



social groups and that this achievement benefits all students and educators. Equity acknowledges that ignorance of the richness of diversity limits human potential. A perspective of equity also acknowledges the unequal treatment of those who have been historically discriminated against based on their ability, parents' income, race, gender, ethnicity, culture, neighborhood, sexuality, or home language, and supports the closure of gaps in academic achievement. Decisions grounded in equity must establish that a wide range of learners have access to high quality education in order to release the excellence of culture and character which can be utilized by all citizens of a democratic society.

Within the School of Education, excellence is seen as striving for optimal development, high levels of achievement and performance for all and in all that is done. In preparatory programs across grade levels, curriculum and instruction furthers excellence when it moves a learner as effectively as possible toward expertise as a thinker, problem solver and creator of knowledge. Excellence entails a commitment to fully developing candidates, not only academically but also in moral and political senses.

### **In a Democratic Society**

The preparation of exemplary practitioners in education to meet the challenges of equity and excellence is best accomplished through preparation for a democratic society. Democracy around the globe is an ideal, one with the potential to meet the needs, recognize the interests and establish the rights of all citizens. Education is a necessary foundation for this ideal, and both must be subscribed to and participated in by all.

### **School of Education Conceptual Framework Principles**

The School of Education is committed to diverse, equitable, democratic learning communities. As a result, candidates are expected to acquire and apply the knowledge, skills and dispositions that prepare them to support the development and education of all students.

The School of Education uses the following unit principles, applicable at all program levels, to identify the knowledge and skills that are central to preparation of candidates. It is the School of Education's goal that candidates will become leaders supporting and promoting the development, teaching and learning of all students in multiple contexts.

1. Candidates possess the necessary content knowledge to support and enhance student development and learning.
2. Candidates possess the necessary professional knowledge to support and enhance student development and learning, including meeting student needs across physical, social, psychological, and intellectual contexts. Candidates incorporate a variety of strategies, such as technology, to enhance student learning.
3. Candidates possess the necessary knowledge and skills to conduct and interpret appropriate assessments.
4. Candidates view and conduct themselves as professionals, providing leadership in their chosen field, including effective communication and collaboration with students and stakeholders.

### **SOE Conceptual Framework Dispositions**

Certain dispositions are essential to prepare leaders who support equity and excellence in education within a democratic society. Dispositions are beliefs that foster commitments, leading to actions within educational environments with students, colleagues, families, and communities. Candidates strengthen these dispositions as they think deeply, reflect critically and act responsibly in their professional practice. These dispositions are interconnected with knowledge and skills;

	<p>specific dispositions connect to and exemplify unit principles, facilitating their enactment in particular programs.</p> <ol style="list-style-type: none"> <li>1. Candidates will exhibit behavior that demonstrates a belief that all individuals can develop, learn, and make positive contributions to society.</li> <li>2. Candidates will exhibit behavior that demonstrates a belief that continuous inquiry and reflection can improve professional practice.</li> </ol>
<b>Course Objectives:</b>	<p><b>Course Objectives:</b> Upon completion of this module, the student will be able to:</p> <ol style="list-style-type: none"> <li>1. Describe the science curricula for grades 6-9.</li> <li>2. Demonstrate competence in using the laboratory in science instruction.</li> <li>3. Use science education journals in developing lesson plans.</li> <li>4. Locate and use science education resources such as books, resource people, science competitions and organizations.</li> <li>5. Design lessons that teach science process skills and the nature of science.</li> <li>6. Describe how the learning cycle can be used to teach middle school science.</li> <li>7. Describe common misconceptions students hold about science concepts.</li> <li>8. Implement science safety procedures in designing and teaching lessons.</li> <li>9. Design a unit plan in science.</li> </ol>
<b>Middle Grades Program Outcomes:</b>	<ol style="list-style-type: none"> <li>1. Knowledge of the unique features of middle schools.</li> <li>2. Knowledge of the unique characteristics of young adolescents.</li> <li>3. Knowledge of the social and political foundations of public middle schools.</li> <li>4. Knowledge of strategies for managing a safe, orderly and effective learning environment.</li> <li>5. Knowledge of strategies for developing literacy skills in your content area(s).</li> <li>6. Knowledge of strategies for working with students, with diverse needs.</li> <li>7. Knowledge about external resources as well as self-directed strategies for ongoing professional development.</li> </ol>
	<p><b>School, Professional, and State Standards/Principles:</b></p> <p><i>UNC-CH School of Education Principles and Dispositions</i></p> <ul style="list-style-type: none"> <li>• NC-CH-D4: Candidates believe that continuous inquiry and reflection can improve professional practice.</li> <li>• NC-CH-P3: Candidates possess the necessary content knowledge to support and enhance student development and learning.</li> </ul> <p><i>North Carolina DPI Core Standards</i></p> <ul style="list-style-type: none"> <li>• NC-T-Core 1: Teachers know the content they teach.</li> <li>• NC-T-Core 2: Teachers know how to teach students.</li> <li>• NC-T-Core 3: Teachers are successful in teaching a diverse population of students.</li> </ul> <p><i>North Carolina Core Diversity Standards:</i></p> <ul style="list-style-type: none"> <li>• NC-T-CDIV 1: Teachers understand the central concepts, tools of inquiry, and structures of the disciplines they teach and can create classroom environments and learning experiences that make these aspects of subject matter accessible, meaningful and culturally relevant for diverse learners.</li> <li>• NC-T-CDIV 2: Teachers understand how students’ cognitive, physical, socio-cultural, linguistic, emotional, and moral development influences learning and address these</li> </ul>

factors when making instructional decisions.

*INTASC Standards:*

- INTASC 1: The teacher understands the central concepts, tools of inquiry, and structures of the discipline he or she teaches and can create learning experiences that make these aspects of subject matter meaningful for students.
- INTASC 2: The teacher understands how children learn and develop, and can provide learning opportunities that support a child's intellectual, social, and personal development.
- INTASC 3: The teacher understands how students differ in their approaches to learning and creates instructional opportunities that are adapted to diverse learners.
- INTASC 4: The teacher understands and uses a variety of instructional strategies to encourage student development of critical thinking, problem solving, and performance skills.

*North Carolina DPI Specialty Standards:*

- NC-T-ELED 3: Have a broad knowledge and understanding of the major concepts in science.
- NC-T-ELED 10: Provide active inquiry experiences in teaching of science by using various questioning skills and developing science processing skills (predicting, classifying, measuring, inferring interpreting, analyzing and synthesizing).

*North Carolina DPI Core Technology Standards:*

- NC-T-CTECH 1.1: Teachers demonstrate introductory knowledge, skills, and understanding of concepts related to technology (as described in the ISTE National Education Technology Standards for Students).
- NC-T-CTECH.3: Implement curriculum plans that include methods and strategies for applying technology to maximize student learning.
- NC-T-CTECH 5.1: Teachers use technology resources to engage in ongoing professional development and lifelong learning.

**School, Professional, and State Standards/Principles Assessed in this Course:**

The Technology Assignment assesses the following standards and will be submitted in LiveText:

*North Carolina DPI Core Technology Standards:*

- NC-T-CTECH 1.1: Teachers demonstrate introductory knowledge, skills, and understanding of concepts related to technology (as described in the ISTE National Education Technology Standards for Students).
- NC-T-CTECH.3: Implement curriculum plans that include methods and strategies for applying technology to maximize student learning.
- NC-T-CTECH 5.1: Teachers use technology resources to engage in ongoing professional development and lifelong learning.

The Curriculum Project assesses the following standards and will be submitted in LiveText:

*UNC-CH School of Education Principles and Dispositions:*

- NC-CH-P3: Candidates possess the necessary content knowledge to support and enhance student development and learning.

*North Carolina Core Diversity Standards:*

- NC-T-CDIV 1: Teachers understand the central concepts, tools of inquiry, and structures of the disciplines they teach and can create classroom environments and learning

	<p>experiences that make these aspects of subject matter accessible, meaningful and culturally relevant for diverse learners.</p> <p><i>North Carolina DPI Core Standards</i></p> <ul style="list-style-type: none"> <li>• NC-T-Core 1: Teachers know the content they teach.</li> </ul> <p><i>North Carolina DPI Specialty Standards:</i></p> <ul style="list-style-type: none"> <li>• NC-T-ELED 3: Have a broad knowledge and understanding of the major concepts in science</li> <li>• NC-T-ELED 10: Provide active inquiry experiences in teaching of science by using various questioning skills and developing science processing skills (predicting, classifying, measuring, inferring, interpreting, analyzing, and synthesizing).</li> </ul> <p><i>INTASC Standards:</i></p> <ul style="list-style-type: none"> <li>• INTASC 1: The teacher understands the central concepts, tools of inquiry, and structures of the discipline he or she teaches and can create learning experiences that make these aspects of subject matter meaningful for students.</li> <li>• INTASC 3: The teacher understands how students differ in their approaches to learning and creates instructional opportunities that are adapted to diverse learners.</li> </ul>
<p><b>Activities &amp; Assignments:</b></p>	<p><b>See calendar</b></p>
<p><b>Requirements:</b></p>	<p><b>Attendance, Preparation, and Participation:</b></p> <p><b>Attendance is required.</b> You are enrolled in a professional school, the School of Education, and are continuing the process of your own professional development. As a teacher, attendance and punctuality are required, and the same is true of this course. Every class is important and is part of a bigger picture that was designed to help you learn how to teach science to children. If you miss a class, you will likely miss a learning experience that will enhance your teaching skills, or some essential component to the final understanding of how to teach science successfully.</p> <p><b><u>Attendance</u></b></p> <p>Attendance and punctuality are required for all EDUC 565 classes. Members of the education profession have special responsibilities since so many other people depend on them. Among these responsibilities are meeting all obligations on time and being thoroughly prepared. With this in mind, the following attendance policy has been adopted for all classes in the School of Education.</p> <ol style="list-style-type: none"> <li>1. Attendance and punctuality are required. The Undergraduate Bulletin of the University describes regular class attendance as a "student obligation" and reminds us "no right or privilege exists that permits a student to be absent from a given number of class meetings."</li> <li>2. On rare occasions, it may be necessary to request that an absence be excused, e.g., for illness, death of an immediate family member, or other emergencies. The appearance of a student's name on the Infirmary List constitutes an excused absence for the days in which the student was in the Infirmary. Also, according to legislation adopted by the Faculty Council, students who are members of regularly organized and authorized University activities are to be excused when out of town taking part in a scheduled event. It is the student's</li> </ol>

obligation to give prior notification of such absences.

Last of all, although the University calendar does not recognize religious holidays, instructors are encouraged to make reasonable accommodations for students requesting to miss class due to the observance of religious holidays. Students should make every effort to attend class. Students who do not attend class should call the instructor immediately to explain the absence and discuss ways to make up missed work. An unexplained absence is automatically an unexcused absence.

**Participation is required.** You are expected to participate in all class discussions and activities and be a contributing member in team efforts.

**Professional Dress**

Because we are holding our classes in the public schools and are interacting with teachers and children on a regular basis, it is expected that you will dress appropriately. Slacks or chinos, along with casual shirts and jerseys that reflect “good taste” and appropriate shoes are acceptable.

**Students with Disabilities**

If you have a disability that requires an accommodation in this class, you need to communicate those needs to the Department of Disability Services or Learning Disability Services. Please contact your instructor for more information.

**Topics:**

**North Carolina Science Teacher’s Association Institute**

The North Carolina Science Teacher’s Association Institute is a great place to network and get excellent science resources to use in your classroom. This state conference will be held at the Koury Convention Center in Greensboro, NC. You should plan to attend on Thursday, November 9<sup>th</sup> or Friday, November 10. Plan to attend the exhibits and presentations. You are also REQUIRED to bring back at least one new idea or resource to share that will help you and your peers in teaching science to elementary students. Please bring your registration badge as proof of attendance. You are also required to write a reflection of your experience and include some artifacts from your attendance in your portfolio.

North Carolina Science Teacher Association  
(<http://www.ncsta.org/institute/index.html>)  
Koury Convention Center  
Greensboro, NC  
November 15-16, 2007

However, if you choose not to attend, alternative activities will be provided and are required.

**Assignments and Evaluation:**

For all major assignments a handout will be given in class explaining the purpose, details, and criteria for evaluation.

Attendance, Preparation, and Participation 10%

Technology Assignment 5%

Assignments  
(Journal Articles & Presentations) 25%

Unit Plan, Science Fair Project, Field Trip Assignment	30%
Science Portfolio	15%
Final Exam	15%

**Grading Scale:** A=90-100% ; B=89-80% ; C=79-70% ; D=60-69% ; F=Below 59%

**Each day an assignment is late 5 points will be deducted from the grade.**

**Curriculum Project:** Create an inquiry-based unit of study aligned with a grade level based on the NC Standard Course of Study. You will work with your cooperating teacher to identify the science curriculum unit you will implement during your student teaching experience in the Spring, 2008 (If you are teaching science). The project must consist of a content paper outlining the content to be taught, how children perceive the content, and how the content may be taught using inquiry-based instruction. The unit must consist of at least ten lessons. You must develop 2 diversity-based lessons based on a culture of your choice (i.e., Hispanic, African-American, Asian) and 1 lesson plan that is designed for special needs (i.e., LD, ESL, Adaptive Technology). Each lesson plan should consist of at least two hands-on activities. The unit should include: a title page, the NC Standard Course of Study objectives, overhead transparencies and other resources, assessments, and lessons that include technology. This assignment will be submitted in LiveText.

**Science Portfolio/Journal:** Requirements for your portfolio/journal:

- Resume
- A statement of your philosophy of education
- A reflection on inquiry-based science instruction
- Lessons from fellow student curriculum projects organized by discipline or content areas and grade levels or standards

**Minimum Requirements for a Quality Portfolio:**

- 1) Typed reflections and summaries, 2) Well organized with divider labels and page protectors, 3) Neatness required, 4) Table of contents (by discipline or grade levels) 5) Creative Title Page 6) Place CD in page protector

Prepare portfolio as if presenting to a potential employer

**Technology Assignment:** This assignment is required for completion of the course. Using Microsoft Word, you will create a list of professional development online resources for elementary science education.

**Part A:**

Locate a minimum of **eight** technology-related resources (i.e., web sites, discussion forums, web quests, email listservs, online publications, online tutorials, etc.) that you could use to support your ongoing professional development and lifelong learning in teacher education. Six of the eight resources must be directly related to teaching science to middle grades education students.

	<p><b>Part B:</b> Using Microsoft Word, create a table containing the following column names OR you may use a template that will be supplied to you.</p> <ul style="list-style-type: none"> <li>- Resource Name/Title</li> <li>- URL</li> <li>- Type (i.e., web site, discussion forum, email listserv, online publication, online tutorials, etc.)</li> <li>- Description</li> <li>- Use</li> </ul> <p>Enter the corresponding information into the table for each of your eight selected resources.</p>
<b>Optional Activity:</b>	<p><b><u>Optional Activities that are highly recommended:</u></b> <b>Morehead Planetarium</b> <a href="http://www.moreheadplanetarium.org/index.cfm?fuseaction=page&amp;filename=toh.html">http://www.moreheadplanetarium.org/index.cfm?fuseaction=page&amp;filename=toh.html</a></p>
<b>References &amp; Resources:</b>	<p><b>Blackboard Course Site:</b></p> <p>For all assignments, evaluations and handouts please refer to your blackboard and/or LiveText course section sit. Blackboard can be accessed at <a href="http://blackboard.unc.edu">http://blackboard.unc.edu</a> and LiveText can be accessed at <a href="http://college.livetext.com">http://college.livetext.com</a>.</p> <p><b>Required Text</b> Victor, E. &amp; Kellough, R.D., 10<sup>th</sup> Ed. <i>Science K-8 an Integrated Approach</i>. Merrill Prentice Hall</p> <p><b>Additional Readings:</b> Additional readings may be required. Access to any additional readings will be available either through the UNC Library’s electronic reserves or through Blackboard or LiveText.</p>

<b>Day/Time/ Location</b>	<b>Topics</b>	<b>Readings</b>	<b>Assignments due for class</b>
<b>Thursday, August 23</b> <b>Carolina Center for Education Excellence (CCEE) Room C103</b> <b>5:00-7:00 pm</b>	-Review Syllabus -Assign Content Groups -NC Standard Course of Study -SES Statements		-Plan for question #2 on pg. 144
<b>Thursday, August 30</b> <b>CCEE Room C103</b> <b>5:00-7:00 pm</b>	Teaching Science in Grades K-8 Goals and Objectives for K-8 Science	Chapter 1 Chapter 2	-Answer questions #1,2,3, & 5 on pg. 16 (type answers) <b>-Journal Article Due</b>
<b>Thursday, September 6</b> <b>CCEE Room C103</b> <b>5:00-7:00 pm</b>	Science Teaching and Questioning	Chapter 3	<b>-Unit Topic due for Curriculum Project</b> -Answer questions #1,2, & 5 on pg. 45(type

			answers)
Thursday, September 13 CCEE Room C103 5:00-7:00 pm	Questioning	Chapter 4	-Answer questions #1 & 5 pg 64 -Teach Science Activity
Thursday, September 20 CCEE Room C103 5:00-7:00 pm	Methods of Instruction	Chapter 5	-Answer questions #1,2, & 3 on pg 96 -Teach science activity (#2)
Thursday, September 27 CCEE Room C103 5:00-7:00 pm	Media and Instructional Resources	Chapter 6	-Answer question#2 on pg. 115 <b>-Due: Plan a science field trip</b>
Thursday, October 4 CCEE Room C103	Planning the Instruction	Chapter 7	-Content Presentation -Answer questions #2 & 5 -Plan ahead for question #2 pg144
Thursday, October 11 CCEE Room C103	Planning the Instruction	Chapter 7	Content Presentation <b>Journal Article Due</b>
Thursday, October 18 NO CLASS	Fall Break		
Thursday, October 25 CCEE Room C103 5:00-7:00 pm	NCSU Science House		
Thursday, November 1 CCEE Room C103 5:00-7:00 pm	Assessment	Chapter 8	-Content Presentation -Answer questions #2,3, & 5 on pg 177 <b>-Due: Technology Assignment</b>
Thursday, November 8 CCEE Room C103 5:00-7:00 pm	Assessment	Chapter 8	<b>Due Science Fair Projects</b> -Science Activity -Content Presentation
Thursday, November 15 or 16 CCEE Room C103 5:00-7:00 pm	NCSTA		<b>Due: Curriculum Projects (Due Nov 19)</b>
Thursday, November 22 NO CLASS	Thanksgiving Break		
Thursday, November 29 CCEE Room C103 5:00-7:00 pm	NC Standard Course of Study -Inquiry-based Learning		-Content Presentation <b>Due: Science Portfolio</b>
Tuesday, December 11 Final Exam CCEE 5:00pm-7:00pm	<b>Final Exam</b>		