GEORGE MASON UNIVERSITY
COLLEGE OF EDUCATION AND HUMAN DEVELOPMENT
Secondary Education Program

EDCI 673-001: Advanced Methods of Teaching Science in the Secondary School
3 credits, Spring Semester, 2017
Mondays, 4:30-7:10pm, Thompson Hall 2020

Instructor: Andrew Gilbert, PhD
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Prerequisite: EDCI 573

Course Overview
This is the second course in a two-part sequence of courses for preservice science teachers. The course is designed to build on the fundamentals of curriculum design and teaching from the first course and focus on using technology for students to investigate science and adapting instruction and assessment for the diverse needs of learners. In additional to using technology in the schools, preservice teachers will modify lessons and assessments to address the diverse needs of students, implement those lessons and assessments with their peers, and analyze the effectiveness of those lessons and assessments.

Course Delivery Method
A variety of teaching strategies will be used to explore the themes of the day. These will largely include face-to-face interactions with the professor and fellow students. All students will continuously analyze and evaluate teaching strategies, as well as science content, processes, and ways of knowing in science. One or two sessions may be in an asynchronous online environment.

Learner outcomes and objectives
Within the big ideas above are more specific goals and objectives (tasks) that you should be able to achieve by the end of the semester and two-semester sequence of the Science Methods. Below is a list of the major goals with specific objectives and the assessments that will allow you to show that you have achieved those goals.

Goal: Build a learning theory and see the value in using it for developing and implementing lessons

Objective	Assignment
Students will be able to explain why a student- centered approach to learning is effective in learning	Learning Theory/ Teaching Philosophy
Students will be able to describe their theory of learning, supporting with evidence from the literature	Learning Theory/ Teaching Philosophy
Student will be able to design lessons that clearly reflect their learning theory	Unit Plan, Microteaching Reflection
Students will be able to explain how the 5-E lesson design, the Learning Cycle, and a student-centered learning theory are effective ways to think about learning and lesson design	Unit Plan

Goal: Do science to understand how science is done
Goal: Recognize that inquiry learning using scientific practices has inherent risks that should be identified and addressed such that students learn to do science in and ethical and safe manner.

Objective	Assignment
Students will be able to design lessons and clearly indicate within the lesson: safety concerns, how to reduce them and what to do when accidents happen	Unit Plan

Goal: Develop an understanding of how inquiry can develop both scientific thinking and content knowledge

Objective	Assignment
Students will be able to explain what inquiry in a science class looks like	Unit Plan
Student will develop lessons that are inquiry-based	Unit Plan/clinical experience
Students will be able to develop lessons that incorporate Model-Based Inquiry	Unit Plan/clinical experience
Students will be able to explain Cognitive Apprenticeships and its potential impact on helping students learn science content and scientific thinking	Unit Plan
Students will be able to develop lessons that incorporate Cognitive Apprenticeships	Unit Plan

Goal: Understand how to develop effective lessons and units with backwards design

Objective	Assignment
Student will be able to explain the basic premise and order of backwards design	Unit Plan/clinical experience
Students will use the basic organization of backwards design to develop a lesson plan	Unit Plan/clinical experience
Students will be able to write measurable objectives	Unit Plan/clinical experience
Students will be able to describe how teaching activities support student achievement of measurable objectives	Unit Plan, Clinical Reflection
Students will be able to describe how assessments evaluate student achievement of the measurable objectives	Unit Plan, Clinical Reflection

Goal: Develop skills as reflective practitioners.

Objective	Assignment
Students will be able to effectively examine classrooms using their learning theory as a lens and student behavior, engagement, and learning (when possible) as the evidence	Clinical reflection
Students will be able to examine use assessment data to reflect on and improve upon lessons	Clinical reflection/unit plan assessment

Relationship to Program Goals and Professional Organizations

EDCI 673 is the second course in a two-course sequence of science methods courses for students seeking a secondary school teaching license in earth science, biology, chemistry, or physics. The course builds on students' knowledge of their subject matter and from their first science methods course. The course focuses on using technology in science teaching and learning and meeting the diverse needs of learners as called for by the

Standards of Learning for Virginia Public Schools and *National Science Education Standards* and as outlined by the National Council for Accreditation of Teacher Education (NCATE), the National Science Teachers Association (NSTA), and the Interstate New Teacher Assessment and Support Consortium (INTASC). EDCI 673 introduces students to integrating technology in learning and teaching science, adapting inquiry-based lessons, assessment techniques, and the diverse needs of students.

Associated Professional Association Standards

- Understand the relationship of assessment in understanding student learning and informing instruction; RESEARCH-BASED PRACTICE; SPA STANDARD 8
- Design evidence-based assessment techniques in science instruction; RESEARCH-BASED PRACTICE; SPA STANDARD 8
- Build a repertoire of science teaching and assessment strategies using technology to help students become scientifically literate, think critically and creatively, and see relationships among science, technology, and society; RESEARCH-BASED PRACTICE; INNOVATION; COLLABORATION; SPA STANDARDS 1, 2, 3, 5, 6, 8, 10
- Critique, adapt, and construct standards-based lessons including assessment and hands-on experiences for the diverse needs of learners including gender equity, cultural diversity, English language learners, gifted/talented students, and students with learning, physical, social, and emotional challenges. RESEARCH-BASED PRACTICE; SOCIAL JUSTICE; ETHICAL LEADERSHIP; SPA STANDARDS 1, 3, 4, 5, 6, 7, 8, 10

Big Ideas In Science Education

During this semester, we will be focusing on developing as a reflective practitioner of reformed science education practices. In particular, we will focus on the following big ideas as a way to frame your understanding of effective science education practices.

- Our job is to help them figure out how to be lifelong learners
- Consider the teacher's role in evoking wonder, emotion and deep connection to science content
- The more they figure out answers to tough questions on their own, the more they will trust they can learn on their own
- Science is a subjective activity
- The Nature of Science (NOS) frames science processes that lead to the creation of science knowledge (later taught as facts)
- Students should experience this process to understand its value in explaining the natural world
- Know your students
- Have a theory of learning – it is what should guide your instruction as you develop lessons
- Know what you want your students to be able to do and how you will assess it before you design any unit or lesson

Course Materials

The online site for this course can be found at http://mymasonportal.gmu.edu. Students are expected to routinely check the online course portal for supplemental information, readings, etc.

Required Text:

Tomlinson, C. (2014). *The differentiated classroom: Responding to the needs of all learners.* Alexandria, VA: ASCD Press.

Required Readings:

These will be posted on the blackboard site for the course

Online Resources

- Next Generation Science Standards (2013). Achieve, Inc. Available online at http://www.nextgenscience.org/next- generation-science-standards
- Commonwealth of Virginia (2010). *Standards of Learning for Virginia Public Schools.* Richmond, Virginia. http://www.doe.virginia.gov/testing/index.shtml
- http://www.pen.k12.va.us/VDOE/Instruction/sol.html#science.
- National Research Council (1996). *National science education standards*. Washington, DC: National Academy Press. Available online at http://www.nap.edu/openbook.php?record_id=4962
- American Chemical Society (2003). *Safety in Academic Chemistry Laboratories Accident Prevention for Faculty and Administrators*. (800 227-5558) Free single copies or online: http://membership.acs.org/c/ccs/pubs/sacl_faculty.pdf
- U.S. Government Printing Office (2007). *Code of Federal Regulations.* Retrieved on August 14, 2007 from http://www.gpoaccess.gov/cfr/index.html.
- U.S. Department of Labor (2007). *Occupational Health and Safety Administration.* Retrieved on August 14, 2007 from http://www.osha.gov/.
- American National Standards Institute (2007). *American National Standards Institute Homepage.* Retrieved on August 14, 2007 from http://www.ansi.org/.
- Maryland Public Schools (2007). *Legal Aspects of Laboratory Safety.* Retrieved on August 14, 2007 from http://mdk12.org/instruction/curriculum/science/safety/legal.html.

Recommended Reading

- Bell, R., Gess-Newsome, J. & Luft, J. (2008). *Technology in the secondary science classroom.* Arlington, VA: NSTA Press.
- Bybee, R.W., Powell, J.C., & Trowbridge, L.W. (2008). *Teaching secondary school science: Strategies for developing scientific literacy.* Upper Saddle River, NJ: Pearson.
- Egan, K. Cant, A. and Judson, G. (2014). Wonder-full Education: The centrality of wonder in teaching and learning across the curriculum. New York, NY: Routledge.
- Cothron, J. H., Giese, R. N., Rezba, R. J. (2005). *Students and Research*. Dubuque, Iowa: Kendall/Hunt.
- Hassard, J. (2005). *The art of teaching science: Inquiry and innovation in middle school and high school.* New York: Oxford University Press.
- Liu, X. (2010). *Essentials of science classroom assessment.* Washington, DC: Sage Publications.
- Nitko, A. J. & Brookhart, S. M. (2007). *Educational assessment of students*. Upper Saddle River, NJ: Pearson.
- Keeley, P. (2008). *Science formative assessment: 75 practical strategies for linking assessment, instruction, and learning.* Arlington, VA: NSTA Press.
- Tomlinson, C. A., & McTighe, J. (2006). *Integrating differentiated instruction and understanding by design.* Alexandria, VA: ASCD.

Course Performance Evaluation

TK20 PERFORMANCE-BASED ASSESSMENT SUBMISSION REQUIREMENT

Every student registered for any Secondary Education course <u>with a required performance-based assessment</u> is required to submit this assessment, Lesson Plan to Tk20 through Blackboard (regardless of whether the student is taking the course as an elective, a onetime course or as part of an undergraduate minor). Evaluation of the performance-based assessment by the course instructor will also be completed in Tk20 through Blackboard. Failure to submit the assessment to Tk20 (through Blackboard) will result in the course instructor reporting the course grade as Incomplete (IN). Unless the IN grade is changed upon completion of the required Tk20 submission, the IN will convert to an F nine weeks into the following semester.

Assignments/Assessments
Clinical lesson plan/teaching – 20 points
Clinical Reflection – 25 points
Individual Instruction and Assessment task - 20
Unit plan – 25 points
Microteaching – (counts only for PBA…grade associated only with Clinical teaching score)
Participation – 10

Assessments	Points	Due Date
Clinical teaching (posted to Edthena)	10	Apr 17
Clinical lesson plan (posted to Edthena)	10	Apr 17
Individualized Instruction and Assessment Task	20	May 1
Clinical experience reflection paper (holistic and focused)	25	May 11
Unit Plan (PBA) - 25 pts. total		
Learning Theory/Teaching Philosophy	5	Feb 20
Unit Concept Map – Organization of Ideas	2	Mar 6
Unit Objectives/Assessments	3	Mar 6
Unit Plan Overview	5	Mar 6
*Lesson 1 – Draft	-	Mar 20
*Lesson 2 – Draft	5	Mar 20
*Lesson 3 – Draft	5	Mar 27
Participation	10	
Total Points	**100**	
* one of these can be a lesson from your clinical site		

High quality work and participation is expected on all assignments and in class. Attendance at all classes for the entire class is a course expectation. For each unexcused absence, the course grade will be reduced by 5% points. Please notify instructor when any class session must be missed. All assignments are graded according to standards and rubrics laid out during the course. All assignments are due at the beginning of class on the day they are due. Assignments that are late will automatically receive a ten percent grade reduction per day beyond the due date and after 5 days will not be accepted unless prior arrangements have been made well in advance and approved by instructor.

Grading Scale
A = 93-100%
A- = 90-92%
B+ = 88-89%
B = 80-87%
C = 70-79%
F = Below 70%

Policy on Incompletes
If circumstances warrant, a written request for an incomplete must be provided to the instructor for approval prior to the course final examination date. Requests are accepted at the instructor's discretion, provided your reasons are justified and that 80% of your work has already been completed. Your written request should be regarded as a contract between you and the instructor and must specify the date for completion of work. This date must be at

least two weeks prior to the university deadline for changing incompletes to letter grades.

Tentative Calendar (subject to change based on student needs):

For additional information on the College of Education and Human Development, Graduate School of Education, please visit our website http://gse.gmu.edu/.

Tentative Class Schedule

Date	Topic	Readings/assignments Due
Jan 23	Introduction to Course…NOS	NOS handout
Jan 30	Inquiry Learning/5E process in Science, Part 1	Llewellyn 5E
Feb 6	Inquiry Learning/5E process in Science, Part 2	Hobbs 5E
Feb 13	Differentiating Inquiry in Science, Part 1	Tomlinson Ch. 2-4
Feb 20	Differentiating Inquiry in Science, Part 2	Tomlinson Ch. 5 (skim 6-8)
Feb 27	Backwards Design, Connecting Lessons, and Unit Concept Mapping	McTighe
Mar 6	Instructional Technology in Science	TBA
Mar 13	**NO CLASS SPRING BREAK**	
Mar 20	Assessing Inquiry in Science, Part 1	Keeley
Mar 27	Assessing Inquiry in Science, Part 2	Keeley
Apr 3	Work Session	
Apr 10	Scientific Discourse	Gilbert and Yerrick
Apr 17	Interdisciplinary Science Connections and Science Education Policy Perspectives	TBA
Apr 24	Online/work session	
May 1	Last class…inquiry expo	
May 8-9	**University Reading Days**	
May 11	**Final projects due**	

***Other readings will be assigned according to expertise and content area as the course progresses**

Professionalism

Learning depends on the active engagement of the participant and frequent checking by the instructor as to the progress of the learner. Smaller assignments will be given as necessary in class in order to inform your learning and my teaching. Your participation in these assignments is essential to valuable class discussions and will help to "chunk" the large assignments into smaller, more attainable learning goal. Your classmates depend on your comments to extend their learning. Attendance for each class is necessary – please contact the professor BEFORE any absence.

Professional Dispositions

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

MAJOR ASSESSMENTS and ASSOCIATED RUBRICS

'Clinical' Field Experience

The purpose of the field experience is to provide you with the opportunity to (1) connect the goals of the course, science education theories, concepts and research findings to classroom/school practice, (2) to study and practice in a variety of classroom/school communities, and (3) to promote critical, self-reflection about your current and future teaching practice.

See attached rubrics regarding the 'clinical' experience

Clinical Experience
There are four general large-scale assessments designed as part of the Clinical experience and will count towards the PBA tasks required for the methods II course.

These include:
- **Recording** a 30-minute teaching experience in your clinical placement (this will be scored across two rubrics namely, 'lesson plan and teaching' as well as 'micro-teaching' to fulfill PBA requirements) ,
- **Reflecting** on that teaching experience (this includes both a holistic reflection of the entire experience and a more fine-grained reflection regarding one critical incident),
- **Creating** an individualized instruction task for one particular student in your placement
- **Design** a unit that would cover 8-10 days of class time for your placement context

Project/Video Reflection/Individualized Instruction Task
In your methods I course you had opportunities to observe a teacher (or teachers) in your subject area classroom(s). As part of that experience, you reflected on how teachers design instruction to meet the needs of students and via your "Reflection Summary and Analysis" project you made suggestions as to how you might do things similarly and/or differently.

In your methods II course, we would like you to have the opportunity to engage with (rather than merely observe) secondary students in your subject area. Ultimately, by the end of the 15 hours required, you will lead some portion of the class, if granted permission by your mentor teacher.

In order to play a stronger role in the instructional process, we would like you to arrange fieldwork schedules that restrict you to work with *one* teacher. Ideally you will spend 5 days with that teacher, each day being a maximum of 3 hours. Via such a schedule, you will be able to develop a relationship with the teacher and his/her students so that you are better equipped to lead a portion of the class.

In the end, you will submit a videotape of you teaching a lesson in your clinical experience classroom, your reflection on your role in the classroom and on this lesson, the plan you used to lead some aspect of instruction, brief feedback form from your mentor teacher, a log of your hours, and any lesson planning or materials that you use for your presentation, and student feedback. You should schedule your time at the school according to the hour breakdown below. *Note: The micro-teaching assignment and VRT lesson plan are also elements of the unit plan assignment for the methods II course.*

<u>The Process</u>
When you begin to make contact with your mentor teacher, you will provide her/him with the letter above that gives more detail concerning how we hope your clinical experience will be structured. Let your mentor teacher know that you are expected to lead some portion of a class, if possible. As outlined in the letter, here is the schedule we hope you will be able to follow:

<u>Hours 1-5 (Days 1-2)</u>

- Introduce yourself to your school, the mentor teacher, and your students
- Observe in the class and engage in your mentor teacher's classroom (e.g., passing out papers, working with individual students and small groups)

<u>Hours 5-10 (Days 2-4)</u>

- Continue to engage with your class, with increased responsibility (e.g., introducing a lesson, co-facilitating a discussion, co-facilitating discussion of assigned work)
- Draft a lesson plan/activity to be presented and seeks feedback from your mentor teacher

Hours 10-15 (Days 3-5)

- Continue to engage with your class
- Initiate final discussion of planned lesson/activity with your mentor teacher
- Implement the planned lesson/activity, with your mentor teacher completing a brief observation report providing you with feedback on your work

Post lesson/activity (Day

- Obtain written or oral feedback from students (if possible); you will design your own student feedback method, with your mentor teacher's input, and this feedback will be included as part of your project reflection
- Submits a lesson plan to methods II instructor and complete the reflection elements of this project

The "Methods II Clinical Experience Project/Video Reflection Task" is an opportunity to demonstrate the ability to critically reflect on your practice. Upload 30 minutes of your lesson to Edthena. Be sure to include a copy of your lesson plan, your holistic reflection on the lesson, an analysis of the "critical incident" during the lesson, and evidence and an analysis of your students' feedback on your lesson. (You should also separately upload this 5-10 minute clip to Edthena or indicate on the 30 minute video the 5-10 minute on which you are focusing for your "critical incident"). When the assessment is complete, upload the lesson plan to BlackBoard/Tk-20 and notify your methods II instructor.

Submission Directions

The teacher candidate will:

1. Create a lesson plan that will be attached to the Edthena video.
2. Upload the lesson plan with your Edthena video and to BlackBoard/TK20
3. Video record a 30-minute segment of a lesson and upload this to Edthena
4. Write a holistic reflective statement that includes technical, practical and critical levels of reflection— attaching this reflection to the 30 minute Edthena video
    a. Technical reflection – focuses on effective application of skills and knowledge in the classroom so reflection focuses on analyzing the effects of strategies used
    b. Practical reflection – focuses on the assumptions underlying a specific practice and the consequences of that practice on student learning. It implies the assessment of the educational implications of actions and beliefs
    c. Critical reflection – includes emphases from technical and practical reflection and goes deeper. It focuses on questioning moral and ethical dimensions of decisions related, directly or indirectly, to the classroom. Candidates make connections between situations they encounter and the broader social, political, and economic forces that influence those events
5. Select a segment of the video that contains a 5-10 minute "critical incident" and upload this to Edthena or separately upload this 5-10 minute clip to Edthena.
    a. A "critical incident" is a 'vividly remembered event which is unplanned and unanticipated. Reflecting upon a "critical incident" can affect change in your thinking, your practice, your attitudes, and/or your understanding;
    b. A "critical incident" might be an interaction with a student; it might be part of a teaching episode; it could be a parent interaction or just a solitary "ah-ha" moment; your analysis will focus on what you

learn from reflecting on this event.

6. Write a 5-7 page "critical incident" analysis and attach this to the 5-10 minute Edthena video (see specifics in the "Reflection" section below)
    a. Briefly describe what happened
    b. Explain why you selected this clip
    c. Describe what went well and what aspects of the lesson you would like to change
    d. Propose alternate ways to handle the "critical incident"
    e. Summarize what you learned and how it will impact your future teaching

Reflection

The teacher candidate's 5-7 page reflection should include discussions of the following (if applicable):

- Observations you made about the teacher's role in facilitating student learning during the time when you were observing
- Observations about classroom community building and classroom management
- Interesting things you learned about student learning/thinking through your work with the students *prior* to you leading an aspect of instruction
- New, effective, or ineffective approaches to differentiation, discourse, or assessment that you observed prior to you leading an aspect of instruction
- Reflection on your implementation of the lesson:
    - What do you think was effective? What evidence do you have?
    - What do you think was not effective? What evidence do you have?
    - What surprised you about how the students responded?
    - How did you account for diverse learners in the class?
    - What would you do differently the next time?
    - How would you respond to your mentor teacher's feedback?
    - What student feedback on this lesson did you gather?
    - What is your analysis of this feedback and how would you respond to the student feedback?

Assessment Directions

Your mentor teacher will:

- Provide written narrative feedback (not including scores) on the "InTASC Formal Observation Form" below
    a. This form is used also used for formal observations during the internship
    b. Use of this form and these criteria for this project are meant to formative

Your methods II instructor will:

- Grade the assignment using the "Methods II Clinical Experience Project/Video Reflection Task Rubric" below. This rubric has been uploaded to BlackBoard/Tk-20 where the methods II instructor must complete the rubric and submit the grade for this assignment.

InTASC Formal Observation Form

Name of candidate _____ Date _____

School: _____ Grade/Content: _____ / _____ Semester/Year_____

1. LEARNER DEVELOPMENT (InTASC1) (ISTE NETS- T1) The candidate understands how learners grow and develop, recognizing that patterns of learning and development vary individually within and across the cognitive, linguistic, social, emotional, and physical areas, and designs and implements developmentally appropriate and challenging learning experiences that include the use of technology.	**COMMENTS**
A. Assesses individual and group performance to design and modify instruction to meet learners' developmental needs.	
B. Creates developmentally appropriate instruction that enables learners to advance and accelerate their learning.	
C. Collaborates with families, communities, colleagues, and other professionals to promote learner growth and development, using face to face and virtual technology.	

2. LEARNING DIFFERENCES (InTASC 2) The candidate uses understanding of individual differences, diverse cultures, and communities to ensure inclusive learning environments that enable each learner to meet high standards.	**COMMENTS**
A. Designs, adapts, and delivers instruction to address each student's particular learning strengths.	
B. Works with students' Individual Education Plans; makes appropriate accommodations or modifications to learning goals or lesson plans based on student's assessment data and identified special educational needs.	
C. Demonstrates knowledge of and follows all legal processes and other applicable laws, regulations, statues, and rules that apply to students with special needs.	
D. Designs instruction to build on learners' prior knowledge and experiences.	
E. Incorporates theories and tools of second language development and acquisition into planning and instruction, including strategies for making content accessible to English language learners to evaluate and support their development of English proficiency.	
F. Demonstrates knowledge of all legal processes, applicable laws, regulations, statutes, and rules regarding identification, placement, and instruction of English language learners.	
G. Accesses resources and special services to meet learning differences or needs.	

3. LEARNING ENVIRONMENTS (InTASC 3) (ISTE NETS- T 2) The candidate works with others to create face-to-face and virtual environments that support individual and collaborative learning, encourage positive social interaction, active engagement in learning, and self- motivation.	**COMMENTS**
A. Collaborates with learners, families, and colleagues to promote a safe, positive, and respectful learning climate.	
B. Promotes collaboration between students as well as self-direction, development of shared values and respectful interactions, rigorous academic discussions, and responsibility for quality work.	
C. Manages the learning environment by organizing, allocating, and coordinating resources, time, and space.	
D. Collaborates with learners to evaluate and adjust the learning environment.	
E. Demonstrates respect for the cultural backgrounds and perspectives of learners.	
F. Applies effective interpersonal communication skills to build learners' capacity to collaborate.	

4. CONTENT KNOWLEDGE (InTASC 4) The candidate understands the central concepts, tools of inquiry, and structures of the discipline(s) he or she teaches and creates learning experiences that make these aspects accessible and meaningful for learners to ensure content mastery.	**COMMENTS**
A. Uses multiple representations and explanations of content.	
B. Encourages learners to understand, question, and analyze ideas from multiple perspectives.	
C. Guides learners to apply methods of inquiry, standards of evidence, and academic language unique to each content area.	
D. Stimulates learner reflection on prior content knowledge, links new concepts to familiar concepts, and makes connections to learners' experiences.	
E. Recognizes and corrects learner misconceptions in a discipline.	
F. Evaluates and modifies instructional resources and curricular materials for comprehensiveness, accuracy, and appropriateness.	
G. Uses supplemental resources and technology to ensure content accessibility, accuracy, and relevance to learners.	

5. CONTENT APPLICATION (InTASC 5) (ISTE NETS-T 1) The candidate understands how to connect concepts and use different perspectives and digital resources to engage learners in critical thinking, creativity, and collaborative problem solving related to authentic local and global issues.	**COMMENTS**
A. Applies content knowledge to real world problems through interdisciplinary projects.	
B. Facilitates learners' use of current technology tools and resources.	
C. Engages learners in questioning and challenging assumptions to foster learner innovation, problem solving, generation and evaluation of new ideas, and development of original work.	
D. Develops learners' communication skills for varied audiences and purposes.	
E. Supports development of diverse social and cultural perspectives.	
F. Develops and supports learner literacy across content areas.	

6. ASSESSMENT (InTASC 6) (ISTE NETS-T 3) The candidate understands and uses multiple methods of assessment, including digital tools, to engage learners in their own growth, to monitor learner progress, and to guide the teacher's and learner's decision making.	**COMMENTS**
A. Designs valid formative and summative assessments that match learning objectives.	
B. Uses multiple types of assessment data to document learning and develop instructional activities.	
C. Provides effective feedback to guide learner progress.	
D. Guides learners to assess their own thinking and learning, as well as the performance of others.	
E. Prepares all learners for multiple assessment formats and makes appropriate accommodations for learners with disabilities or language learning needs.	
F. Uses technology to support assessment.	

7. PLANNING FOR INSTRUCTION (InTASC 7) (ISTE NETS-T 2) The candidate plans instruction that supports every student in meeting rigorous learning goals by drawing upon knowledge of digital age technology, content areas, curriculum, cross-disciplinary skills, and benchmarks.	**COMMENTS**
A. Creates relevant learning experiences aligned with curriculum goals, content standards, pedagogy, as well as knowledge of learners and the community context.	
B. Incorporates differentiated strategies, resources, and accommodations for individuals and groups to meet learning goals.	
C. Sequences learning experiences effectively.	
D. Plans multiple ways for learners to demonstrate knowledge and skills.	
E. Uses formative and summative assessment data, prior learner knowledge, and learner interest to plan instruction.	

8. (Continued)	**COMMENTS**
F. Collaborates with professionals (special educators, language learning specialists, librarians, media/technology specialists) to design and deliver learning experiences to meet unique learning needs.	
G. Evaluates and adjusts plans to meet short and long range goals.	

8. INSTRUCTIONAL STRATEGIES (InTASC 8) (ISTE NETS-T 1,2,3) The candidate 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 for individuals and groups.	**COMMENTS**
A. Monitors student learning and uses appropriate strategies and resources to adapt instruction contemporary meaningful ways.	
B. Collaborates with learners to design and implement relevant learning experiences, identify strengths, and access resources to develop their areas of interest.	
C. Varies the teacher role in the instructional process (instructor, facilitator, coach, audience) to address content, teaching goals, or needs of learners.	
D. Provides multiple models and representations of concepts and skills to implement lesson plans effectively.	
E. Engages all learners in developing higher order questioning skills and metacognitive processes.	
F. Provides opportunities for learners to access, interpret, evaluate, and apply information.	
G. Uses multiple strategies to expand learner communication through speaking, listening, reading, writing, and technology.	
H. Asks questions to stimulate discussion for different purposes such as probing for understanding, articulation of ideas and thinking processes, and helping learners to question.	
I. Provides clear directions and explanations.	

9. PROFESSIONAL LEARNING AND ETHICAL PRACTICE (InTASC 9) (ISTE NETS-T 4) The candidate engages in ongoing professional learning and uses evidence to continually evaluate his or her practice, particularly the effects of teacher choices and actions on others (learners, families, other professionals, and the community), and adapts practice to meet the needs of each learner in an ethical and responsible manner.	**COMMENTS**
A. Participates in ongoing learning opportunities to develop knowledge and skills to provide all learners with engaging curriculum and learning experiences based on local and state standards.	
B. Engages in professional development aligned with the needs of the teacher, learners, school, and system.	
C. Uses data and resources to evaluate the outcomes of teaching and learning to adapt planning and practice.	
D. Reflects on personal biases and accesses resources to deepen understanding of cultural, linguistic, ethnic, gender, and learning variations.	
E. Demonstrates integrity regarding professional ethics (judgment, confidentiality, and appropriate communication).	
F. Maintains professional appearance.	
G. Demonstrates professional demeanor (enthusiasm for teaching and learning, a caring and positive attitude, flexibility, initiative, reliability, and respect).	
H. Responds to constructive criticism and modifies practices accordingly.	
I. Uses professional, respectful, and grammatically correct language in oral and written communication.	
J. Advocates, models, and teaches safe, legal, and ethical use of digital information and technology, including copyright and intellectual property, information privacy (privacy of student data), appropriate documentation of sources, and respect for others in the use of social media.	

10. LEADERSHIP AND COLLABORATION (InTASC 10) (ISTE NETS-T 5) The candidate seeks appropriate leadership roles and opportunities to take responsibility for student learning, to collaborate with learners, families, colleagues, other school professionals, and community.	**COMMENTS**
A. Collaborate with colleagues to share responsibility for decision making and accountability for student learning.	
B. Works with other school professionals to plan and facilitate learning on how to meet the diverse needs of learners.	
C. Supports the mission of the school.	
D. Works collaboratively with learners and families to establish mutual expectations and ongoing communication to support learner development and achievement.	
E. Engages in professional learning, contributes to the knowledge and skill of others, and works collaboratively to advance professional practice.	
F. Uses technological tools and a variety of communication strategies to build local and global learning communities that engage learners, families, and colleagues.	
G. Advocates for learners, the school, the community, and the profession.	

NOTES:

Methods II Clinical Experience Project/Video Reflection Task Rubric

Criteria	Does Not Meet Expectation (1)	Approaches Expectation (2)	Meets Expectation (3)	Exceeds Expectation (4)
LESSON PLAN AND TEACHING				
The candidate creates developmentally appropriate instruction that takes into account individual learners' strengths, interests, and needs and that enable each learner to advance and accelerate his/her learning. *InTASC 1(b)*	The candidate's instruction **does not** take into account individual learners' strengths, interests, and needs and **does not** enable learners to advance and accelerate his/her learning.	The candidate creates instruction that takes into account **some students'** strengths, interests, and needs and that **enables some learners** to advance and accelerate his/her learning.	The candidate creates **developmentally appropriate instruction** that takes into account individual learners' strengths, interests, and needs and that **enables each learner** to advance and accelerate his/her learning.	The candidate creates **student-centered instruction** that is **developmentally appropriate** and takes into account individual learners' strengths, interests, and needs and that **enables each learner** to advance and accelerate his/her learning.
The candidate designs, adapts, and delivers instruction to address each student's diverse learning strengths and needs and creates opportunities for students to demonstrate their learning in different ways. *InTASC 2(a)*	The candidate **does not** design, adapt, or deliver instruction to address each student's diverse learning strengths and needs and **did not** create opportunities for students to demonstrate their learning in different ways.	The candidate designs, adapts, and delivers instruction to address **some student's** diverse learning strengths and needs and creates **few opportunities** for some students to demonstrate their learning in different ways.	The candidate designs, adapts, and delivers instruction to address **each student's** diverse learning strengths and needs and creates opportunities for students to demonstrate their learning in different ways.	The candidate designs, adapts, and delivers **student-centered instruction** that addresses **each student's** diverse learning strengths and needs and creates **multiple opportunities** for students to demonstrate their learning in different ways.
The candidate manages the learning environment to actively and equitably engage learners by organizing, allocating, and coordinating the resources of time, space, and learner's attention. *InTASC 3(d)*	The candidate **does not plan** ways to manage the learning environment to actively **and/or** equitably engage learners. The candidate **does not** show evidence of organizing, allocating, and coordinating the resources of time, space, and learner's attention.	The candidate plans ways to **marginally** manage the learning environment to actively **and** equitably engage **some** learners by organizing, allocating, and coordinating the resources of time, space, and learner's attention.	The candidate plans ways to **effectively** manage the learning environment to actively and equitably engage **the majority** of learners by organizing, allocating, and coordinating the resources of time, space, and learner's attention.	The candidate plans ways to **effectively** manage the learning environment to actively and equitably engage **all** learners by **creatively** organizing, allocating, and coordinating the resources of time, space, and learner's attention.
The candidate engages learners in applying methods of inquiry and standards of evidence used in the discipline. *InTASC 4(c)*	The candidate **does not** engage learners in applying methods of inquiry and standards of evidence used in the discipline.	The candidate engages learners in applying methods of inquiry **but disregards the standards of evidence** used in the discipline.	The candidate **engages** learners in applying methods of inquiry and the **appropriate** standards of evidence used in the discipline.	The candidate engages learners in applying **multiple methods** of inquiry and **appropriate** standards of evidence used in the discipline by implementing **authentic tasks**.
The candidate stimulates learner reflection on prior content knowledge, links new concepts to familiar concepts, and makes connections to learners' experiences. *InTASC 4(d)*	The candidate **does not** stimulate learner reflection on prior content knowledge, does not link new concepts to familiar concepts, and does not make connections to learners' experiences.	The candidate stimulates learner reflection on prior content knowledge, **but neither links new concepts** to familiar concepts **nor makes connections** to learners' experiences.	The candidate stimulates learner reflection on prior content knowledge, links new concepts to familiar concepts, and makes connections to learners' experiences.	The candidate **creatively** stimulates learner reflection on prior content knowledge, links new concepts to familiar concepts, and makes connections to learners' experiences **using student-centered instruction.**
The candidate uses appropriate strategies and resources to adapt instruction to the needs of individuals and groups of learners. *InTASC 8(a)*	The candidate **does not** adapt instruction to the needs of individuals and groups of learners.	The candidate adapts instruction to the needs of **some individuals** and groups of learners but **seldom** incorporates appropriate strategies or resources.	The candidate uses appropriate strategies and resources to adapt instruction to the needs of individuals and groups of learners.	The candidate uses appropriate and **creative** strategies and resources within **authentic tasks** to adapt instruction to the needs of individuals and groups of learners.
The candidate continuously monitors student learning, engages learners in assessing their progress, and adjusts instruction in response to student learning needs. *InTASC 8(b)*	The candidate **does not** provide evidence of monitoring student learning **and/or does not** engage learners in assessing their progress, **and/or does not** provide evidence of adjusting instruction in response to student learning needs.	The candidate provides **minimal** evidence of monitoring student learning and engaging learners in assessing their progress, but the candidate rarely adjusts instruction in response to student learning needs.	The candidate provides **consistent** evidence of monitoring student learning, engaging learners in assessing their progress, and adjusts instruction in response to student learning needs.	The candidate provides **substantial** evidence of continuously monitoring student learning, engaging learners in assessing their progress, and **innovatively** adjusts instruction in response to student learning needs.

Criteria	Does Not Meet Expectation (1)	Approaches Expectation (2)	Meets Expectation (3)	Exceeds Expectation (4)
The candidate varies his/her role in the instructional process (e.g. instructor, facilitator, coach, audience) in relation to the content and purpose of instruction and the needs of learners. *InTASC 8(d)*	The candidate **does not** varies his/her role in the instructional process (e.g. instructor, facilitator, coach, audience).	The candidate **sometimes** varies his/her role in the instructional process (e.g. instructor, facilitator, coach, audience) but it is in relation to **neither** the content **nor** the purpose of instruction nor the needs of learners.	The candidate **varies** his/her role in the instructional process (e.g. instructor, facilitator, coach, audience) in relation to the content and purpose of instruction and the needs of learners.	The candidate **consistently** varies his/her role in engaging instructional processes (e.g. instructor, facilitator, coach, audience) in relation to the content and purpose of instruction and the needs of learners.
The candidate engages all learners in developing higher order questioning skills and metacognitive processes. *InTASC 8(f)*	The candidate **does not** engage learners in developing higher order questioning skills **or** metacognitive processes.	The candidate engages **some learners** in developing higher order questioning skills **or** metacognitive processes.	The candidate engages **most** learners in developing higher order questioning skills **and** metacognitive processes.	The candidate engages **all** learners in developing higher order questioning skills **and** metacognitive processes within authentic learning situations.
The candidate asks questions to stimulate discussion that serves different purposes (e.g., probing for learner understanding, helping learners articulate their ideas and thinking processes, stimulating curiosity, and helping learners to question). *InTASC 8(i)*	The candidate **does not** asks questions to stimulate discussion.	The candidate **asks** questions to stimulate discussion but the purposes tend to be **low level**.	The candidate asks **appropriate** questions to stimulate discussion that serves different purposes (e.g., probing for learner understanding, helping learners articulate their ideas and thinking processes, stimulating curiosity, and helping learners to question).	The candidate asks **varied** questions to stimulate discussion that serves different purposes (e.g., probing for learner understanding, helping learners articulate their ideas and thinking processes, stimulating curiosity, and helping learners to question) **within authentic learning situations.**
HOLISTIC REFLECTION				
The candidate engages in meaningful and appropriate professional learning experiences aligned with his/her own needs and the needs of the learners, school, and system. *InTASC 9(b)*	The candidate **does not** take responsibility for promoting the learners' growth and development in a reflective statement. The statement does not specifically the critical levels of reflections.	The candidate takes responsibility for promoting the learners' growth and development in a reflective statement, but **does not address all** of the levels of critical reflections.	The candidate takes responsibility for promoting the learners' growth and development in a reflective statement that includes **all of the levels of critical reflection**.	The candidate takes responsibility for promoting the learners' growth and development in a **well-written and insightful** reflective statement that includes **all of the levels of critical reflection**.
The candidate uses a variety of data to evaluate the outcomes of teaching and learning and adapts planning and practice. *InTASC 9(c)*	The candidate **does not** use a variety of data to evaluate the outcomes of teaching and learning and to adapt planning and practice.	The candidate **uses a variety of data** to evaluate the outcomes of teaching and learning but does not provide strategies to adapt planning and/or practice.	The candidate **uses a variety of data** to evaluate the outcomes of teaching and learning and to adapt planning and practice.	The candidate **effectively uses a variety of data** to evaluate the outcomes of teaching and learning and to appropriately adapt planning and practice.
The candidate uses ongoing analysis and reflection to improve planning and practice. *InTASC 9(l)*	There was **no evidence** that the candidate used ongoing analysis and/or reflection to improve planning and practice.	The candidate **uses marginal analysis and reflection strategies** to improve planning and practice.	The candidate uses **ongoing analysis and reflection** to improve planning and practice.	The candidate **effectively uses ongoing analysis and deep reflection** to improve planning and practice.
CRITICAL INCIDENT VIDEO CLIP AND ANALYSIS				
The candidate uses technology to support analysis, reflection, and problem-solving strategies for instruction. *InTASC 9(d)*	The candidate **does not use technology** to support analysis, reflection, and problem-solving strategies for instruction.	The candidate **ineffectively uses technology** to support analysis, reflection, or problem-solving strategies for instruction.	The candidate **uses technology** to support analysis, reflection, and problem-solving strategies for instruction.	The candidate **effectively uses technology** to support a **thorough** use of analysis, reflection, and problem-solving strategies for instruction.
The candidate engages in ongoing learning opportunities to develop knowledge and skills in order to provide all learners with engaging curriculum and learning experiences. *InTASC 9(a)*	There was **no evidence** that the candidate engages in ongoing learning opportunities to plan to improve teaching and learning.	There was **minimal evidence** that the candidate engages in ongoing learning opportunities to plan to improve teaching and learning.	There was **evidence** that the candidate **effectively** engages in ongoing learning opportunities to plan to improve teaching and learning.	There was **extensive evidence** that the candidate **effectively** engages in ongoing learning opportunities to plan to improve teaching and learning.

Criteria	Does Not Meet Expectation (1)	Approaches Expectation (2)	Meets Expectation (3)	Exceeds Expectation (4)
The candidate reflects on his/her personal biases and accesses resources to deepen his/her own understanding of a variety of individual differences to build relationships and create more relevant learning experiences. *InTASC 9(e)*	There is **no evidence** that the candidate reflects on his/her personal biases. The candidate did not access resources to deepen his/her own understanding of a variety of individual differences to build relationships and create more relevant learning experiences.	The candidate provides evidence that he/she reflects on his/her personal biases and accesses resources to deepen his/her own understanding of **limited** individual differences to build relationships and create relevant learning experiences.	The candidate provides evidence that he/she reflects on personal biases and accesses **appropriate** resources to deepen his/her own understanding of a **variety of individual differences** to build relationships and create more relevant learning experiences.	The candidate provides evidence that he/she **effectively** reflects on personal biases and accesses **multiple resources** to deepen his/her own understanding of a **variety of individual differences** to build relationships and create **engaging**, relevant learning experiences.

Lastly as part of your field experience, choose a student within your classroom context and provide a profile for that student (using pseudonyms and general description of the context so as not to identify the student) and construct an individualized plan based on differentiation principles.

Individualized Instruction and Assessment Task

Candidates will develop an individualized plan for a child with developmental, learning, physical, or linguistic differences within the context of the general environment and curriculum that includes the following sections:

- Section 1. Description of the individual student that includes cognitive, linguistic, social, emotional, and/or physical developmental skill levels and abilities, interests and educational progress and statement of educational need. (1 page or less)
- Section 2. Identification of and rationale for three learning objectives that support meaningful learning outcomes for the student. (1 page or less)
- Section 3. Description of and rationale for at least three evidence-based instructional strategies that address the identified learning objectives and reflect the student's cognitive, linguistic, social, emotional, and/or physical developmental skill levels and abilities, interests and educational needs. (1 page or less)
- Section 4. Description of and rationale for instructional adaptations and accommodations needed, including the use of augmentative and alternative communication systems and assistive technologies or other appropriate technologies. (1 page or less)
- Section 5. Statement of plan for the assessment and documentation of the student's progress toward the identified objectives. (1 page or less)

This assignment will be submitted via Tk20…see rubric below

Individualized Instruction and Assessment Task Rubric

Criteria	Does Not Meet Standard 1	Approaches Standard 2	Meets Standard 3	Exceeds Standard 4
Section 1 - Description of Individual Student				
The candidate regularly assesses individual and group performance in order to design and	The candidate does not provide a description or the description of student **does not**	The candidate provides description of student that includes appropriate	The candidate provides description of student that includes appropriate	The candidate provides description of student that includes both appropriate and

modify instruction to meet learners' needs in each area of development (cognitive, linguistic, social, emotional, and physical) and scaffolds the next level of development. ***InTASC 1(a)***	include assessment data **related to cognitive, linguistic, social, emotional, and/or physical** developmental skill levels and abilities, interests, **or** educational progress.	assessment data related to **some but not all** of the following: cognitive, linguistic, social, emotional, and/or physical developmental skill levels and abilities, interests, **or** educational progress.	assessment data on **all** of the following: cognitive, linguistic, social, emotional, and/or physical developmental skill levels and abilities, interests, and educational progress. The candidate describes impact of student characteristics on learning.	multiple forms of assessment data on **all** of the following: cognitive, linguistic, social, emotional, and/or physical developmental skill levels and abilities, interests, and educational learning need. The candidate describes **and** provides examples of impact of student characteristics on learning.
Statement of Educational Need				
The candidate effectively uses multiple and appropriate types of assessment data to identify each student's learning needs and to develop differentiated learning experiences. ***InTASC 6(g)***	The candidate **does not** address student educational needs or **inappropriately uses** assessment data to create a statement of educational need.	The candidate uses assessment data to create a statement of educational need that is **marginally** aligned with assessment results.	The candidate uses assessment data to create an **appropriate** statement of educational need that is **aligned** with assessment results.	The candidate **effectively** uses assessment data from **multiple sources** to create a **thorough and appropriate** statement of educational need that is **aligned** with assessment results.
Section 2 - Identification of Learning Objectives				
The candidate individually and collaboratively selects and creates learning experiences that are appropriate for curriculum goals and content standards, and are relevant to learners. ***InTASC 7(a)***	The candidate identifies learning objectives that are **either** (a) **incomplete** because related outcomes are not identified **or** (b) the objectives are **not directly related** to student educational need.	The candidate identifies learning objectives **without relevance** to student educational need.	The candidate identifies learning objectives with related outcomes that are **relevant** to individual student needs. .	The candidate identifies **distinct** learning objectives with related outcomes that are **relevant** to individual student needs.
Identification of Rationale for Learning Objectives				
The candidate plans for instruction based on formative and summative assessment data, prior learner knowledge, and learner interest. ***InTASC 7(d)***	The candidate **does not provide** rationales which are aligned to the specific learning objectives and/or the relationship of the learning objectives to student educational needs is **missing or unclear.**	The rationales provided **are not** be aligned to the specific learning objective and the relationship of the learning objectives to student educational needs is **unclear**.	The rationales provided **are aligned** with the learning objective and the relationship of learning objectives to student educational needs is **clearly** identified.	The rationales provided **are aligned** with the learning objective and the relationship of the learning objectives to student educational needs is **clearly and effectively** identified.
Section 3 - Description of Instructional Strategies				
The candidate plans how to achieve each student's learning goals, choosing appropriate strategies and accommodations,	The candidate **does not** identify instructional strategies or identifies instructional strategies that are **not related** to the learning objectives	The candidate identifies instructional strategies that are **marginally** related to the learning objectives **or** student learning	The candidate identifies **evidence-based** instructional strategies that are aligned to the learning objectives and student	The candidate identifies **evidence-based** instructional strategies that are aligned to **specific**

resources, and materials to differentiate instruction for individuals and groups of learners. ***InTASC 7(b)***	**or** student learning needs.	needs.	learning needs.	learning objectives and student learning needs. The candidate provides **specific sources of** evidence for the instructional strategy.
Rationale for Instructional Strategies				
The candidate understands that each learner's cognitive, linguistic, social, emotional, and physical development influences learning and knows how to make instructional decisions that build on learners' strengths and needs. ***InTASC 1(e)***	The candidate **does not provide** rationales which are aligned to the specific instructional strategies **and/or** the relationship of instructional strategies to the learning objectives and student educational needs is **missing or unclear**.	The rationales provided **do not** aligned to the specific instructional strategies and, the relationship of the instructional strategies to the learning objectives that meet student educational needs is **unclear**.	The rationales provided **are aligned** with instructional strategies and, the relationship of the instructional strategies to the learning objectives that meet student educational needs is **clearly** identified.	The rationales provided **are aligned** with the strategies and, the relationship of the instructional strategies to **specific** learning objectives that meet student educational needs is **clearly and effectively** identified.
Section 4 - Description of Instructional Adaptation				
The candidate accesses resources, supports, and specialized assistance and services to meet particular learning differences or needs. ***InTASC 2(f)***	The candidate **does not identify** either adaptations or accommodations to support student achievement of learning objectives.	The candidate identifies **either** adaptations or accommodations that **minimally support** student achievement of learning objectives.	The candidate identifies and describes appropriate adaptations or accommodations that **clearly support** student achievement of learning objectives.	The candidate identifies and thoroughly describes appropriate adaptations or accommodations that **clearly support** student achievement of learning objectives.
Rationale for Instructional Adaptation				
The candidate knows a range of evidence-based instructional strategies, resources, and technological tools and how to use them effectively to plan instruction that meets diverse learning needs. ***InTASC 7(k)***	The candidate **does not provide** rationales that are aligned to the adaptations and accommodations **and/or** the relationship of the adaptations and accommodations to student educational needs is **missing or unclear**.	The rationales **marginally provides** evidence to support the adaptations and accommodations and the relationship of the adaptations and accommodations to student educational needs is **unclear**.	The rationales provide **adequate** evidence to support the adaptations and accommodations and the relationship of the adaptations and accommodations to student educational needs is **clearly identified.**	The rationales provide **evidence-based support** for the specific adaptations and accommodations and the relationship of the adaptations and accommodations to student educational needs is **clearly and thoroughly** identified.
Section 5 - Assessment and Documentation of Student Progress				
The candidate designs assessments that match learning objectives with assessment methods and minimizes sources of bias that can distort assessment results. ***InTASC 6(b)***	The candidate **does not** describe an assessment plan that that evaluates all student learning objectives **or** describes a plan that **does not** directly measure all of the student learning objectives (e.g., is **not observable, measurable**).	The candidate describes an assessment plan that evaluates all student learning objectives but **does not** include documentation of **both** formative and summative measures that **does not** address possible assessment bias.	The candidate describes an assessment plan that evaluates all student learning objectives **and includes both** formative and summative assessments that minimize sources of bias. The candidate describes the assessment results that	The candidate describes an assessment plan that evaluates **all** student learning objectives, **includes** formative and summative assessments that minimize sources of bias and includes **multiple** data sources for each objective. The candidate describes **multiple** assessment results that

			would prompt modification of instructional plans **and** those specific modifications.	would prompt modification of instructional plans **and** those specific modifications.

Microteaching

This will utilize your thirty-minute Edthena upload of your teaching for this PBA assessment.

Microteaching Presentation Rubric

Element	Distinguished - 4	Proficient - 3	Insufficient - 2	Unacceptable - 1
Preparation	Complete lesson plan available digitally the day before the lesson was to be taught	Complete lesson plan available in hard copy format	Lesson plan incomplete but available in hard copy format	Lesson plan not available for microteaching
	Materials requested at least three weeks prior as well as finding materials on own to implement lesson AND well prepared microteaching (seamless implementation of lesson)	Materials requested at least three weeks prior as well as finding materials on own to implement lesson AND prepared microteaching but implementation was no seamless (appears to have attempted lesson prior to make sure setup and lesson implementation went smoothly)	Materials requested at least three weeks prior as well as finding materials on own to implement lesson BUT was minimally prepared before microteaching (did not attempt lesson prior to make sure setup and lesson implementation went smoothly)	Materials were not requested early AND was not prepared before microteaching (did not attempt lesson prior to make sure setup and lesson implementation went smoothly)
Overview	Establishes the background for the lesson		No background for the lesson	
Inquiry Activity	Appropriate example of an inquiry lesson that encourages scientific thinking WITH nature of science concepts explicitly highlighted by the class somewhere during the lesson	Appropriate example of an inquiry lesson that encourages scientific thinking BUT nature of science concepts were made explicit by the teacher somewhere during the lesson	Appropriate example of an inquiry lesson that encourages scientific thinking BUT nature of science concepts are not made explicit anywhere during the lesson	Lesson not an example of inquiry
Assessments	Provided formal exit assessment for evaluating achievement of student objectives		No formal exit assessment provided for evaluating achievement of student objectives	
Time	Lesson completed in the time allotted		Lesson incomplete because class ran out of time	

Unit Plan

Your curriculum unit plan will reflect your ability to incorporate practical and theoretical aspects of teaching. This includes demonstrating your ability construct science classrooms that meaningfully engage students, differentiates instruction and incorporates multiple pedagogical approaches including technology. Furthermore, this approach will be steeped in inquiry, follow relevant safety procedures, integrate the nature of science, and provide dynamic approaches to assessment. The goal is to design a unit that you would be willing to hand to a principal as both

demonstrative of your best work as well as your ability to design an inquiry experience for secondary contexts.
There will be several assignments over the course of the semester that will end up as a part of your overall unit.

All unit plans will include:

A. Learning Theory/Teaching Philosophy

This is an approximately two-page description of your learning theory and rationale for your teaching approach in your classroom. It should clearly relate to student learning and be reflected throughout your lessons in the unit plan.

B. Overview

Theme/Topic

This is the topic for the unit.

Description of Students

In a very brief overview, describe the audience for which the unit is designed

Unit Question

This is the guiding question that the students will be investigating about the theme/unit.

Standards of Learning

List the main standards from the Virginia SOLs

Objectives

List the major objectives that would represent what students should learn through the unit. Objectives should be written in such a way that they represent a measureable behavior. Be sure to include both the content and inquiry standards.

Assessment Plan Overview

After examining the objectives, identify the major summative assessments that you will use to assess achievement of each objective. There should be at least two assessments for each objective. Some assessments may assess multiple objectives (for instance a summative test or final project may assess many of the objectives), while others may be specific for a particular objective (for an essay may address only one objective).

Schedule

Include a one-page overview/list showing the science content being studied each day during the unit. This could be displayed as a calendar.

C. Unit Grid and Detailed Lesson Plans

The unit must include an overview (visual grid/chart/spreadsheet) for each of the individual lessons across the entire unit (typically 8-10 days total). Choose three days form the overall unit and write 3 **in-depth lessons** with all support materials. One of these lessons will be the one you created for your class placement.

D. Final Assessment

You should develop a final assessment that would evaluate whether your students achieved the objectives at the end of the unit. This final assessment should include the questions/tasks the students are required to do and indicate what objectives are being assessed and how they are being assessed. For instance, a paper and pencil test should have a question for each objective. Assignments that are less traditional (posters, investigations, debates, etc.) will still require an indication of how you will evaluate each objective.

E. Support Materials (all materials for the daily lesson plans)

For the daily lesson plans, you will develop all support materials that the teacher and students will use. For teaching and learning activities **include each sheet of paper distributed to the students to carry out the daily lesson plans - laboratory experiments, activities, worksheets, instructions, assessments, rubrics, etc.** Attach these to the appropriate lesson plan. **Other teaching aids** (e.g., PowerPoint slides) used during the unit should also be included. Be sure that your unit plan can illustrate the following three aspects of teaching: **introducing new content, hands-on assignments, and assessment of student learning**. Each day describe how the students' learning will be assessed both formally (graded – summative assessment) and/or informally (not graded – formative assessment). The assessment activities and how they will be assessed (i.e. rubrics) will be attached to the daily lesson plans**.** These activities should focus on the essential science concepts and connections, assess higher order thinking skills, and target different learning styles. Checking for understanding should be included daily. Include diagnostic, formative, and summative assessment. At least one of the days you choose to develop support materials needs to **include major assessment instruments and grading criteria for the unit**. The unit plan template included on this syllabus will help you account for all of the required components.

The rubric is based upon the requirements of National Council for Accreditation of Teacher Education (NCATE), the National Science Teachers Association (NSTA), and the Interstate New Teacher Assessment and Support Consortium (INTASC). **Because the Unit Plan is a PBA, it will need to be submitted electronically through Tk20; therefore, you need to be sure all components are in ONE file.**

Unit Plan Rubric

Standard	Unsatisfactory	Acceptable	Target	Accomplished
1a - Understand the major concepts, principles, theories, laws, and interrelationships of their fields of licensure and supporting fields as recommended by the National Science Teachers Association.	Objectives for the unit do not appropriately identify the major concepts, principles, theories, laws associated with the unit as identified by	Objectives for the unit clearly identify the major concepts, principles, theories, laws associated with the unit as identified by the NGSS and VA SOL AND	Objectives for the unit clearly identify the major concepts, principles, theories, laws associated with the unit as identified by the NGSS and VA SOL	Objectives for the unit clearly identify the major concepts, principles, theories, laws associated with the unit as identified by the NGSS and VA SOL AND

Standard	Unsatisfactory	Acceptable	Target	Accomplished
1c - Show an understanding of state and national curriculum standards and their impact on the content knowledge necessary for teaching P-12 students.	the NGSS and VA SOL OR Activities and lessons are not clear, consistent, and coherent, connected to identified objectives AND Activities and lessons are not connected to one another potentially leading to isolated knowledge	Activities and lessons are clear, consistent, and coherent, connecting to identified objectives BUT Few activities and lessons are connected to one another potentially leading to isolated knowledge	AND Activities and lessons are clear, consistent, and coherent, connecting to identified objectives AND A majority of the activities and lessons are connected to one another allowing	Activities and lessons are clear, consistent, and coherent, connecting to identified objectives AND Activities and lessons are connected to one another allowing students to develop a depth and breadth of knowledge within the discipline
1b - Understand the central concepts of the supporting disciplines and the supporting role of science-specific technology.	Objectives for the unit do not include the big ideas and cross-cutting concepts identified in the NGSS OR Activities and lessons are not connected to identified objectives OR Activities do not use or refer to appropriate science-specific technology	Objectives for the unit include the crosscutting concepts identified in the NGSS AND Activities and lessons are clear, consistent, and coherent, connecting to identified objectives AND Activities do not use or refer to appropriate science-specific technology	Objectives for the unit include the crosscutting concepts identified in the NGSS AND Activities and lessons are clear, consistent, and coherent, connecting to identified objectives AND Activities do not use or refer to appropriate science-specific technology	Objectives for the unit include the crosscutting concepts identified in the NGSS AND Activities and lessons are clear, consistent, and coherent, connecting to identified objectives AND Activities do not use or refer to appropriate science-specific technology
2a - Plan multiple lessons using a variety of inquiry approaches that demonstrate their knowledge and understanding of how all students learn science.	Activities and lessons do not include inquiry of any kind	Activities and lessons include limited examples of inquiry beyond cookbook labs	A few activities and lessons include multiple opportunities for students to be involved in inquiry	The unit is organized around providing multiple opportunities for students to be involved in inquiry
3a - Use a variety of strategies that demonstrate the candidates' knowledge and understanding of how to select the appropriate teaching and learning activities – including laboratory or field settings and applicable instruments and/or technology- to allow access so that all students learn. These strategies are inclusive and motivating for all students.	Lessons are not differentiated AND Lessons do not demonstrate an understanding of pedagogy that supports learning science	The overall unit includes 1-2 lessons (either original or identified from other sources) that are differentiated but still allow for limited engagement with scientific inquiry to learn content AND Lessons demonstrate an understanding of	The overall unit includes multiple lessons (either original or identified from other sources) that are differentiated but still allow for engagement with scientific inquiry to learn content AND Lessons demonstrate an understanding of	All lesson in the overall unit (either original or identified from other sources) are differentiated but still allow for engagement with scientific inquiry to learn content AND Lessons demonstrate an understanding of pedagogy that supports learning

Standard	Unsatisfactory	Acceptable	Target	Accomplished
		pedagogy that supports learning science	pedagogy that supports learning science that includes a variety of approaches	science that includes a variety of approaches
2b - Include active inquiry lessons where students collect and interpret data in order to develop and communicate concepts and understand scientific processes, relationships and natural patterns from empirical experiences. Applications of science-specific technology are included in the lessons when appropriate.	Activities and lessons do not include opportunities for students to experience authentic science	Activities and lessons include historical development of scientific knowledge allowing students to examine and interpret data to develop their understanding of content and science process	Activities and lessons include multiple examples of students engaged in collecting and interpreting data to develop their understanding of content and science process AND Activities and lessons include appropriate use of science-specific technology for data collection	The unit is developed around providing opportunities to engage in learning using the process of science or examine hypotheses and theories using evidence to develop their understanding of content and science process AND Activities and lessons include appropriate use of science-specific technology for data collection
3b - Develop lesson plans that include active inquiry lessons where students collect and interpret data using applicable science-specific technology in order to develop concepts, understand scientific processes, relationships and natural patterns from empirical experiences. These plans provide for equitable achievement of science literacy for all students.	Does not include differentiated lessons that allow for any engagement with scientific inquiry to learn content	The overall unit includes 1-2 lessons (either original or identified from other sources) that are differentiated but still allow for limited engagement with scientific inquiry to learn content	The overall unit includes multiple lessons (either original or identified from other sources) that are differentiated but still allow for engagement with scientific inquiry to learn content	All lesson in the overall unit (either original or identified from other sources) are differentiated but still allow for engagement with scientific inquiry to learn content
2c - Design instruction and assessment strategies that confront and address naïve concepts/preconceptions.	Unit plan does not engage students preconceptions (naïve and misconceptions)	Lesson and activities engage commonly identified students preconceptions (naïve and misconceptions) BUT Do not have students make their own preconceptions explicit	Students are required to participate in describing or identifying their preconceptions as part of diagnostic assessments AND Lesson and activities engage commonly identified students preconceptions (naïve and misconceptions)	Students are required to participate in describing or identifying their preconceptions as part of diagnostic assessments AND Lesson and activities engage commonly identified students preconceptions (naïve and misconceptions) AND

Standard	Unsatisfactory	Acceptable	Target	Accomplished
				Formative and summative assessments document changes in student conceptions as a result of the lesson

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 http://oai.gmu.edu/the-mason-honor-code/).
- Students must follow the university policy for Responsible Use of Computing (see http://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://ods.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 Tk20 should be directed to tk20help@gmu.edu or https://cehd.gmu.edu/aero/tk20. Questions or concerns regarding use of Blackboard should be directed to http://coursessupport.gmu.edu/.
- The Writing Center provides a variety of resources and services (e.g., tutoring, workshops, writing guides, handbooks) intended to support students as they work to construct and share knowledge through writing (see http://writingcenter.gmu.edu/).
- The Counseling and Psychological Services (CAPS) staff consists of professional counseling and clinical psychologists, social workers, and counselors who offer a wide range of services (e.g., individual and group counseling, workshops and outreach programs) to enhance students' personal experience and academic performance (see http://caps.gmu.edu/).
- The Student Support & Advocacy Center staff helps students develop and maintain healthy lifestyles through confidential one-on-one support as well as through interactive programs and resources. Some of the topics they address are healthy relationships, stress management, nutrition, sexual assault, drug and alcohol use, and sexual health (see http://ssac.gmu.edu/). Students in need of these services may contact the office by

phone at 703-993-3686. Concerned students, faculty and staff may also make a referral to express concern for the safety or well-being of a Mason student or the community by going to http://ssac.gmu.edu/make-a-referral/.

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