

**George Mason University**  
**College of Education and Human Development**  
**Early Childhood Education**

ECED 416.002 Science for Diverse Young Learners  
3 Credits, Fall 2022, In-person  
8/22/2022–12/14/2022, Thursdays/ 4:30–7:10 pm  
Thompson Hall L004, Fairfax Campus

**Faculty**

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**Required Prerequisites**

ECED 401 or 501 and ECED 403 or 503  
Prerequisites require a minimum grade of C for undergraduate courses and B- for graduate courses.

**University Catalog Course Description**

Examines ways to foster development of science in preschool to third-grade children. Covers construction of science lessons and hands-on experiences that promote learning in children with diverse abilities and cultural and linguistic backgrounds.

**Course Delivery Method**

This course will be delivered using a lecture/discussion format and Blackboard (Bb).

**Learner Outcomes or Objectives**

This course is designed to enable students to do the following:

1. Explain how knowledge, skills, and practices in the four core science disciplines (i.e., Earth sciences, biology, chemistry, and physics), as defined in *Virginia's Early Learning and Development Standards* and the *Virginia Science Standards of Learning*, provide a sound foundation for teaching science in prekindergarten through third grade.
2. Describe the nature of science and scientific inquiry, including the function of research design and experimentation, and the role of science in explaining and predicting events and phenomena.
3. Describe the practices required to provide empirical answers to research questions, including data collection and analysis, modeling, argumentation with evidence, and constructing explanations.
4. Discuss the reliability of scientific knowledge and its constant scrutiny and refinement; self-checking mechanisms used by science to increase objectivity, including peer review; and assumptions, influencing conditions, and limits of empirical knowledge.
5. Describe and organize key science content in Earth science, biology, chemistry, and physics content into meaningful units of instruction that actively engage students in learning;

integrate processes and crosscutting concepts into planning and implementing in the interdisciplinary context; and promote the application of key science principles to solve practical problems and develops a “systems” understanding of the natural world.

6. Describe the role of family and community knowledge, experience, and resources in planning and implementing science content in the curriculum.
7. Plan instruction on Earth science, biology, chemistry, and physics that (a) uses a variety of instructional techniques to meet the needs of diverse young learners; (b) incorporates instructional technology to enhance learner performance; (c) ensures learner competence in science; and (d) is informed by the *Virginia’s Early Learning and Development Standards*, the *Virginia Standards of Learning for Science*, and the *New Generation Science Standards*.
8. Evaluate, select, and adapt a variety of instructional materials, technologies, and teaching strategies to engage diverse young learners in science.
9. Develop science activities for young children using the scientific process with an emphasis on describing, analyzing, and quantitatively presenting findings.
10. Conduct formative and summative assessments of students’ learning of science concepts.
11. Describe and use the knowledge, skills, and practices to implement classroom, field, and laboratory safety rules and procedures and ensure students take appropriate safety precautions.
12. Describe and use the knowledge, skills, and practices needed to conduct research projects and experiments, including applications of design process and technology, and systematic field investigations using the school grounds, the community, and regional resources.
13. Explain the contribution and significance of science, including (a) its social, cultural, and economic significance; (b) the relationship of science to mathematics, the design process, and technology; and (c) the historical development of scientific concepts and scientific reasoning.
14. Exhibit standards of professionalism, ethical standards, and personal integrity with children, families, and professionals in the field and in interactions with classmates, the instructor, and others.
15. Use writing as an instructional and assessment tool to generate, gather, plan, organize, and to communicate for a variety of purposes; integrate correct written conventions (i.e., grammar, usage, mechanics, and spelling); and format using current APA style.

**Professional Standards** – Interstate Teacher Assessment and Support Consortium (InTASC) Standards, Division of Early Childhood (DEC) Professional Preparation Standards, National Association for the Education of Young Children (NAEYC) Professional Standards and Competencies, and Virginia Professional Studies Competencies

Upon completion of this course, students will have met the following professional standards:

### **Virginia Early/Primary Education PreK-3 Endorsement Competencies**

Methods

Knowledge and Skills: Science

### **Required Texts**

American Psychological Association. (2020). *Publication manual of the American Psychological Association* (7th ed.). Author.

Achieve Inc. (2013). *Next generation science standards*. Author. <http://www.nextgenscience.org>

Peters, J. M., & Stout, D. L. (2011). *Science in elementary education: Methods, concepts, and Inquiries* (11th ed.). Pearson.

Shillady, A. (ed.) (2013). *Spotlight on young children: Exploring science*. National Association for the Education of Young Children.

Virginia Department of Education. (2010). Science standards of learning.  
[https://www.doe.virginia.gov/testing/sol/standards\\_docs/science/index.shtml](https://www.doe.virginia.gov/testing/sol/standards_docs/science/index.shtml)

Virginia Department of Education. (2010). Science curriculum framework.  
[https://www.doe.virginia.gov/testing/sol/standards\\_docs/science/index.shtml](https://www.doe.virginia.gov/testing/sol/standards_docs/science/index.shtml)

Access Blackboard for optional class readings.

### Course Performance Evaluation

Students are expected to submit all assignments on time in the manner outlined by the instructor (e.g., Blackboard, VIA, hard copy).

Assignments	Due Dates	Points
Attendance and Participation <ul style="list-style-type: none"> <li>Self-Evaluation</li> </ul>	Ongoing December 8	25
Personal Journal <ul style="list-style-type: none"> <li>Part 1</li> <li>Part 2</li> </ul>	September 1 December 1	10 5 5
Science Activity Share	Variable	15
Enriching Science Inquiry with Literature	September 15	5
6E/PBL Lesson Plan	September 29	15
Science Lesson Implementation and Reflection <ul style="list-style-type: none"> <li>Part 1: Planning the Lesson</li> <li>Part 2: Collecting Data</li> <li>Part 3: Reflecting on the Lesson</li> </ul>	October 13 October 13 November 17	20 5 5 10
Children's Science Center Volunteer Experience Reflection	December 8	10
<b>TOTAL</b>		<b>100</b>

- **Assignments and/or Examinations**

**NOTE: With exclusion of the personal journal, each of the major assignments for this course should focus on a different science area: physical science, life science, earth/space science, or engineering (i.e., no two assignments should focus on the same area.)**

#### Personal Journal (Part 1=5 points; Part 2=5 points)

Part 1: To initiate class experiences, students will write a critical reflection on their personal experiences as a learner of science (2 pages). They will use the following prompts to help guide their reflection process.

- Begin with your earliest memories (give examples) and reflect until the present as a graduate student in a teacher preparation program.
- Reflect on your experiences in school, out of school, in the context of your family, etc.

- How do you think your social, cultural, and economic background played a role on your experiences as a science learner?
- How do you see yourself as a science learner?
- Why do you think you feel that way?
- How do you think these experiences will shape you as a teacher of science? In other words, what positive impacts or challenges on your teaching practice do you foresee from your prior experiences or self-conception?

Part 2: At the conclusion of the course, students will revisit their initial thoughts in their first journal entry and reflect on how their thoughts and/or self-conception have changed, if at all (2 pages). They will use the following prompts to help guide their reflection process.

- What have you learned in the course?
- Do you view yourself as a science learner differently than you did before?
- Is there a concept you learned in the course that really stuck out for you? (Include references to course readings, as necessary.)
- Is there a particular reading, handout, or material from class that you found particularly helpful or eye-opening? (Include references to course readings, as necessary.)
- Articulate the kind of early childhood science teacher you plan to be. Will something you learned in the course be included in your guiding principles?

### **Science Activity Share (15 points)**

Students will choose a science content area from the four core science areas (Earth sciences, biology, chemistry, and physics) during the first class then prepare to present an activity. Three students will sign up per content area: one person will focus on PreK, one on K-Grade 1, and one on Grades 2-3. Individual students will prepare a lesson plan using the template provided and lead a 15-minute informative and interactive activity that actively engages students in learning in their science content area.

Before the science activity share, students will post all share materials (lesson plan, resources) on Blackboard under Discussion Board. Students should prepare seven PPT slides to organize and guide the presentation; Slide 1 – Introduction/Overview of Topic, Slide 2 – Standards, Slide 3 – Instructions for Activity/List of Materials, Slide 4 – Classroom Management Recommendations, Differentiation Strategies for a Range of Learners, Slide 5 – Direct Instruction of Science Concept, Slide 6 – Takeaways from Practitioner Journal Article, Slide 7 – Additional Resources (picture books, websites, materials, nature connections, etc.). Further explanation of Activity Share criteria is as follows:

- An overview of the topic, including the key ideas or content and the importance of the topic to students' science learning
- An overview of relevant state and national content standards at the appropriate grade level(s), noting consistencies (or inconsistencies, if the case may be)
- A description of classroom and behavior management strategies that would increase the effectiveness of the implementation of the activity and contribute to creating and maintaining a safe environment
- Materials appropriate to the activity (use items that you can readily find around a home; list alternative materials in case students do not have certain materials at home; as much as possible, materials should be visually attractive and engaging for young learners)

- Model and explain the science concept (picture books are good to integrate; please do not use a video to teach for you; videos can be listed as additional resources)
- Evidence that the student has read the course materials (i.e., relevant chapters in course textbooks, articles and presentations on Blackboard) on the science topic
- Modeling how to engage in the activity chosen for science concept. Science activity should be in-line with the type of teaching practices we are learning about in the course (e.g., hands-on with materials, not a worksheet)
- *Modeling of the science concept and activity should be role played as if student is the teacher and classmates are young learners in the class*
- Preparation for how to adapt the activity for a range of learners
- A list of at least three resources related to teaching the topic that could include children's literature, websites, manipulatives or materials, or other teacher resources (at least one must be a relevant developmentally appropriate picture book (a hard or electronic copy of the book is fine) and one must be an article from a practitioner journal (e.g., NSTA's *Science and Children*) on the topic.

### **Enriching Science Inquiry with Literature: A Focus on Reading and Writing (5 points)**

- Literature Chart  
To place the core scientific disciplines of Earth science, biology, chemistry, and physics in an appropriate interdisciplinary context, students will identify a focused science topic (e.g., ecosystems or weather) and compile a chart of at least 5 literature resources that could be used for a unit on that topic, including fiction, non-fiction, digital, and non-digital forms, that promote children's engagement in the science concept. The chart will provide a picture of the cover of the book, a brief summary of the text, identify possible literacy experience(s) for the resource (e.g., read aloud, guided reading, exploration center, research text, independent reading, as a resource to promote writing, etc.), and identify and explain possible 6E entry points for the resource (i.e., engage, explore, explain, elaborate, evaluate, e-learning). A template of the chart is available on Blackboard.

### **6E/PBL Lesson Planning (15 points)**

Students will use both an **inquiry-based** (6E model) and a **problem-based** (PBL) approach to develop a detailed 6E (engage, explore, explain, extend, evaluate, e-learning/incorporate technology) lesson plan for one of the following science areas: physical science, life science, chemistry, Earth/space science, or engineering as defined by *Virginia's Early Learning and Development Standards*, the *Virginia Science Standards of Learning*, and the *Next Generation Science Standards*. They will develop a creative and engaging PBL challenge that they will integrate throughout the lesson plan (examples will be shared during class). Students will integrate questioning, curiosity, and active engagement with real materials in the lesson whenever possible. Students will include plans for classroom and behavior management and building community. They also will include how they will create and maintain a safe environment. They will use the lesson plan format provided by the instructor. In addition, students will develop the student sheets and any other supporting materials needed for their lesson. Students will create an assessment of student learning for their lesson and a rubric for the assessment.

### **Science Lesson Implementation and Reflection (20 points)**

In two-person partnerships, students will choose a developmentally appropriate science lesson in one of the four core science areas as defined by Virginia’s Foundation Blocks of Early Learning, the Virginia Science Standards of Learning, and the Next Generation Science Standards from a variety of professional resources discussed in class. They will implement the lesson during an “Afternoon of STEM Learning” at either the Mason Child Development Center or the Main Street Child Development Center (CDC) during regularly scheduled class time (if possible) to multiple groups of preschool-aged children, making necessary modifications and taking reflective notes (*date TBD*). Students will bring any necessary materials for the lesson. If a student is absent on the day of implementation, he/she will need to make arrangements with the CDC to visit during his/her own time to fulfill the assignment. One partner will teach his/her lesson while the other partner takes anecdotal notes during the lesson iterations and then the partners will switch roles. Partners will not teach the same lesson. Students will submit a written reflection individually in three parts.

- ***Planning the Lesson (5 points)***. The first part of the reflection will be due before the experience and will include how the lesson was selected; how course readings support the selection of the lesson plan; what adaptations were made, if any, to the lesson plan and why; and how the students prepared to implement the lesson. Students will include plans for classroom and behavior management, building community, and creating and maintaining a safe environment. In this part, students will be assessed on their preparation of all of the necessary materials for the lesson, including being prepared to implement the lesson upon arrival at the CDC. Partners will write and submit this reflection individually. (2 to 3 double-spaced pages)
- ***Collecting Data (5 points)***. The second part of the reflection will be due before the experience and will include (a) a statement about their ethical considerations as they planned for the data collection and (b) a plan for collecting quantitative and qualitative data. Partners will develop an observational tool (a teacher’s checklist) for the observing partner to use to collect data about the children’s participation in the lesson. They will also identify work samples (may be photos) they will collect and how they will be scored using a rubric (must be submitted) and analyzed to determine children’s learning of the concept. Partners will write and submit this reflection individually, but are encouraged to collaborate and provide feedback for one another.
- ***Reflecting on the Lesson (10 points)***. The third part will be due after the experience and will include a presentation and analysis of the qualitative and quantitative data collected as well as a reflection on how the lesson went (what went well, what could have been done differently/better for next time), key learnings, and “aha” moments. Students will use the analyzed data and their own observations to reflect on both teacher learning (themselves) and children’s learning during the lesson. Students also will reflect on their classroom and behavior management and how they fostered a sense of community and “welcomeness.” Students will provide specific linkages to course readings and research examined for the inquiry into evidence-based practices. They will conclude the reflection by posing a compelling question about next steps for supporting children’s understandings. Partners will

engage in reflective discussions about their analysis of the data and the implementation of the lesson, but will submit written reflections independently. (3 double-spaced pages)

### **Children's Science Center Volunteer Experience Reflection (10 points)**

Over the course of the semester, students will have the opportunity to volunteer at the Children's Science Center (CSC) Lab at the Fair Oaks Mall for 10 hours. During this time students will observe and assist CSC STEM educators to learn how to teach science in their own classrooms. Students will explore what they learned about pedagogy (teaching), materials management and use, classroom management, and how informal science settings can be integrated into (and used to enhance) children's formal education (i.e., school) experience. Students will turn in a log of their volunteer hours signed by a CSC manager. Specific linkages to course readings should be included in the reflection. (3 double-spaced pages)

### • **Other Requirements**

### **Attendance and Participation (25 points)**

Because active participation and engagement are imperative for optimal learning, preparation for and participation in in-class and online activities will be evaluated based on the following criteria:

- Students attend class, arrive on time, and stay for the entire class period.
- Students notify the instructor by email in the case of an absence.
- In the case of an absence, students will view the recorded class session and submit a 2-3-page written reflection of the content covered (including course readings and content on Blackboard). Reflection is due within 1 week after an absence.
- Students use laptops and personal devices for instructional purposes only.
- Students complete readings and prepare for class activities prior to class as evidenced by their ability to discuss and write about the concepts presented and examined in the texts as well as participate fully in related activities.
- Students are actively involved in in-class and online learning experiences as evidenced by (a) participating in all activities, (b) engaging in small- and large-group discussions, (c) completing written work related to the activities, and (d) supporting the participation and learning of classmates.
- Students show evidence of critical reflective thinking through in-class and online discussions, activities, and written reflections.
- Students display professional dispositions at all times while interacting with the instructor and other students.
- Students complete participation activities across the semester that complement the scheduled course topic. Instructors will periodically collect artifacts from the activities. Students in attendance and who actively engage in the learning experience will receive credit for their efforts. Graded participation activities are not announced and are implemented at the discretion of the instructor.
- Students submit attendance and participation self-evaluation.

### **Written Assignments**

All formal written assignments will be evaluated for content and presentation. The American Psychological Association, Seventh Edition (APA) style will be followed for all written work.

All written work unless otherwise noted must be completed on a word processor and should be proofread carefully. (Use spell check!) If students are not confident of their own ability to catch errors, they should have another person proofread their work. When in doubt, they should check the APA manual. Students may consult the Writing Center for additional writing support.

Students will do the following:

1. Present ideas in a clear, concise, and organized manner. (Avoid wordiness and redundancy.)
2. Develop points coherently, definitively, and thoroughly.
3. Refer to appropriate authorities, studies, and examples to document where appropriate. (Avoid meaningless generalizations, unwarranted assumptions, and unsupported opinions.)
4. Use correct capitalization, punctuation, spelling, and grammar.
5. Type the paper with double spacing, indented paragraphs, 1-inch margins all around, and 12-point Times New Roman font.

- **Grading**

A+ = 98 – 100   A = 93 – 97   A- = 90 – 92   B+ = 87 – 89   B = 83 – 86   B- = 80 – 82  
C+ = 77 – 79   C = 70 – 76   D = 60 – 69   F = < 60

Incomplete (IN): This grade may be given to students who are passing a course but who may be unable to complete scheduled coursework for a cause beyond reasonable control.

All CEHD students are held to the university grading policies as described in the Academic Policies section of the current catalog, which can be accessed at <http://catalog.gmu.edu>. Those students seeking Virginia initial teaching licensure must earn a C or better in all undergraduate licensure coursework.

**Professional Dispositions**

Students are expected to exhibit professional behaviors and dispositions at all times. See <https://cehd.gmu.edu/students/policies-procedures/>.



## Class Schedule

Date	Topics	Readings & Assignments
<p><b>Week 1</b> <b>Aug 25</b></p>	<p>Four Core Science Disciplines</p> <ul style="list-style-type: none"> <li>• Earth sciences, biology, chemistry, physics</li> <li>• Understanding of the nature of science and scientific inquiry</li> </ul> <p>Foundations for Teaching Science in Early Childhood Education for Diverse Young Learners</p> <p>Classroom, Field, and Laboratory Safety</p> <ul style="list-style-type: none"> <li>• Rules and procedures</li> <li>• Ensuring students take appropriate safety precautions</li> </ul>	<p>Peters &amp; Stout, Chapter 1</p> <p><u>Optional Reading on Blackboard:</u> <i>Wonder as a Tool to Engage PSE Teachers in Science Learning and Teaching</i></p>
<p><b>Week 2</b> <b>Sep 1</b></p>	<p>Role and Nature of Theory</p> <ul style="list-style-type: none"> <li>• Explaining events and phenomena, including learning theories undergirding pedagogical approaches for teaching science</li> </ul> <p>Contribution and Significance of Science</p> <ul style="list-style-type: none"> <li>• Social, cultural, and economic significance</li> </ul> <p>Role of Family and Community Knowledge, Experience, and Resources in Planning and Implementing Science Content</p> <p><b>Field Trip to Children’s Science Center Lab (meet at location at Fair Oaks Mall)</b></p>	<p>Peters &amp; Stout, Chapter 2 Spotlight on Science, pp. 2-10</p> <p><u>Optional Reading on Blackboard:</u> <i>Engaging in Inquiry-Based Instruction and Using the 5E Model</i></p> <p><b>Due to Bb September 1 – Personal Journal Part 1</b></p>

Date	Topics	Readings & Assignments
<p><b>Week 3</b> <b>Sep 8</b></p>	<p>Historical Development of Scientific Concepts and Scientific Reasoning</p> <p>Knowledge, Skills, and Practices for Conducting an Active Early Childhood Science Program</p> <p>Application of Key Science Principles to Solve Practical Problems</p> <ul style="list-style-type: none"> <li>• Problem-based learning (PBL)</li> </ul> <p>Standards</p> <ul style="list-style-type: none"> <li>• Virginia standards (<i>Virginia’s Early Learning and Development Standards, Virginia Science Standards of Learning</i>)</li> <li>• National standards (<i>Next Generation Science Standards</i>)</li> </ul>	<p>Peters &amp; Stout, Chapter 3 Spotlight on Science, pp. 48-54, 55-60, 72-73</p> <p>National and State Science Learning Standards</p> <p><u>Optional Readings on Blackboard:</u> <i>Weather Tamers</i> <i>Modeling Problem-Based Instruction</i></p>
<p><b>Week 4</b> <b>Sep 15</b></p>	<p>Integrating the Four Core Scientific Disciplines Across Content Areas</p> <ul style="list-style-type: none"> <li>• Integrate processes and crosscutting concepts in an appropriate interdisciplinary context</li> </ul> <p>Disciplines Across Content Areas</p> <ul style="list-style-type: none"> <li>• Relationship of science to mathematics, design process, and technology</li> </ul>	<p>Spotlight on Science, pp. 48-54 &amp; 68-71</p> <p><u>Optional Readings on Blackboard:</u> <i>Learning About Plants with STEAM</i> <i>Artists and Scientists: More Alike Than Different</i></p> <p><b>Due to Bb September 15 – Enriching Science Inquiry with Literature</b></p>
<p><b>Week 5</b> <b>Sep 22</b></p>	<p>Formative and Summative Assessments of Student Learning</p> <p>Practices Required for Empirical Answers to Research Questions data collection and analysis, modeling, argumentation with evidence, contracting explanations</p> <p><b>Science Activity Share – Physical Science I</b></p>	<p>Peters &amp; Stout, Chapter 4</p> <p><u>Optional Readings on Blackboard:</u> <i>Performance-Based Assessments in Science</i> <i>Role of Documentation in Reggio Emilia</i></p>

Date	Topics	Readings & Assignments
<b>Week 6</b> <b>Sep 29</b>	Application of Key Science Principles to Solve Practical Problems Reliability of Scientific Knowledge <ul style="list-style-type: none"> <li>• scrutiny, refinement, and self-checking mechanisms</li> <li>• objectivity, such as peer review, assumptions, influencing conditions, limits of empirical knowledge</li> </ul> <b>Field Trip to Children’s Science Center (meet at Fair Oaks Mall at 4:45 pm)</b>	Peters & Stout, Chapter 5  <u>Optional Reading on Blackboard:</u> <i>Identifying and Supporting STEM Programs in Out-of-School Settings</i>  <b>Due to Bb September 29 – 6E/PBL Lesson Plan</b>
<b>Week 7</b> <b>Oct 6</b>	Plan Instruction on Earth Science, Biology, Chemistry, and Physics <ul style="list-style-type: none"> <li>• Using the goals of the <i>Virginia Standards of Learning</i> and the National Science Standards</li> <li>• Using variety of instructional technology to support learner competence</li> </ul> Inquiry-Based Approach to Teaching Science 5E/6E model  <b>Science Activity Share – Physical Science II</b>	Spotlight on Science, pp. 41-47, 61-67  <u>On Blackboard:</u> Review Physical Science PowerPoint presentations
<b>Week 8</b> <b>Oct 13</b>	Core Science Discipline: Physics and Chemistry  Research Projects and Experiments  Classroom and Field Safety Rules and Procedures  <b>Science Activity Share – Life Science I</b>	Peters & Stout, Inquiry Unit 1 Spotlight on Science, pp. 29-35  <u>On Blackboard:</u> Review Physical Science PowerPoint presentations  <b>Due to Bb October 13 – Science Lesson Implementation and Reflection (Parts 1 &amp; 2)</b>

Date	Topics	Readings & Assignments
<p><b>Week 9</b> <b>Oct 20</b></p>	<p>Evaluate, Select, and Adapt Instruction and Materials to Meet the Needs of Diverse Learners</p> <p>Science Inquiry Invitations for Family Explorations</p> <p><b>Science Activity Share – Life Science II</b></p>	<p>Peters &amp; Stout, Chapter 6 Spotlight on Science, pp. 55-60</p> <p><u>On Blackboard:</u> Review Life Science PowerPoint presentations</p> <p><u>Optional Reading on Blackboard:</u> <i>Science Success for Students with Special Needs</i></p>
<p><b>Week 10</b> <b>Oct 27</b></p>	<p>Core Science Discipline: Biology</p> <p>Engaging Diverse Young Learners in Science Experiences</p> <ul style="list-style-type: none"> <li>• Field investigations using school grounds, the community, and regional resources: Mason Apiary and Greenhouse</li> <li>• Science activities using scientific process: describing, analyzing, using quantitative methods for findings</li> <li>• Knowledge, skills, practices to conduct research projects and experiments</li> </ul> <p>Life Science Continued</p>	<p>Peters &amp; Stout, Inquiry Unit 2 Spotlight on Science, pp. 11-16, 23-28</p> <p><u>On Blackboard:</u> Review Life Science PowerPoint presentations</p>
<p><b>Week 11</b> <b>Nov 3</b></p>	<p>Engineering Design Process</p> <p><b>Science Activity Share – Engineering</b></p>	<p>Peters &amp; Stout, Chapter 7 Spotlight on Science, pp. 36-40</p> <p><u>On Blackboard:</u> Review Engineering PowerPoint presentations</p> <p><u>Optional Reading on Blackboard:</u> <i>They Can't Spell Engineering but They Can Do It</i></p>

Date	Topics	Readings & Assignments
<b>Week 12</b> <b>Nov 10</b>	Core Science Discipline: Earth Science Earth Science Continued  Environmental Education and Conservation  <b>Science Activity Share – Earth and Space Science I</b>	Peters & Stout, Inquiry Unit 3 Spotlight on Science, pp. 61-67  <u>On Blackboard:</u> Review Earth Science PowerPoint presentations  <u>Optional Reading on Blackboard:</u> <i>Teaching with Play-An Introduction to Environmental Stewardship for Preschoolers</i>
<b>Week 13</b> <b>Nov 17</b>	Core Science Discipline: Space Science Space Science Continued  <b>Science Activity Share – Earth and Space Science II</b>	<u>On Blackboard:</u> Review Space Science PowerPoint presentations  <u>Optional Reading on Blackboard:</u> <i>Representation of the Moon in Children’s Literature</i>  <b>Due to Bb November 17 – Science Lesson Implementation and Reflection (Part 3)</b>
<b>Week 14</b> <b>Nov 24</b>	No class, Thanksgiving	
<b>Week 15</b> <b>Dec 1</b>	Evaluating Instructional Materials, Technologies, and Teaching Practices  Professional Development in Support of Inquiry  Self-Reflections on Filling the Role of Science teacher for Diverse Young Learners	Spotlight on Science, pp. 68-71, pp. 17-22  <u>Optional Reading on Blackboard:</u> <i>Computer Science Unplugged: Second Grade Students Design a Puppy Playground Using Computational Thinking</i>  <b>Due to Bb December 1 – Personal Journal Part 2</b>
<b>Dec 5-6</b>	Reading Days – No class	
<b>Finals</b> <b>Dec 8</b> No Class	Finals Week	<b>Due to Bb December 8 – Children’s Science Center Volunteer Experience Reflection</b>  <b>Due to Bb December 8 – Attendance and Participation Self Evaluation</b>

Note: Faculty reserves the right to alter the schedule as necessary, with notification to students.

### **Core Values Commitment**

The College of Education and Human Development is committed to collaboration, ethical leadership, innovation, research-based practice, and social justice. Students are expected to adhere to these principles: <http://cehd.gmu.edu/values/>.

### **GMU Policies and Resources for Students**

#### *Policies*

- Students must adhere to the guidelines of the Mason Honor Code (see <https://catalog.gmu.edu/policies/honor-code-system/>).
- Students must follow the university policy for Responsible Use of Computing (see <https://universitypolicy.gmu.edu/policies/responsible-use-of-computing/>).
- Students are responsible for the content of university communications sent to their Mason email account and are required to activate their account and check it regularly. All communication from the university, college, school, and program will be sent to students **solely** through their Mason email account.
- Students with disabilities who seek accommodations in a course must be registered with George Mason University Disability Services. Approved accommodations will begin at the time the written letter from Disability Services is received by the instructor (see <http://ds.gmu.edu/>).
- Students must follow the university policy stating that all sound emitting devices shall be silenced during class unless otherwise authorized by the instructor.

#### *Campus Resources*

- Support for submission of assignments to VIA should be directed to [viahelp@gmu.edu](mailto:viahelp@gmu.edu) or <https://cehd.gmu.edu/aero/assessments>. Questions or concerns regarding use of Blackboard should be directed to <https://its.gmu.edu/knowledge-base/blackboard-instructional-technology-support-for-students/>.
- For information on student support resources on campus, see <https://ctfe.gmu.edu/teaching/student-support-resources-on-campus>.

**Notice of mandatory reporting of sexual assault, interpersonal violence, and stalking:** As a faculty member, I am designated as a “Responsible Employee,” and must report all disclosures of sexual assault, interpersonal violence, and stalking to Mason’s Title IX Coordinator per University Policy 1202. If you wish to speak with someone confidentially, please contact one of Mason’s confidential resources, such as Student Support and Advocacy Center (SSAC) at 703-380-1434 or Counseling and Psychological Services (CAPS) at 703-993-2380. You may also seek assistance from Mason’s Title IX Coordinator by calling 703-993-8730, or emailing [titleix@gmu.edu](mailto:titleix@gmu.edu).

**For additional information on the College of Education and Human Development, please visit our website: <http://cehd.gmu.edu>.**