosen by RIC science education faculty with input from school department chairs and teacher leaders.

The capstone experience for all teacher candidates includes SED 421: Student Teaching, which consists of 16 weeks teaching in an science classroom, and SED 422: Student Teaching Seminar in which candidates share their experiences, successes, and challenges, and work on completing the Teacher Candidate Work Sample (TCWS), the final requirement of student teaching. If a candidate is earning middle school certification, s/he spends eight weeks in a high school and eight weeks in a middle school. Candidates teach at least three classes (two preparations) and develop lessons and units aligned with the NSTA science education standards, RIPTS, and RI state standards (GLEs or Grade Level Expectations).

During this semester the candidates apply the knowledge, skills, and dispositions they have been developing throughout the Science education program. It is at this point that candidates are assessed on their ability to teach science to secondary students over a sustained period of time. Candidates spend the first 1-2 weeks observing and planning, then take on one class, and add others as they are ready and the schedule allows. They are required to spend a minimum of four weeks teaching all three classes, but most teach their full load for 9-10 weeks.

All cooperating classroom teachers are certified in at least the one area of science they teach, often more (Biology, Chemistry, General Science, or Physics) and are required to take professional development training through the FSEHD. Science education faculty choose cooperating teachers based on their teaching effectiveness; contributions to the profession, through membership in professional organizations; and recommendations from department chairs and peers. Furthermore, we try to match personalities; for example, some candidates need more structure and explicit guidance, while others do better with a certain amount of freedom. We know most of our cooperating teachers well enough to make appropriate matches, most of them are alumni. Candidates are supervised by science education faculty, with adjuncts as needed, all of whom have experience teaching science in secondary schools and education courses at the college level.

Candidates are placed in public schools in urban, suburban, or rural settings. These settings are diverse in regard to socio-economic status, special needs, racial, ethnic and religious backgrounds, and new immigrant cultures. While science education faculty choose cooperating teachers, all placements are made through the Office of Partnerships and Placements (OPP) in the FSEHD, and contacts with the districts, schools, teachers, are made through this office. We can only work with districts that have a Partnership Agreement with the OPP, which includes most districts in Rhode Island. Partnership districts have agreed to abide by the criteria set by the FSEHD, including institutional commitment to the FSEHD Conceptual Framework, RIPTS, and standards set by NCATE.

Candidates, cooperating teachers, and college supervisors are all evaluated using a variety of electronic forms. Candidates are officially observed a total of four times by the cooperating teacher and three times by the college supervisor, and conferences take place after each observation to discuss the strengths, areas of growth, and goals for the next lesson.

3. A program of study that outlines the courses and experiences required for candidates to complete the program. The program of study must include course titles and numbers. (This information may be provided as an attachment from the college catalog or as a student advisement sheet.) Include forms showing requirements for science content courses for post degree or master's programs. Syllabi and course descriptions are not generally necessary. Please include directions for each level of candidate (e.g., undergraduate advising sheet and post degree or graduate advising sheet.) A course of study for post baccalaureate or master's programs should include required science content.

Plans of Study for science education

See **Attachments** panel below.

4. This system will not permit you to include tables or graphics in text fields. Therefore any tables or charts must be attached as files here. The title of the file should clearly indicate the content of the file. Word documents, pdf files, and other commonly used file formats are acceptable. The system will not accept .docx files. Please include all information on an assessment (directions, scoring guide, data, and reflections on changes) in a single document. Note that if using MS Word, files must be in a version prior to MS Vista.

5. Candidate Information

Directions: Provide three years of data on candidates enrolled in the program and completing the program, beginning with the most recent academic year for which numbers have been tabulated. Report the data separately for the levels/tracks (e.g., baccalaureate, post-baccalaureate, alternate

routes, master's, doctorate) being addressed in this report. Report the data separately for each licensure area (e.g., chemistry, biology, broad field science, middle level). Data must also be reported separately for programs offered at multiple sites. Update academic years (column 1) as appropriate for your data span. Create additional tables as necessary.

Program:
Biology education - undergraduate (baccalaureate)

*Because students at RIC declare as science majors, and then apply to the school of education, it is difficult to get an exact count.

Academic Year	# of Candidates Enrolled in the Program	# of Program Completers[2]
2007-2008	2	0
2008-2009	4	2
2009-2010	2	0

Program:
Biology education - RITE program (post-baccalaureate)

*This is a one-year program, and therefore the columns are the same.

Academic Year	# of Candidates Enrolled in the Program	# of Program Completers[2]
2007-2008	0	0
2008-2009	0	0
2009-2010	0	0

(2) NCATE uses the Title II definition for program completers. Program completers are persons who have met all the requirements of a state-approved teacher preparation program. Program completers include all those who are documented as having met such requirements. Documentation may take the form of a degree, institutional certificate, program credential, transcript, or other written proof of having met the program's requirements.

6. Faculty Information

Directions: Complete the following information for each faculty member responsible for science education professional coursework, clinical supervision, or administration in this program. This may be the science educator(s) or others directly involved in teaching science education portion of the licensure program.

Faculty Member Name	Rudolf Kraus
Highest Degree, Field, & University[3]	Ph.D. Science Education, Illinois Institute of Technology
Assignment: Indicate the role of the faculty member[4]	Coordinator of Secondary Science Education teaches science methods supervises science methods practicum supervises student teaching
Faculty Rank[5]	assistant professor
Tenure Track	þ YES
Scholarship[6], Leadership in Professional Associations, and Service[7]:List up to 3 major contributions in the past 3	Kraus, R. (2010, May). Podcasting at Rhode Island College. Poster presented to the annual conference of Rhode Island College's Academic Technology Advisory Committee, Providence, RI. Kraus, R. (2009, November). Cultural Difference vs. Scientific Fact. Paper presented to Promising Practices conference, Providence, RI. Kraus, R., & Lederman, N. (2009, April) Coaching and inquiry. Paper presented to the National Association for Research in Science Teaching, Garden

years[8]	Grove, CA.
Teaching or other professional experience in P-12 schools[9]	College Supervisor - Rhode island College teacher candidate program Instructor (chemistry, physics, algebra II, statistics) - Cristo Rey Jesuit High School, Chicago, IL Outreach Coordinator and Instructor - National Plastics Center and Museum, Leominster, MA Learning Lab instructor - Museum of Science and Industry, Chicago, IL

Faculty Member Name	Paul Tiskus
Highest Degree, Field, & University[3]	Ph.D. Indiana University
Assignment: Indicate the role of the faculty member[4]	teaches science methods supervises science methods practicum supervises student teaching
Faculty Rank[5]	associate professor
Tenure Track	þ YES
Scholarship[6], Leadership in Professional Associations, and Service[7]:List up to 3 major contributions in the past 3 years[8]	
Teaching or other professional experience in P-12 schools[9]	

(3) e.g., PhD in Curriculum & Instruction, University of Nebraska.

(4) e.g., faculty, clinical supervisor, department chair, administrator

(5) e.g., professor, associate professor, assistant professor, adjunct professor, instructor

(6) Scholarship is defined by NCATE as systematic inquiry into the areas related to teaching, learning, and the education of teachers and other school personnel.

Scholarship includes traditional research and publication as well as the rigorous and systematic study of pedagogy, and the application of current research findings in new settings. Scholarship further presupposes submission of one's work for professional review and evaluation.

(7) Service includes faculty contributions to college or university activities, schools, communities, and professional associations in ways that are consistent with the institution and unit's mission.

(8) e.g., officer of a state or national association, article published in a specific journal, and an evaluation of a local school program.

(9) Briefly describe the nature of recent experience in P-12 schools (e.g. clinical supervision, inservice training, teaching in a PDS) indicating the discipline and grade level of the assignment(s). List current P-12 licensure or certification(s) held, if any.

SECTION II - LIST OF ASSESSMENTS

1. In this section, list the 6-8 assessments that are being submitted as evidence for meeting the NSTA standards. All programs must provide a minimum of six assessments. If your state does not require a state licensure test in the content area, you must substitute an assessment that documents candidate attainment of content knowledge in #1 below. For each assessment, indicate the type or form of the assessment and when it is administered in the program.

Type and Number of Assessment	Name of Assessment (10)	Type or Form of Assessment (11)	When the Assessment Is Administered (12)
Assessment #1: Content Knowledge – Licensure Tests [13](required)	Praxis II exam	standardized test	Prior to SED 410, usually the summer before senior year.

Assessment #2: Content Knowledge – an assessment of general content knowledge in discipline to be taught (required)	content area GPA	GPA across classes in major of 2.5 or higher	throughout program
Assessment #3: Pedagogical and Professional Knowledge, Skills and Dispositions – Planning instruction and assessment (required)	1) completion of FNED 346 2) letters of reference from FNED 346 instructors 3) mini-TCWS	1) required class- FNED 346: Schooling in a Democratic Society, grade of B or better 2) school-wide common evaluations of teacher candidate 3) Abridged version of Teacher Work Sample, including a unit designed, implemented, and assessed by the studen	1) during class 2) after class, prior to admission as an education major 3) during SED 410: Practicum, prior to student teaching
Assessment #4: Pedagogical and Professional Knowledge, Skills and Dispositions – Student Teaching Assessment (required)	1)Teacher Candidate Work Sample (TCWS) 2) classroom observations	1) TCWS is designed to showcase a unit designed, implemented, and assessed by the student 2) Observations by college supervisor (4) observations by supervising teacher (3)	1) At end of student teaching 2) Throughout student teaching
Assessment #5: Effects on Student Learning (required)	Teacher Candidate Work Sample (TCWS), process 6	written analysis, along with documentation of evidence	During student teaching
Assessment #6: [Pedagogical and Professional Knowledge, Skills and Dispositions – Legal/Safety/Ethical Issues (required)	1) safety assignments in mini-TCWS 2) safety assignment during student teaching 3) classroom observations	1) Written safety assignment in practicum 2) Written safety assignment in student teaching 3) Observations by college supervisor (4) and supervising teacher (3)	During Practicum and student teaching
Assessment#7: Content Knowledge – Research & Investigation (required)	Required class: Bio 491 Problems in Biology		prior to student teaching

Assessment #8: Content Knowledge – Contextual Content (required)	1) Required class: Phys 357: Historical and Contemporary Contexts of Science 2) TCWS, process 1: contextual factors	1) GPA of 2.5 or higher in all cognate classes 2) Written assessment with supporting data	1) prior to senior year 2) during student teaching

(10) Identify assessment by title used in the program; refer to Section IV for further information on appropriate assessment to include.

(11) Identify the type of assessment (e.g., essay, case study, project, comprehensive exam, reflection, state licensure test, portfolio).

(12) Indicate the point in the program when the assessment is administered (e.g., admission to the program, admission to student teaching/internship, required courses [specify course title and numbers], or completion of the program).

(13) If licensure test data is submitted as Assessment #1, the assessment and scoring guide attachments are not required. If the state does not require a licensure test, another content based assessment must be submitted (including the assessment and scoring guide).

SECTION III - RELATIONSHIP OF ASSESSMENT TO STANDARDS

For each NSTA standard on the chart below, identify the assessment(s) in Section II that address the standard. One assessment may apply to multiple NSTA standards.

1. NSTA Standards[14]

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

	#1	#2	#3	#4	#5	#6	#7	#8
(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	b	b	e	b	e	e	e
(b) understand and can successfully convey to students the unifying concepts of science delineated by the National Science Education Standards;	e	e	b	e	e	e	e	e
(c) understand and can successfully convey to students important personal and technological applications of science in their fields of licensure;	e	e	b	e	e	e	e	e
(d) understand research and can successfully design, conduct, report and evaluate investigations in science	e	e	e	e	e	e	b	e
(e) and understand and can successfully use mathematics to process and report data, and solve problems, in their field(s) of licensure.	e	e	e	e	e	e	b	e

(14) Dimensions of standards are separated out from each other when it is highly likely they will be found in different assessment instruments. When the dimensions are likely to be apparent in the same assessment instrument, they have been left together.

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:

	#1	#2	#3	#4	#5	#6	#7	#8
(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	☐	☐	☐	☐	☐	☐	☐	☐

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:

	#1	#2	#3	#4	#5	#6	#7	#8
(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.	☐	☐	☐	☐	☐	☐	☐	☐

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:

	#1	#2	#3	#4	#5	#6	#7	#8
(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.	☐	☐	☐	☐	☐	☐	☐	☐

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

	#1	#2	#3	#4	#5	#6	#7	#8
(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;	ė	ė	ƀ	ƀ	ƀ	ė	ė	ė
(c) successfully organize and engage students in collaborative learning using different student group learning strategies;	ġ	ġ	ġ	ƀ	ƀ	ġ	ġ	ġ
(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;	ė	ė	ƀ	ƀ	ƀ	ė	ė	ė
(e) understand and build effectively upon the prior beliefs, knowledge, experiences, and interests of students; and	ġ	ġ	ƀ	ƀ	ƀ	ġ	ġ	ġ
(f) create and maintain a psychologically and socially safe and supportive learning environment.	ė	ė	ė	ƀ	ƀ	ė	ė	ė

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:

	#1	#2	#3	#4	#5	#6	#7	#8
(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;	ġ	ġ	ƀ	ġ	ġ	ġ	ġ	ġ
(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.	ė	ė	ƀ	ė	ė	ė	ė	ė

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:

	#1	#2	#3	#4	#5	#6	#7	#8
(a) identify ways to relate science to the community, involve stakeholders, and use community resources to promote the learning of science;	ġ	ġ	ƀ	ġ	ġ	ġ	ġ	ġ
(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.	ė	ė	ƀ	ė	ė	ė	ė	ė

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:

	#1	#2	#3	#4	#5	#6	#7	#8
(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;	ġ	ġ	ƀ	ġ	ġ	ġ	ġ	ġ
(b) use the results of multiple assessments to guide and modify instruction,	ė	ė	ƀ	ė	ė	ė	ė	ė

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.								

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:

	#1	#2	#3	#4	#5	#6	#7	#8
(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.								

NOTE: A program must meet Standard 9a, b and c in order to receive either National Recognition or National Recognition with Conditions. Evidence must be shown in assessment 4 and assessment 6. Further information is available at the following URL: www.nsta.org/preservice"

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:

	#1	#2	#3	#4	#5	#6	#7	#8
(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.								

SECTION IV - EVIDENCE FOR MEETING STANDARDS

DIRECTIONS: The 8 key assessments listed in Section II must be documented and discussed in Section IV. Taken as a whole, the assessments must demonstrate candidate mastery of the SPA standards. The key assessments should be required of all candidates. Assessments and scoring guides and data charts should be aligned with the SPA standards. This means that the

concepts in the SPA standards should be apparent in the assessments and in the scoring guides to the same depth, breadth, and specificity as in the SPA standards. Data tables should also be aligned with the SPA standards. The data should be presented, in general, at the same level it is collected. For example, if a rubric collects data on 10 elements [each relating to specific SPA standard(s)], then the data chart should report the data on each of the elements rather that reporting a cumulative score.

In the description of each assessment below, the SPA has identified potential assessments that would be appropriate. Assessments have been organized into the following three areas to be aligned with the elements in NCATE's unit Standard 1:
• Content knowledge (Assessments 1, 2, 7 and 8)
• Pedagogical and professional knowledge, skills and dispositions (Assessments 3, 4, and 6)
• Focus on student learning (Assessment 5)

Note that in some disciplines, content knowledge may include or be inextricable from professional knowledge. If this is the case, assessments that combine content and professional knowledge may be considered "content knowledge" assessments for the purpose of this report.

For each assessment, the compiler should prepare one document that includes the following items:

(1) A two-page narrative that includes the following:
a. A brief description of the assessment and its use in the program (one sentence may be sufficient);
b. A description of how this assessment specifically aligns with the standards it is cited for in Section III. Cite SPA standards by number, title, and/or standard wording.
c. A brief analysis of the data findings;
d. An interpretation of how that data provides evidence for meeting standards, indicating the specific SPA standards by number, title, and/or standard wording;
and

(2) Assessment Documentation
e. The assessment tool itself or a rich description of the assessment (often the directions given to candidates);
f. The scoring guide for the assessment; and
g. Charts that provide candidate data derived from the assessment.

The responses for e, f, and g (above) should be limited to the equivalent of five text pages each, however in some cases assessment instruments or scoring guides may go beyond five pages.

Note: As much as possible, combine all of the files for one assessment into a single file. That is, create one file for Assessment 4 that includes the two-page narrative (items a – d above), the assessment itself (item e above), the scoring guide (item f above), and the data chart (item g above). Each attachment should be no larger than 2 mb. Do not include candidate work or syllabi. There is a limit of 20 attachments for the entire report so it is crucial that you combine files as much as possible.

Please name files as directed in the Guidelines for Preparing an NCATE Program Report found on the NCATE web site at the following URL:
http://www.ncate.org/institutions/resourcesNewPgm.asp?ch=90

NOTE: A science education program must meet NSTA Standards 9 a, b, c, and d in order to receive either National REcognition or National Recognition with Conditions. Evidence must be shown in assessment 4 and assessment 6. Further information is available at the following URL: www.nsta.org/preservice

1. CONTENT KNOWLEDGE: Data from licensure tests of content knowledge in science education. If your state does not require licensure tests in the content area, data from another assessment must be presented to document candidate attainment of content knowledge. The NSTA standard that could be addressed by this assessment includes, but is not limited to, Standard 1a.

Provide assessment information as outlined in the directions for Section IV

1. The names of all licensure tests or professional examinations required by the state for content and pedagogical or professional knowledge. [15]
2. Description of the alignment between licensure test data and applicable NSTA standards. However, if the test is a science content Praxis II test, the alignment is not required (e.g., Praxis II 20235: Biology Content).
3. Aggregated pass rates for each year over the past 3 years, including the most recent academic year. Data must be presented on all completers, even if there were fewer than 10 test takers during a single year. Eighty percent of program completers [16] who have taken the **content** test must pass the applicable state licensure test if the state has such a test.
4. The mean and range of sub-scores for the most recent academic year.
5. A single attachment of assessment documentation, including :

(a) the assessment tool or description of the assignment;
(b) the scoring guide for the assessment; and
(c) candidate data derived from the assessment.
Data should be in aggregate form (not scores for each candidate) and disaggregated by licensure area (biology, chemistry, middle school, etc) and by program (undergraduate, post degree, masters of teaching).
(d) reflections on any rubric changes and why those changes occurred may be included here.
The narrative section for each assessment (1-5 above) is limited to two text pages. If the attachment exceeds the 2mg file size limit by NCATE, break the attachment into logical parts.

Assessment #1.doc

See **Attachments** panel below.

(15) For example, Praxis II Biology: Content Knowledge.

(16) NCATE uses the Title II definition for program completers. Program completers are persons who have met all the requirements of a state-approved teacher preparation program. Program completers include all those who are documented as having met such requirements. Documentation may take the form of a degree, institutional certificate, program credential, transcript, or other written proof of having met the program's requirements.

2. CONTENT KNOWLEDGE: An assessment that demonstrates candidate knowledge of the conceptual science to be taught and related fields. An assessment that demonstrates that candidates are well prepared in the breadth of knowledge needed to teach in their fields of licensure. The NSTA standard that could be addressed by this assessment includes, but is not limited to, Standard 1a.

Assessments could include content grade point averages and minimum grade requirements, portfolio requirements, or comprehensive examinations suitable for preparing teachers of a curriculum based on the content recommendations in the 2003 NSTA Standards 1a.

Provide assessment information as outlined in the directions for Section IV in a single attachment

NOTE: In addition to the above all programs must submit the appropriate NSTA Content Analysis Form. These are available at the following URL: http://www.ncate.org/public/programStandards.asp?ch=4#NSTA Download the appropriate form, fill it out, and attach it here.

Conent Analysis Form	Assessment #2.doc

See **Attachments** panel below.

3. PEDAGOGICAL AND PROFESSIONAL KNOWLEDGE, SKILLS, AND DISPOSITIONS:
An assessment that demonstrates candidates can plan effective classroom-based instruction, and design assessments, consistent with goals of the National Science Education Standards. NSTA standards that could be addressed by this assessment include, but are not limited to, standards 1a, 1b, 1c, 2c, 3b, 4b, 6, 7b, and 8.
A minimum indicator might include performance in the design of at least one major demonstration teaching unit (not a single lesson plan) aligned with goals as reflected in breadth of NSTA standards 1a-c, 2c, 3b, 4b, 6, 7b, and 8 (with lesson plans and varied assessments).

Provide assessment information as outlined in the directions for Section IV in a single attachment

Assessment #3.doc

See **Attachments** panel below.

4. PEDAGOGICAL AND PROFESSIONAL KNOWLEDGE, SKILLS, AND DISPOSITIONS:
Assessment that demonstrates candidates' knowledge, skills, and dispositions are applied effectively in practice. NSTA standards that could be addressed by this assessment include, but are not limited to, standard 9. The assessment instrument used in student teaching and the internship should be submitted.

An indicator could include performances on a subset of items from a student teaching observation form with each area of safety addressed explicitly: 9a- Legal and ethical, 9b – Safety procedures, 9c – Chemical use and storage and 9d – Use and care of animals.

NOTE: Safety is the most important part of learning to be a science teacher. Therefore, this assessment must explicitly address all aspects of the standard for a program with enough substance to ensure to external reviewers that preservice teachers are prepared and are able to address in student teaching in all areas of safety in the teaching of science.

An indicator could include performance in an internship that is evaluated using an observation form filled out by the cooperating teacher and supervisor.

Provide assessment information as outlined in the directions for Section IV in a single attachment

Assessment #4.doc

See **Attachments** panel below.

5. EFFECTS ON STUDENT LEARNING: An assessment that demonstrates candidate effects on student learning of major concepts, principles, theories, laws; the unifying concepts of science; the nature of science; the practice of inquiry (including student engagement in inquiry); analysis of issues related to science and technology and the impact of science on themselves and their community. NSTA standards that must be addressed by this assessment include, but are not limited to, standards 1a, 2c, 3b and 4b.

An indicator might include an assessment of candidate on work samples aligned that is specific to science and explicitly evaluates each of the standards above. Work samples may include pre and post test data with analysis and reflections.

Provide assessment information as outlined in the directions for Section IV in a single attachment

Assessment #5.doc

See **Attachments** panel below.

6. PEDAGOGICAL AND PROFESSIONAL KNOWLEDGE, SKILLS, AND DISPOSITIONS: An assessment that demonstrates candidates are prepared in legal issues, safety, and ethical treatment of living things. The NSTA standard addressed by this assessment includes, but is not limited to, standard 9.

Assessments might include performance in a safety module with minimum levels of performance in each of the areas: 9a, 9b, 9c and 9d. This assessment must address safety knowledge and understanding that a science teacher needs to know and be able to do.
NOTE: Safety is the most important part of learning to be a science teacher. Therefore, this assessment must clearly address all aspects of the standard for a program with enough substance to ensure to external reviewers that preservice teachers are prepared in all areas of safety in the teaching of science.

Provide assessment information as outlined in the directions for Section IV

Assessment #6.doc

See **Attachments** panel below.

7. CONTENT KNOWLEDGE: An assessment that demonstrates knowledge of research and investigation in science. Candidates understand multiple forms of scientific inquiry; can design, conduct, and report research in their field; and can use mathematics and appropriate technology to collect, process, and explain data. NSTA standards that could be addressed by this assessment include, but are not limited to, standards 1d-e.

Assessments might include performance in or on a science content thesis, science research project, occupational experience in scientific research, or some similar confirmed experiences in the design of research in science, with criteria aligned with requirements of this assessment. This includes the candidate designing the experiment, collecting the data, analyzing the data and reporting on the data.

Provide assessment information as outlined in the directions for Section IV

Assessment #7.doc

See **Attachments** panel below.

8. CONTENT KNOWLEDGE: An assessment that demonstrates knowledge of the contextual content of science. An assessment that demonstrates candidates have a strong understanding of the socially relevant issues, inquiry, history, philosophy and applications of science. NSTA standards addressed by this assessment include, but are not limited to 2a-b, 3a, and 4a

Assessments might include performance in a course specifically designed to cover these topics, or performance on a portfolio subset with requirements specifically demonstrating preparation in the knowledge identified in this assessment.

Provide assessment information as outlined in the directions for Section IV.

Assessment #8.doc

See **Attachments** panel below.

SECTION V - USE OF ASSESSMENT RESULTS TO IMPROVE PROGRAM

1. Evidence must be presented in this section that assessment results have been analyzed and have been or will be used to improve candidate performance and strengthen the program. This description should not link improvements to individual assessments but, rather, it should summarize principal findings from the evidence, the faculty's interpretation of those findings, and changes made in (or planned for) the program as a result. Describe the steps program faculty has taken to use information from assessments for improvement of both candidate performance and the program. **This information should be organized around (1) science content knowledge, (2) professional and pedagogical knowledge, skill, and dispositions, and (3) student learning.**

(Response limited to 12,000 characters)

In the last few years, Rhode Island College (RIC) has worked to improve its program in secondary biology education. Our efforts have been focused on points two and three above; we believe the science content knowledge of our students to be strong. At RIC, teacher candidates in biology must complete a full biology major, including 67 credit hours in biology and cognates. We believe this offers a strong foundation in the subject. As seen below, our undergraduate Praxis II (Biology 0235) scores support this claim.

In the RITE program, students already have biology degrees, and only take biology courses if transcript analysis indicates that they lack coursework required by the state of Rhode Island. The state requirements are: Within the 30 credits for Biology certification, the candidate must have course work in

Botany, Zoology, Physiology, Genetics, and Ecology. These students take the Praxis II test, and also need to maintain a 2.5 GPA in any science classes on their individualized Plan of Study, just like the undergraduates. Because the requirements and classwork are the same, RITE students and undergraduates are both represented in the table below. Rhode Island College does not include Biology among the possibilities for its MAT degree, so there are no graduate data to report.

Biology student Praxis II scores 2007-2010

Year #of biology students Required Praxis II score Average Praxis II score
2007-2008 4 152 172
2008-2009 1 152 185
2009-2010 6 152 172.33

While an indirect effect, we also believe that the change in the state requirements for admission to a teacher education program will result in stronger candidates overall, including but not limited to content knowledge, because of the strong correlations between reading, math, and science. Rhode Island's requirements on the PLT exam (Praxis I) were a 170 minimum in math, reading, and writing until August 20, 2010. For the year after that, the minimum scores will be a 175 minimum in math and reading, and a 173 minimum in writing. On August 20, 2011, the scores will arrive at their final destination of a 179 minimum in math and reading, and a 177 minimum in writing.

With respect to professional and pedagogical knowledge, skills, and dispositions, we have designed a number of modifications to our education sequence which should lead to improved outcomes. After a full year of planning, these changes were approved on May 2010, by our curriculum committee. The table below (Table 2) summarizes the changes.
The first change is to SED 406 and 407. Along with increasing the number of credits that students earn with these classes, a concerted planning effort is underway to standardize the SED 406/407 curriculum, and communicate that curriculum to the rest of the faculty, ensuring that every class in our educational sequence include content which can then be used as a foundation in later classes.

The second change is to indicate that Practicum has both a classroom and a field component. This is not a change to the class itself; Practicum has always had these components. However, communicating this clearly to students helps our students to plan their schedules, and makes it clear from the very beginning that RIC students are out in schools often and early, so that they are well-prepared for their student teaching experience. While the number of hours appears to have also changed, it is important to know that SED 410 was counted as a lab class, and met for 10hrs/week. While SED 412 remains a lab, SED 411 is a standard class, and they meet for a combined total of 8hrs/week. While this is a slight decrease in time, we feel that an increase in efficiency and a stronger preparation in the preceding classes will result in the same high-quality program that we have always had at Rhode Island College.

Table 2: Changes to the education program
Old style New style
Course # credits Course # credits
FNED 346 Schooling in a Democratic Society 4 FNED 346 Schooling in a Democratic Society 4
SED 406 Instructional Design, Methods, & Tech. 2 SED 406 Instructional Design, Methods, & Tech 3
SED 407 Instructional Design, Methods, & Literacy 2 SED 407 Instructional Design, Methods, & Literacy 3
CEP 315 Educational Psychology 4 CEP 315 Educational Psychology 4
SPED 433 Adaptive Inst. for Inclusive Education 3 SPED 433 Adaptive Inst. for Inclusive Education 3
SED 410 Practicum in Secondary Ed. (science) 5 SED 411 Content & Pedagogy in Sec. Ed (science) 4

SED 412 Field Practicum in Sec. Ed. (science) 2
SED 421 Student Teaching 9 SED 421 Student Teaching 10
SED 422 Student teaching seminar 2 SED 422 Student teaching seminar 2

The third change is that student teaching and student teaching seminar are now sufficient for a student to have full-time status. This allows our Teacher Candidates to focus on teaching, and not have to deal with an additional class, which some students were forced to take to maintain their health insurance, veteran's benefits, or financial aid status.
In addition to restructuring our education courses, we have also adopted a new method to evaluate the work of our teacher candidates. We have transitioned from an exit portfolio to a Teacher Candidate Work Sample (TCWS), which is adapted from the Renaissance Candidate Work Sample. The processes which are the focus of the TCWS are identifying contextual factors, establishing learning goals, planning assessment, designing instruction, making instructional decisions, analyzing student learning, and reflecting of the experience of teaching. The third process, in particular, calls for every instructional objective to be matched with an assessment, for those assessments to be modified as needed for individual students, and for all methods to be justified with an explanation. The sixth process asks the teacher candidate for evidence of their impact on student learning, including both class-level and student level analyses, and an inspection of possible learning differences that correlate with race or gender. Teacher candidates then suggest improvements for future teaching.

SECTION VI - FOR REVISED REPORTS OR RESPONSE TO CONDITIONS REPORTS ONLY

1. For Revised Reports: Describe what changes or additions have been made to address the standards that were not met in the original submission. Provide new responses to questions and/or new documents to verify the changes described in this section. Specific instructions for preparing a Revised Report are available on the NCATE web site at http://www.ncate.org/institutions/resourcesNewPgm.asp?ch=90

For Response to Conditions Reports: Describe what changes or additions have been made to address the conditions cited in the original recognition report. Provide new responses to questions and/or new documents to verify the changes described in this section. Specific instructions for preparing a Response to Conditions Report are available on the NCATE web site at http://www.ncate.org/institutions/resourcesNewPgm.asp?ch=90

(Response limited to 24,000 characters.)

does not apply

Please click "Next"

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