

George Mason University
College of Education and Human Development
Elementary Education

ELED 421-001 – STEM in the Elementary Classroom
3 Credits, Fall 2024
Tuesdays 4:30-7:10 Thompson Hall, Room 2020, Fairfax Campus

Faculty

Name: Britt H. Miller
Office Hours: By Appointment, see link in Canvas
Office Location: Thompson Hall 1401
4400 University Dr.
Fairfax, VA 22030
Office Phone: (703) 993-2892
Email Address: bmille38@gmu.edu

Prerequisites/Corequisites

ELED 452, requires minimum grade of C.

University Catalog Course Description

Develops skills and abilities in integrated STEM teaching at the elementary level, applications of math, science and technology through engineering design, safety practices, and creation of integrated curricula. Examines STEM teaching based on contemporary theory, practice, and standards. Note: Requires 15 hours of field work. Offered by School of Education. Limited to two attempts.

Course Overview

The primary goal of this course is to provide you with practical experience, theoretical background, and pedagogical skills that will allow you to be successful in your future career. The elementary classroom offers particular challenges in terms of the amount of content expectations placed on both teachers and students. Integrated STEM teaching provides a valuable way to make elementary teaching more efficient in terms of engaging children in multiple content and process standards that are couched in real-world challenges.

The NGSS call for "three-dimensional learning" in order to bring these real world challenges to life in the classroom. These dimensions are built on the three pillars that support each standard including Science and Engineering Practices, Crosscutting Concepts, and Disciplinary Core Ideas. These are also directly related to both content and process standards that comprise the NCTM standards. In particular, this STEM course will lean heavily on the following content standards: Number & Operations, Measurement, Data Analysis & Probability. The five NCTM process standards also directly relate to the scientific processes and engineering design practices: Problem solving, Reasoning & Proof, Communication, Connections and Representation. These

principles lean heavily on engineering design and the incorporation of technology for both the design process and the collection of meaningful data to support claims with evidence.

These STEM standards and practices will drive the class experiences with the following key goals that will be carried out through the duration of the course: 1) to facilitate the development of pedagogical approaches to inquiry-based, integrated STEM practice, and 2) to develop confidence and understanding for interrelated STEM content. With respect to content, the course will develop STEM background knowledge with the goal of successful teaching in an elementary context, meaning that you will need to have a solid understanding of large-scale STEM topics and the interrelationships between those content areas beyond what is expected of elementary children.

Most children come to school with a keen interest in the world around them, but often by the end of elementary school only a small percentage of students have retained this interest in STEM content. This is generally attributed to the ways in which “school” contexts often ignore the beauty, complexity and joy that can come from engaging with content and connecting STEM content understanding to the everyday experiences of children. Consequently, we will conceptualize STEM engagement as an active process where we consider our wonders, build new knowledge and discover as opposed to the memorization of 'facts.' For this reason, we will utilize constructivist/problem-based approaches to learning in an effort to scaffold STEM content that is too often presented as an exercise in the acquisition of vocabulary.

This course will provide opportunities for students to enjoy and embrace the ideas that make us wonder about the world and our role within it. In many respects, STEM can be intimidating to learn in the ways it is presented in schools, media and the general public. Our goal is to unpack those social constructions of STEM practices to see it in a more realistic light. This class experience is merely a first step in your evolution toward becoming the kind of educator you wish to be. Lastly, you will be required to bring your curiosity to class for each session. Please make sure to nurture and feed it as we move through our work together.

Course Delivery Method

This course will be delivered using a face-to-face format.

Learning Outcomes

This course will enable students to:

- A. Build pedagogical content knowledge base in STEM inquiry-based investigation
- B. Conceptualize core principles regarding Engineering design, problem solving, evidence, explanation, inquiry, creativity and experimentation all help to frame STEM thinking
- C. Develop lesson plans demonstrating inquiry-based principles in integrated STEM
- D. Demonstrate age-appropriate safety standards when designing hands-on classroom

experiences

E. Examine STEM standards, curricula and methods at local, state, and national levels

F. Develop viable assessment tools for STEM learning.

Professional Standards

This course addresses the following professional standards:

INTASC: Interstate Teacher Assessment and Support Consortium, Model Core Teaching Standards

#4. Content Knowledge. The teacher understands the central concepts, tools of inquiry, and structures of the discipline(s) he or she teaches and creates learning experiences that make the discipline accessible and meaningful for learners to assure mastery of the content.

#5. Application of Content. The teacher understands how to connect concepts and use differing perspectives to engage learners in critical thinking, creativity, and collaborative problem solving related to authentic local and global issues.

#6. Assessment. The teacher understands and uses multiple methods of assessment to engage learners in their own growth, to monitor learner progress, and to guide the teacher's and learner's decision making.

#7. Planning for Instruction. The teacher plans instruction that supports every student in meeting rigorous learning goals by drawing upon knowledge of content areas, curriculum, cross-disciplinary skills, and pedagogy, as well as knowledge of learners and the community context.

#8. Instructional Strategies. The teacher understands and uses a variety of instructional strategies to encourage learners to develop deep understanding of content areas and their connections, and to build skills to apply knowledge in meaningful ways.

Technology (ISTE NETS): International Society for Technology in Education / National Educational Technology Standards

Standard I. Teachers use their knowledge of subject matter, teaching and learning, and technology to facilitate experiences that advance student learning, creativity, and innovation in both face-to-face and virtual environments.

CAEP Standards:

1.a – Candidates use their understanding of how children grow, develop and learn to plan and implement developmentally appropriate and challenging learning experiences within environments that take into account the individual strengths and needs of children.

1.b – Candidates use their understanding of individual differences and diverse families, cultures, and communities to plan and implement inclusive learning experiences and environments that build on children's strengths and address their individual needs.

3.a – Candidates administer formative and summative assessments regularly to determine students' competencies and learning needs.

3.c – Candidates plan instruction including goals, materials, learning activities and assessments.

3.d – Candidates differentiate instructional plans to meet the needs of diverse students in the classroom.

- 3.f – Candidates explicitly support motivation and engagement in learning through diverse evidence-based practices.
- 4.a – Candidates use a variety of instructional practices that support the learning of every child.
- 4.b – Candidates teach a cohesive sequence of lessons to ensure sequential and appropriate learning opportunities for each child.
- 4.c – Candidates explicitly teach concepts, strategies, and skills, as appropriate, to guide learners as they think about and learn academic content.

Required Texts

Readings will be required weekly and be posted on Canvas prior to the beginning of class.

Course Performance Evaluation

Students are expected to submit all assignments on time in the manner outlined by the instructor.

- **Assignments and/or Examinations**
 - **STEM/STEAM Identity Paper** **10%**
 - Write a two-page paper discussing STEM/STEAM identity using your personal story, a story from someone else, and your readings. What is your STEM/STEAM story? What is a STEM/STEAM story of a person you know? Do your stories align? What will the STEM story be for your students? What does it mean to have a STEM/STEAM identity? What does a school look like with a STEM/STEAM identity? What could promote building a STEM/STEAM identity in a student/teacher/school?
 - **STEM Wonders Journal** **10%**
 - Think about the STEM that you see in the everyday. Ask yourself questions, feel the movements and forces while you drive, look at the sky, watch your pet, engage with another human, and think about your place in this world. Go for a long walk and just think... no phone, no worries, just get lost in your thoughts. Remember, this is homework, so you have an excuse. Over the course of the semester, use a composition book or journal to make note of various things that you observe in the natural world around you. List, sketch, question, observe, and record those things that capture your attention and imagination. These wonderings about the natural world are just that... what do you see, feel, and think about those things that fascinate and frustrate you? We will intentionally slow down and use old technology (paper and pencil) to engage with our wonders. Your wonders are yours and unique to how you envision the world around you. "Dance like nobody is watching" while you build your entries.
 - **Discussion Board/Reading Logs** **10%**
 - You will analyze each reading in terms of its connection to your school site and your unit. Record these responses in your longitudinal reading log for each reading. Use the following template:
 - 3– Question

- 2 – Connections
- 1 – Surprise or Aha moment that you had.

These will help in the construction and support of both your science unit and differentiation plan.

- **Inquiry-Based/STEM/STEAM Unit Project** **40%**
 - The goal of this project is to construct and teach (at least a portion of) an integrated STEM/STEAM inquiry unit within your field site. This project will feature integrated content surrounding the four content areas involved in the course. We will design this work around the 5 E model of lesson planning. The unit will entail building a detailed and well-supported narrative description for the approach that will be employed. The lesson sequence will build STEM content understanding in engaging and dynamic ways for students within your field site and provide some key theoretical and research-based support for the content, approach, and activities constructed. The unit will be scored via the rubric provided later in the syllabus as part of the PBA for STEM. Templates and approaches will be provided during the course.
- **Wonder Inspired STEM/STEAM Task** **20%**
 - This project is designed to evoke and engage future teachers in the possibilities that STEM/STEAM content holds for elementary contexts as well as for yourselves. Prior science and math experiences often generate negative feelings associated with memorization and mind-numbing procedural approaches, which is not the norm in contexts that study these problems. The goal of this project is to pursue an idea that you find interesting. You will choose a STEM/STEAM topic from your wonder journal (or a new and different wonder) and pursue some answers, ideas, and, most importantly, further questions related to that wonder. The goal is not necessarily to prove something but to understand something to a greater degree and then consider all the new questions that come along with that wondering and investigating.

The project will entail the following:

- An engaging hands-on interactive presentation that will highlight: a) The wonder itself b) The information identified to make more sense of that wonder (diagrams, sketches, etc.) c) Key STEM/STEAM concepts behind that content (definitions, models, etc.); this will also include Math, Science, Technology and Engineering Practices, NGSS/CCM/VDOE/ISTE Standards, Crosscutting Concepts, and Disciplinary Core Ideas. d) Further questions related to that wonder e) Creation of an engaging, hands-on, interactive inquiry-based investigation, reasoning routine, or game that you might consider using in a classroom context (and that you will present to the class)
- A written two-page reflection on the process of turning a wonder into an investigation that includes a vision for you as a STEM/STEAM teacher built on this experience (wondering/planning/enacting), the readings, class discussions, challenges, and opportunities.

- **Other Requirements**

- **Attendance and Participation**

10%

- In accordance with the GMU Attendance Policies (University Catalog, 2023-2024), "Students are expected to attend the class periods of the courses for which they are registered. In-class participation is important not only to the individual student, but also to the class as a whole. Because class participation may be a factor in grading, instructors may use absence, tardiness, early departure, or failure to engage in online classes as de facto evidence of nonparticipation."

If you must be absent from class, inform the instructor prior to the beginning of the class session. Missed classes (or portions of classes) will result in loss of participation points. Unless there are extenuating circumstances that have been shared with the instructor, more than two missed classes will result in a failing grade and you must retake the course.

Absence from class to observe a religious holiday, to serve jury duty, or to participate in required military service are exemptions to the above policy. If you anticipate being absent for any of these reasons, please make arrangements at least 48 hours in advance.

- **Grading**

UNDERGRADUATE GRADING SCALE

| Grade | Grading Scale | Interpretation |
|--------------|----------------------|---|
| A+ | 97-100 | <i>Represents mastery of the subject through effort beyond basic requirements</i> |
| A | 93-96 | |
| A- | 90-92 | |
| B+ | 87-89 | <i>Reflects an understanding of and the ability to apply theories and principles at a basic level</i> |
| B | 83-86 | |
| B- | 80-82 | |
| C+ | 77 – 79 | |
| C | 73 – 76 | <i>Denotes an unacceptable level of understanding and application of the basic elements of the course. Grade does not meet the minimum requirement for licensure courses.</i> |
| C- | 70-72 | |
| D | 60-69 | |
| F | <69 | |

Use of Generative AI

Mason is an Honor Code university; please see the Office for Academic Integrity for a full description of the code and the honor committee process. Three fundamental principles to follow at all times are that: (1) all work submitted be your own, as defined by the assignment; (2) when you use the work, the words, or the ideas of others, including fellow students or online sites, you give

full credit through accurate citations; and (3) if you are uncertain about the ground rules on a particular assignment or exam, ask for clarification. No grade is important enough to justify academic misconduct.

Use of Generative-AI tools should be used following the fundamental principles of the Honor Code. This includes being honest about the use of these tools for submitted work and including citations when using the work of others, whether individual people or Generative-AI tools.

When explicitly stated by the instructor, Generative AI tools are allowed on the named assignment. Students will be directed if and when citation or statement-of-usage direction is required. Use of these tools on any assignment not specified will be considered a violation of the academic integrity policy. All academic integrity violations will be reported to the office of Academic Integrity. Some student work may be analyzed using an originality detection tool focused on AI tools. Generative AI detection tool use will be revealed when the assignment directions are provided to students.

There will be times in the education field that use of AI tools will be needed for you to do well at the job and there will be times where you will need to be able to do the work without support from these tools. This course aims to provide you with experience in the real-world scenarios that you may encounter once you leave the university.

Professional Dispositions (CEHD Student Guide)

Throughout study in the College of Education and Human Development, students are expected to demonstrate behaviors that reflect the positive dispositions of a professional. See <https://cehd.gmu.edu/current-students/cehd-student-guide>.

Class Schedule

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

| Session | Topic/Learning Experience | Readings & Assignments (Due before the next class) |
|----------------|--|---|
| Week 1 8/27 | <p>Concept: STEM and STEM Identity</p> <p>Application: Getting Started STEM Wonder Journal</p> | <p>Assignments: Two-page STEM/STEAM Identity Paper (Started in Class) Read ELED 421 Syllabus (In Class) Read Brandon, <i>Science Identity Matters</i> (In Class)</p> |
| Week 2 9/3 | <p>Concept: Integrated STEM</p> <p>Application: STEM Posters Marshmallow Challenge</p> | <p>Assignments: Read <i>Unpacking STEM Disciplines</i> (In Canvas) Respond in the Discussion board Bring STEM Wonder Journal</p> |
| Week 3 9/10 | <p>Concept: STEM Concepts & Practices</p> <p>Application: Internship contexts and VA SOLs</p> | <p>Assignments: Read <i>Engineer It, Learn it</i> (In Canvas) Respond on Padlet (Link in Canvas) Begin STEM wonder journal</p> |

| | Science and Engineering Practices Circus | |
|------------------|---|--|
| Week 4 9/17 | <p>Concept: STEM Concepts & Practices</p> <p>Application: Data & technology Aluminum Foil Boats</p> | <p>Assignments: Read <i>Science in the Literacy Block</i> (In Canvas) Complete Integrated STEM review (In Canvas) Bring three unit ideas next time</p> |
| Week 5 9/24 | <p>Concept: Content Integration & Contextualizing Learning</p> <p>Application: Water Filters Brainstorming ideas Crafting Learning Objectives</p> | <p>Assignments: Read <i>Fun with Forces and Motion</i> (In Canvas) Respond in the Discussion board Complete Integrated STEM review (In Canvas)</p> |
| Week 6 10/1 | <p>Concept: 5 E Lesson Plans Unit construction strategies</p> <p>Application: Unit construction & finding resources</p> | <p>Assignments: Work on units</p> |
| Week 7 10/8 | <p>Concept: STEM Pedagogies</p> <p>Application: STEM Posters STEM pedagogies jig saw</p> | <p>Assignments: <i>Choose one to read:</i></p> <ul style="list-style-type: none"> • Look, It's Changing! • Seeing is Believing <p>Respond in the Discussion board</p> |
| Week 8 10/15 | <p>Concept: Digging into Engineering Design</p> <p>Application: Comparing Science & Engineering Bridge Design Challenge</p> | <p>Assignments: Complete Check in form (in Canvas) Complete Integrated Review Bring in a draft of your unit next time</p> |
| Week 9 10/22 | <p>Concept: Assessment and Reflection</p> <p>Application: Designing Assessments and Rubrics Feedback</p> | <p>Assignments: Bring in a draft of your unit next time</p> |
| Week 10 10/29 | <p>Concept: Managing STEM activities</p> <p>Application: Mini-teaching</p> | <p>Assignments: <u>Final units due in Canvas before class</u></p> |
| Week 11 11/5 | <p>Concept: STEM+CS</p> <p>Application: Coding Challenges</p> | <p>Assignments: Bring your Wonder Journal next time</p> |

| | | |
|---------------------|---|--|
| | VA SOL CS Standards | |
| Week 12 11/12 | Concept: Wonder in STEM Application: Promoting curiosity and wonder | Assignments: Work on wonder investigation |
| Week 13 11/19 | Concept: Outdoor and Place Based STEM Application: Environmental Literacy Standards Nature Journaling | Assignments: Work on wonder investigation Bring Wonder Journals |
| Week 14 11/26 | Concept: Makerspace Application: Designing a Makerspace | Assignments: Bring in your Wonder Presentation next time |
| Week 15 12/3 | Concept: Presentations and Celebrations! | Presenting Wonder Projects in class |

CEHD Commitments

The College of Education and Human Development is committed to fostering collaboration and community, promoting justice and equity, and advancing research-informed practice. Students are expected to adhere to, and contribute to, these commitments, the CEHD Mission, and Core Values of George Mason University. More information can be found here:

<https://cehd.gmu.edu/about/culture/>

GMU Policies and Resources for Students

Policies

- Students must adhere to Mason’s Academic Standards (see <https://catalog.gmu.edu/policies/academic-standards/>)
- 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 <https://ds.gmu.edu/>).

- Students must silence all sound emitting devices during class unless otherwise authorized by the instructor.

Campus Resources

- Support for submission of assignments to VIA should be directed to viahelp@gmu.edu or <https://cehd.gmu.edu/aero/assessments>.
- Questions or concerns regarding use of your LMS should be directed to:
 - Blackboard Learn: <https://its.gmu.edu/knowledge-base/blackboard-instructional-technology-support-for-students/>
 - Canvas: <https://its.gmu.edu/service/canvas/>
- For information on student support resources on campus, see: <https://ctfe.gmu.edu/teaching/student-support-resources-on-campus>
 - TimelyCare: <https://caps.gmu.edu/timelycare-services/>
 - Writing Center: <https://writingcenter.gmu.edu/>
 - Student Support and Advocacy: <https://ssac.gmu.edu/>
 - CEHD IT: <https://cehd.gmu.edu/ots/>
 - CAPS (Counseling Services): <https://caps.gmu.edu/>
 - CEHD STUDENT ACADEMIC AFFAIRS (SAA): <https://cehd.gmu.edu/saa/academic-affairs/>
- For additional information on the College of Education and Human Development's Student Success Resources, please visit: <https://cehd.gmu.edu/students/>.

Field Accommodations

If you believe you need ADA accommodations during your field placement and/or internship experience, please contact Mason's Disability Services office (DS). Specific accommodations for fieldwork and internships may be different than academic accommodations; however, like academic accommodations, they are not retroactive. Connecting with DS is a student-initiated interactive process. DS will collaborate with the department and possibly the placement site to provide reasonable accommodations that are individualized and based on documentation, functional limitations, and a collaborative assessment of needs. For more information, please refer to the Disability Services website: <https://ds.gmu.edu/field-placement/>.

VCLA Testing Statement

TBD We are still waiting on official word from VDOE for IHEs to remove this requirement. It is no longer required if seeking licensure through school divisions so stay tuned.

Notice of mandatory reporting of sexual assault, sexual harassment, interpersonal violence, and stalking:

As a faculty member, I am designated as a "Non-Confidential Employee," and must report all disclosures of sexual assault, sexual harassment, 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 or support measures from Mason's Title IX Coordinator by calling 703-993-8730, or emailing titleix@gmu.edu.

Work Timeliness Expectations

It is expected that all class assignments will be submitted on time to the correct location; therefore, late assignments will not receive full credit. Assignments turned in late will receive an automatic deduction of

one letter grade making the highest possible score equivalent to 80% (B). All assignments must be submitted by the beginning of class (Eastern standard time) on the due date stated within the syllabus (see below) and should only be submitted via Blackboard.

If you are unable to complete an assignment due to an emergency or difficult circumstance, communication must be made with the instructor via email or in person. In situations that are deemed an emergency or a difficult circumstance, I will work with you to set a new submission date that will not be considered late.

Other Expectations

All written papers are expected to be double-spaced, with 1" margins, and in 12-point font (Times New Roman, Calibri, or Arial). APA format is expected. If you do not have a 7th Edition APA manual, the OWL at Purdue is an excellent resource: <http://owl.english.purdue.edu/owl/resource/560/01/>

***Please Note:** The GMU Writing Center offers online support via email. They will provide feedback on your writing within one hour. Graduate and professional writing can be difficult; I encourage you to take advantage of this service. http://writingcenter.gmu.edu/?page_id=177

Professional Dispositions

Students are expected to exhibit professional behaviors and dispositions at all times.

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/>.

ASSESSMENT RUBRICS:

STEM Unit Rubric (40% of total grade)

Assessment Summary: The project is meant to facilitate your understanding for the design and teaching of an inquiry-based science unit. This will require research into both inquiry-based lesson

planning and science content. The goal is to bring powerful learning theory to life in classrooms and design science experiences that both excite and engage elementary children.

| Description and standard addressed | Exceeds Expectations – 3 | Meets Expectations – 2 | Does Not Meet Expectations – 1 | Does Not Meet Expectations – 0 |
|---|--|---|--|---|
| <p>A. Lesson Framework (pedagogical process & procedure, narrative description)</p> <p>INTASC: # 8 ACEI: #1.0 CAEP: #1a, 1b (10 pts)</p> | <p>Utilizes inquiry-based lesson model (5E’s), clearly describes pedagogical process that embodies inquiry. Clearly described, highly usable and innovative ideas with original elements; uses a myriad of excellent and well-respected sources properly referenced within narrative descriptions.</p> | <p>Utilizes inquiry-based lesson model (5E’s), clearly describes pedagogical process that embodies inquiry. Effectively describes, usable and effective ideas; uses dependable sources that properly referenced within narrative descriptions.</p> | <p>Difficult to use; does not have complete components; and/or is not self-explanatory. Does not utilize reputable sources within narrative descriptions and/or more needed clarity within narrative.</p> | <p>No consistent format nor serious professional commitment to student needs.</p> |
| <p>B. Aligned Standards, Objectives, Activities & Resources</p> <p>INTASC: # 7; ACEI: #3.1 CAEP: # 3c, 3d & 3f; 4b & 4c (5 pts)</p> | <p>All are student-oriented objectives and stated in observable student learning outcomes; spans all levels of student thinking; all are appropriate for the lesson. Standards, objectives and lesson activities all seamlessly align and support one another.</p> | <p>All are student-oriented objectives and stated in observable student learning outcomes; covers some levels of student thinking; most are clearly connected directly to lesson activities; there exists alignment between standards, objectives and activities.</p> | <p>A mix of student- and teacher-oriented objectives or not stated in terms of observable student learning outcomes; has only minimal levels of student thinking; has way too little or many objectives; and/or some are inappropriate for lesson. Standards, objectives and activities not clearly aligned.</p> | <p>Missing</p> |
| <p>C. Assessment</p> <p>INTASC: #6 ACEI #4 CAEP: #3a, 4a (5 pts)</p> | <p>Innovative, well-supported assessment strategies clearly linked to objectives; demonstrates all stated objectives, copies of assessments included. Will include diagnostic, formative and summative approaches throughout the unit.</p> | <p>Assessment clearly linked to objectives; demonstrates nearly all stated objectives, copies of written assessments are attached. Will include diagnostic, formative and summative approaches throughout the unit.</p> | <p>Assessment is not clearly linked to objectives; demonstrates some stated objectives, and/or copies of written assessments are not attached. Does not include all three types of assessment.</p> | <p>Missing</p> |
| <p>D. STEM content</p> <p>INTASC: #4 ACEI #2.2, 2.3 CAEP: 1a, 3c, 4c (10 pts)</p> | <p>Content utilized in lesson plan is accurate, complete (as defined by listed standards); incorporates innovative, exciting</p> | <p>Content utilized in lesson plan is accurate, complete (as defined by listed standards); incorporates These approaches</p> | <p>Content utilized in lesson plan is inaccurate in some places, key content is not addressed (as defined by listed standards);</p> | <p>Missing</p> |

| | | | | |
|--|---|--|---|---------|
| | and scientifically accurate approaches; multiple connections are made to students everyday lives and accessible. | make attempts to connect to students everyday lives. | incorporates mostly scientifically accurate approaches; little effort to connect to students everyday lives. | |
| E. Nature of Science, inquiry, evidence, proof and Safety INTASC Content #5 ACEI #2.2, 2.3 CAEP: 1a, 4c (5 pts) | Lesson supports essential enactment of STEM processes consistent with accepted notions of NOS and mathematics. These include wonder, evidence, investigation, testing, concluding based on findings, etc. These approaches are well-supported with research literature. There also exists keen attention to issues that could arise and clearly provides appropriate safety measures. | Lesson supports enactment of science processes consistent with accepted notions of NOS and mathematics. These include wonder, evidence, investigation, testing, concluding based on findings, etc. There also exists keen attention to issues that could arise and clearly provides appropriate safety measures. | Lesson tries to support enactment of science processes consistent with accepted notions of NOS and mathematics, but misses on key approaches or those approaches are absent. (including wonder, evidence, investigation, testing, concluding based on findings, etc.) There is not enough attention paid to issues that could arise and do not clearly provide appropriate safety measures. | Missing |
| F. Technology Plan INTASC #5 ISTE: #I (5 pts) | Provides excellent description for technology use that connects subject matter with multiple forms technology that advance student learning through creative, and innovative ways. | Strong description for technology use that connects subject matter with technology approaches that advance student learning through creative, and innovative ways. | Description for technology lacks specifics and does not clearly offer ways to advance student learning in creative, innovative and meaningful ways. | Missing |



Common Policies Affecting All Courses at George Mason University

Updated August 2024

These four policies affect students in all courses at George Mason University. This Course Policy Addendum must be made available to students in all courses (see [Catalog Policy AP.2.5](#)).

Additional policies affecting this course, and additional resources or guidance regarding these policies, may be provided to students by the instructor.

Academic Standards

Academic Standards exist to promote authentic scholarship, support the institution's goal of maintaining high standards of academic excellence, and encourage continued ethical behavior of faculty and students to cultivate an educational community which values integrity and produces graduates who carry this commitment forward into professional practice.

As members of the George Mason University community, we are committed to fostering an environment of trust, respect, and scholarly excellence. Our academic standards are the foundation of this commitment, guiding our behavior and interactions within this academic community. The practices for implementing these standards adapt to modern practices, disciplinary contexts, and technological advancements. Our standards are embodied in our courses, policies, and scholarship, and are upheld in the following principles:

- **Honesty:** Providing accurate information in all academic endeavors, including communications, assignments, and examinations.
- **Acknowledgement:** Giving proper credit for all contributions to one's work. This involves the use of accurate citations and references for any ideas, words, or materials created by others in the style appropriate to the discipline. It also includes acknowledging shared authorship in group projects, co-authored pieces, and project reports.
- **Uniqueness of Work:** Ensuring that all submitted work is the result of one's own effort and is original, including free from self-plagiarism. This principle extends to written assignments, code, presentations, exams, and all other forms of academic work.

Violations of these standards—including but not limited to plagiarism, fabrication, and cheating—are taken seriously and will be addressed in accordance with university policies. The process for reporting, investigating, and adjudicating violations is [outlined in the university's procedures](#). Consequences of violations may include academic sanctions, disciplinary actions, and other measures necessary to uphold the integrity of our academic community.

The principles outlined in these academic standards reflect our collective commitment to upholding the highest standards of honesty, acknowledgement, and uniqueness of work. By adhering to these principles, we ensure the continued excellence and integrity of George Mason University's academic community.

Student responsibility: Students are responsible for understanding how these general expectations regarding academic standards apply to each course, assignment, or exam they participate in; students should ask their instructor for clarification on any aspect that is not clear to them.

Accommodations for Students with Disabilities

Disability Services at George Mason University is committed to upholding the letter and spirit of the laws that ensure equal treatment of people with disabilities. Under the administration of University Life, Disability Services implements and coordinates reasonable accommodations and disability-related services that afford equal access to university programs and activities. Students can begin the registration process with Disability Services at any time during their enrollment at George Mason University. If you are seeking accommodations, please visit <https://ds.gmu.edu/> for detailed information about the Disability Services registration process. Disability Services is located in Student Union Building I (SUB I), Suite 2500. Email: ods@gmu.edu. Phone: (703) 993-2474.

Student responsibility: Students are responsible for registering with Disability Services and communicating about their approved accommodations with their instructor *in advance* of any relevant class meeting, assignment, or exam.

FERPA and Use of GMU Email Addresses for Course Communication

The [Family Educational Rights and Privacy Act \(FERPA\)](#) governs the disclosure of [education records for eligible students](#) and is an essential aspect of any course. **Students must use their GMU email account** to receive important University information, including communications related to this class. Instructors will not respond to messages sent from or send messages regarding course content to a non-GMU email address.

Student responsibility: Students are responsible for checking their GMU email regularly for course-related information, and/or ensuring that GMU email messages are forwarded to an account they do check.

Title IX Resources and Required Reporting

As a part of George Mason University's commitment to providing a safe and non-discriminatory learning, living, and working environment for all members of the University community, the University does not discriminate on the basis of sex or gender in any of its education or employment programs and activities. Accordingly, **all non-confidential employees, including your faculty member, have a legal requirement to report to the Title IX Coordinator, all relevant details obtained directly or indirectly about any incident of Prohibited Conduct** (such as sexual harassment, sexual assault, gender-based stalking, dating/domestic violence). Upon notifying the Title IX Coordinator of possible Prohibited Conduct, the Title IX Coordinator will assess the report and determine if outreach is required. If outreach is required, the individual the report is about (the "Complainant") will receive a communication, likely in the form of an email, offering that person the option to meet with a representative of the Title IX office.

For more information about non-confidential employees, resources, and Prohibited Conduct, please see [University Policy 1202: Sexual and Gender-Based Misconduct and Other Forms of Interpersonal Violence](#). Questions regarding Title IX can be directed to the Title IX Coordinator via email to TitleIX@gmu.edu, by phone at 703-993-8730, or in person on the Fairfax campus in Aquia 373.

Student opportunity: If you prefer to speak to someone *confidentially*, please contact one of Mason's confidential employees in Student Support and Advocacy ([SSAC](#)), Counseling and Psychological Services ([CAPS](#)), Student Health Services ([SHS](#)), and/or the [Office of the University Ombudsperson](#).

This document is updated annually and maintained by the [Stearns Center for Teaching and Learning](#), in cooperation with GMU Faculty Senate Academic Policies Committee.