George Mason University
College of Education and Human Development
Secondary Education Program

EDCI 572 001 – Teaching Mathematics in Secondary School
3 Credits, Fall, 2017
Mondays, 4:30-7:10, Innovation Hall 328 – Fairfax Campus

Faculty

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Prerequisites/Corequisites

None

University Catalog Course Description

This course emphasizes developing different styles of teaching and covers curricula, current issues, and research literature in secondary school mathematics. School-based field experience required.

Course Overview

As a future secondary mathematics teacher, you have the opportunity to shape the future. You can play an important role in the development of adolescents and have an influence on the way in which they come to understand the world in which they live. You can help students to develop strong understandings of mathematics and its uses, understandings that are foundational for work beyond high school. Further, you can shape their dispositions toward learning mathematics. You have chosen an amazing and rewarding career path!

In this course, you will come to develop knowledge, skills, and understandings that will be useful to you in your work as a secondary mathematics teacher. Though there are no "easy recipes" for helping students learn mathematics, research has identified *characteristics* of effective mathematics teaching. Throughout the semester, we will explore these characteristics and ways in which you can incorporate them into your teaching. You will learn how to be reflective about your work and that of other teachers so that you can continue to draw on and build upon the knowledge and understandings you gain in this course throughout your career as a secondary mathematics teacher who is equipped to help *all* children thrive in secondary mathematics classrooms

Course Delivery Method

This course will be delivered using a lecture format.

Learner Outcomes

Success in this course is measured by the degree to which students are able to:

- Demonstrate an understanding of the ways in which secondary students develop strong, usable understandings of secondary mathematics content (NCTM SPA Standard 2; CEHD Core Value of Research-Based Practice)
- Analyze instruction and instructional materials for their potential to promote student learning of secondary mathematics content in diverse settings (NCTM SPA Indicator 3c; NCTM SPA Standards 4, 5, 6; CEHD Core Value of Research-Based Practice and Social Justice)
- Design tasks, including those that rely on technology, that foster the development of deep understanding of secondary mathematics concepts (NCTM SPA Indicators 3c, 4e, 5b; CEHD Core Values of Research-Based Practice and Innovation)
- Justify instructional decisions by reference to research findings, national standards, and learning theory (NCTM SPA Indicators 3a, 3b, 3c; NCTM SPA Standards 4, 6; CEHD Core Values of Collaboration and Research- Based Practice)
- Demonstrate the dispositions appropriate to work as a secondary mathematics teacher (NCTM SPA Standard 6; CEHD Professional Dispositions)
- Continue to develop their own knowledge of mathematics and problem solving ability as they explore mathematics from the perspective of a teacher and student (NCTM SPA Standards 1, 2, NCTM SPA Indicators 3a, 3b; CEHD Core Value of Innovation)
- Analyze different perspectives on mathematics teaching and learning (NCTM SPA Indicator 3.6; CEHD Core Value of Research-Based Practice)
- Develop knowledge, skills, and professional behaviors across secondary settings, examine the nature of mathematics, how mathematics should be taught, and how students learn mathematics; and observe and analyze a range of approaches to mathematics teaching and learning (NCTM SPA Indicator 7c; CEHD Core Value of Research-Based Practice)

Professional Standards

This course aligns to the professional standards as outlined by the National Council for Teacher of Mathematics and Council for the Accreditation of Educator Preparation ("NCTM SPA Standards and Indicators)

Upon completion of this course, students will have met the NCTM SPA professional standards 2-7 as detailed under Course Outcomes above.

Required Texts

Cardone, T., & MToBS. (2015). *Nix the tricks: A guide to avoiding shortcuts that cut out math concept development.* Creative Commons.
***Download this resource for free at* http://nixthetricks.com/Download.html

Donovan, M. S., & Bransford, J. D. (2005). *How students learn: Mathematics in the classroom.* Washington, D.C.: The National Academies Press.
*** Download this resource for free at* https://www.nap.edu/catalog/11101/how-students-learn-mathematics-in-the-classroom

Kilpatrick, J., Swafford, J., & Findell, B. (2001). *Adding it up: Helping children learn mathematics*. Washington, D.C.: The National Academies Press.
***Download this resource for free at* http://www.nap.edu/catalog.php?record_id=9822

National Council of Teachers of Matheamtics. (2014). *Principles to actions : ensuring mathematical success for all*. Reston, VA :NCTM.
****Download available here for $4.99*: http://www.nctm.org/store/Products/(eBook)-Principles-to-Actions-(PDF-Downloads)/

National Governors Association Center for Best Practices, Council of Chief State School Officers. (2010). *Common Core State Standards Mathematics.* National Governors Association Center for Best Practices, Council of Chief State School Officers, Washington D.C. Retrieved from: http://www.corestandards.org/Math

Virginia Standards of Learning and Testing, Mathematics 2016. Retrieved from: http://www.doe.virginia.gov/testing/sol/standards_docs/mathematics/2016/index.shtml

Wieman, R., & Arbaugh, F. (2013). *Success from the start: Your first years teaching secondary mathematics*. National Council of Teachers of Mathematics.

Required Software

GoReact is an online software that allows you to upload teaching footage, analyze, and engage with feedback from the instructor and other colleagues. Goreact costs $19.99 per course or $99 for unlimited use for five years. To sign up and receive more details visit: https://get.goreact.com/

Recommended Purchase

NCTM Student Membership ($48/year) - A student e-membership is designed for those enrolled in an accredited college or university as a full-time student with an interest in mathematics education. Set up at half the cost of a full individual membership, this option helps provide students an entry into the membership and how NCTM can help support you through graduation, first years of teaching, and beyond. Student members also get FREE registration to NCTM Regional Conferences and Expositions. Click the link for additional details: http://www.nctm.org/Membership/Membership-Options-for-Individuals/

Course Performance Evaluation

Students are expected to submit all assignments on time in the manner outlined by the instructor (e.g., Blackboard or Tk20). Hard copies of materials are NOT accepted.

Assignments and/or Examinations

The following assignments will help us to gauge your development throughout the course:

Assessment	Percentage of Grade:
Participation and Preparation (including weekly assignments and readings)	10%
Mathematics Autobiography and Revision	10%
Procedural/Conceptual Assignment	10%
Problem Lead**	15%
Field Work Assignments	10%
Clinical Interview	15%
Lesson Plans and Related Assignments	20%

**Problem Leads will occur at various times in the semester

Mathematics Autobiography
John Graham's famous quote states, "We teach who we are." Contemporary research in mathematics education finds this to be especially true for secondary mathematics teachers. It is important to examine our own assumptions about teaching and learning mathematics as result of our leaning experiences. In this activity, you will spend some time reflecting on your personal experiences as a mathematics learner. You will use your responses as part of a reflection activity later in the semester.

Procedural/Conceptual Assignment
Individuals can understand mathematics in different ways. In order to demonstrate proficiency in mathematics, one needs, among other things, both procedural knowledge and conceptual understanding of mathematics. Teachers need to design lessons that develop both. A first step is outlining what those terms mean with respect to the concept a teacher is about to teach. In this assignment, you will have the opportunity to analyze a mathematical concept and to explain what it means to have procedural knowledge and conceptual understanding of that concept.

Problem Lead
This assignment will give you a chance to test your skills in leading work and discussion on a mathematics problem. Given a mathematics problem, learning goal, and conceptual explanation for the mathematics via *Nix the Tricks* and your lesson plan assignment, you will prepare a 20-minute activity, facilitate it for the class, record the facilitation, and upload to GoReact. After the activity, you will analyze your video in GoReact and reflect upon the effectiveness of the approach you used to engage your peers in work with mathematical content.

Field Work Assignments
One of the most valuable pieces of pre-service teacher training is the opportunity to do field work. You will complete 15 hours of field work and keep a log of these hours for submission at the end of the semester.
Throughout the semester, you will be required to complete smaller assignments during your field work. These assignments provide you with opportunities to reflect upon the practice of teaching after having watched instances of teaching in real world settings.

Clinical Interview
Effective teaching requires a keen awareness of how and what your students are thinking and understanding. The experience of conducting a clinical interview is intended to increase your awareness of the forms of questioning and engagement that offer insight into the thinking of your students. Conduct a clinical interview with a student, or if necessary, an adult about a carefully chosen problem or activity in mathematics.

Lesson Plan Assignment and Presentation
Throughout the semester, you will explore many issues related to the teaching and learning of mathematics. In this culminating assignment, you will have the opportunity to use the knowledge, skills, and understandings you have gained in the creation of two consecutive lesson plans (One will be assessed to meet CEHD PBA requirements). Within these lessons, you will attend to the use of technology, the development of student understanding of mathematics content, various standards documents, and problem-based instruction. After submission of the lesson plans, you will present your ideas to your peers so that the entire class can begin to create a collection of teaching ideas for various content areas within secondary mathematics. You must meet minimum standard on this, or you will be asked to resubmit.

Other Requirements

Participation and Preparation
The participation of each class member is vitally important. If you do not come prepared to discuss the readings, to share you work on a given assignment, and to participate in the activities of the day, the quality of the class suffers. You **must** commit to coming to every class on time, being prepared for the evening's activities, and being ready to participate. You can expect that, in addition to work on the larger projects outlined below, there will be weekly readings and assignments that will fall into this category. If, however, there is an emergency and you cannot make it to class, you **must email me ahead of time** and submit all assignments electronically before the end of class.

Due Dates, Late Assignments, and Revised Assignments
Due Dates: All assignments are due by 11:59pm on the due date.
Late Assignments: If an assignment is not uploaded by 11:59pm of the date assigned, and you have not contacted me to receive an extension, then the assignment will be considered late. All late assignments will receive a *one-letter grade penalty*. If you know that you are going to have an issue with completing an assignment on time, please **notify me ahead of time** to avoid this late grade penalty.
Revised Assignments: When students earn less than 80% on an assignment, I offer them the opportunity to revise and resubmit. As long as students meet the guidelines for resubmission, students may earn up to 75% of the missed points on the assignment. Please keep in mind that it requires additional work to grade revised assignments, so they will require additional time to re-grade.

- **Grading**

Final course grades will be assigned based upon weighted percentages as indicated by the Course Expectations.

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

Professional Dispositions
See https://cehd.gmu.edu/students/polices-procedures/

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

a. Students must adhere to the guidelines of the Mason Honor Code (see https://catalog.gmu.edu/policies/honor-code-system/).

b. Students must follow the university policy for Responsible Use of Computing (see http://universitypolicy.gmu.edu/policies/responsible-use-of-computing/).
c. 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.
d. 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/).
e. Students must silence all sound emitting devices during class unless otherwise authorized by the instructor.

Campus Resources

f. Support for submission of assignments to Tk20 should be directed to tk20help@gmu.eduor https://cehd.gmu.edu/aero/tk20. Questions or concerns regarding use of Blackboard should be directed to http://coursessupport.gmu.edu/.
g. For information on student support resources on campus, see https://ctfe.gmu.edu/teaching/student-support-resources-on-campus

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

Class Schedule

Note: Faculty reserves the right to alter the schedule as necessary, with adequate notification to students. The dates of assignments are subject to change dependent on the progress of the course. I will not move due dates for major assignments to an earlier date, only a later date if necessary. Additional smaller assignments and readings may be made each week. Additionally, at times different students will read different readings and share their understandings with the class. All readings noted with "see Bb site" will be available on Blackboard at least a week before they are to be read for class.

Date	Topic	Readings	Assignment Due
Week 1 August 27	**Course Introduction & Nature of Mathematics Mathematics Identities**	Wieman & Arbaugh Chapter 1 PtA (Progress and Challenges), pp. 1-5 Aguire, Mayfield-Ingram, & Martin (2014) - See course site	
Sept 3	**Labor Day – No Class**		
Sept 10	**The Learning of Mathematics**	All: Wieman & Arbaugh, Chapter 2 All: *NtT* Introduction (pp. 1-3) Group A: Donovan & Bransford, pp. 217-238 Group B: Kilpatrick et al. pp. 115-135	**Mathematics Autobiography due** **(upload to Blackboard)**
Sept 17	**The Teaching of Mathematics** **Selecting Rich Mathematical Tasks**	Wieman & Arbaugh, Chapters 3 and 6 *PtA*, pp. 12-23	**Select topic for problem lead; locate topic in *NtT* text**
Sept 24	**Technology, Manipulatives, and Differentiation**	*PtA* (Technology and Tools), pp. 78-88 Wieman & Arbaugh, pp. 183-187	**Position Paper #1 due to Blackboard by Sept 29**
Oct 1	**Technology, Manipulatives, and Differentiation**	Online manipulatives & Geogebra exploration see Bb for directions	**Problem Lead task & presentation outline due**
Oct 9 ****Class will meet on Tuesday in observance of 10/8 campus closure**	**Instructional Design and Learning Objectives** • NCTM Curricular Standards • Virginia Standards of Learning • Common Core Standards	**Bring laptop to class (if possible) to explore standards PtA (Curriculum) pp. 70-78 Charles article (Big Ideas in Elementary &	**Procedural/Conceptual Assignment Due**

		Middle School Math) – see Bb for article	
Oct 15 Asynchronous Meeting	**Planning for Instruction** Components of Lesson Plans • Lesson Plan Components • Launching Lessons • Effectively Summarizing Lessons	Wieman & Arbaugh Chapter 7 Smith, Bill, & Hughes article - see Bb	**Position Paper #2 due to Blackboard by Oct. 20**
Oct 22	**Planning for Instruction - Enacting & Reflecting on a Lesson**	Wieman & Arbaugh Chapters 8 & 9	**At least 7 hours of field work should be completed**
Oct 29	**Planning for Instruction (Continued)** **Establishing a Learning Environment Conducive to Student Engagement** • Classroom set-up • Role of Discourse • Effective Questioning • Cooperative Learning	Reinhart (2000) – see Bb for article *PtA*, pp. 29-41	**Draft of lesson plan #1 due (in-class workshop)**
Nov 5	**Focus On Algebra – Part 1** • Algebraic Ideas in the Middle Grades • Algebra as a Gatekeeper	Choike (2000) NCTM (Big Ideas of Algebra 6-8) – see Bb site for articles	
Nov 12	**Focus On Algebra – Part 2** • Big Ideas • Algebraic Habits of Mind	Kinach (2014) Driscoll (1999) See Bb for articles	
Nov 19	**Focus On Algebra – Part 3** • Role of Representations (Rule of 4) Functions Approach	See Bb for articles	
Nov 26	**Advanced Mathematics** • Precalculus • Trigonometry • Calculus	Select 2 Articles from the selected texts on Bb	
Dec 3	**Lesson Plan Presentations and Revisiting our Mathematics Autobiographies** **Looking Ahead to Methods 2**		**All field work completed** with accompanying assignments and log sheet - **Upload to Blackboard)**
Dec 10	**No Class – complete and submit final assignments**		**Lesson Plan Assignment Due by December 16**

Class Schedule

Note: Faculty reserves the right to alter the schedule as necessary, with adequate notification to students. The dates of assignments are subject to change dependent on the progress of the course. I will not move due dates for major assignments to an earlier date, only a later date if necessary. Additional smaller assignments and readings may be made each week. Additionally, at times different students will read different readings and share their understandings with the class. All readings noted with "see Bb site" will be available on Blackboard at least a week before they are to be read for class.

Procedural Conceptual Rubric

***NCTM* Standard 1: Content Knowledge** Effective teachers of secondary mathematics demonstrate and apply knowledge of major mathematics concepts, algorithms, procedures, connections, and applications within and among mathematical content domains. Preservice teacher candidates: 1a) Demonstrate and apply knowledge of major mathematics concepts, algorithms, procedures, applications in varied contexts, and connections within and among mathematical domains (Number, Algebra, Geometry, Trigonometry, Statistics, Probability, Calculus, and Discrete Mathematics) as outlined in the NCTM CAEP Mathematics Content for Secondary.				
NCTM CAEP Sub-Element Alignment	**Does Not Meet Expectations (1)**	**Approaches Expectations (2)**	**Meets Expectations (3)**	**Exceeds Expectations (4)**
Content Standard A.1.1.a	Paper does not address properties, relationships, operations, and representations of division of whole numbers with minor lapses of clarity.	Paper minimally addresses properties, relationships, operations, and representations of division of whole numbers OR addresses them with a lack of clarity.	Paper addresses properties, relationships, operations, and representations of division for whole numbers with minor lapses of clarity.	Paper clearly addresses properties, relationships, operations, and representations of division of whole numbers.
Content Standard A.1.1.b	Paper does not address properties, relationships, operations, and representations of division of integers with minor lapses of clarity.	Paper minimally addresses properties, relationships, operations, and representations of division of integers OR addresses them with a lack of clarity.	Paper addresses properties, relationships, operations, and representations of division of integers with minor lapses of clarity.	Paper clearly addresses properties, relationships, operations, and representations of division of integers.

Content Standard A.1.1.c	Paper does not address properties, relationships, operations, and representations of division of rational numbers with minor lapses of clarity.	Paper minimally addresses properties, relationships, operations, and representations of division of rational numbers OR addresses them with a lack of clarity.	Paper addresses properties, relationships, operations, and representations of division of rational numbers with minor lapses of clarity.	Paper clearly addresses properties, relationships, operations, and representations of division of rational numbers.
			Mean Score for Standard 1	
***NCTM* Standard 2: Mathematical Practices** Candidates solve problems, represent mathematical ideas, reason, prove, use mathematical models, attend to precision, identify elements of structure, generalize, engage in mathematical communication, and make connections as essential mathematical practices. *Candidates engage in the following:*				
NCTM CAEP Sub-Element Alignment	**Does Not Meet Expectations (1)**	**Approaches Expectations (2)**	**Meets Expectations (3)**	**Exceeds Expectations (4)**
2a.1	Examples in the paper provide no evidence of use of problem solving to develop conceptual understanding.	Examples in the paper include limited or unclear examples of problem solving to develop conceptual understanding	Examples in the paper include examples that use problem solving to develop conceptual understanding.	Examples in the paper include examples that use problem solving and to develop conceptual understanding.
2a.2	Examples in the paper do not show evidence of connections to the field of mathematics or real-world contexts	Examples in the paper do not promote problem solving, or they only connect to the field of mathematics	Examples in the paper promote problem solving within the field of mathematics. The candidate makes connections in real-world contexts.	Examples in the paper promote problem solving activities within the field of mathematics and to connections in real-world contexts.
2a.3	Examples in the paper offer few opportunities to adapt and present a variety	Examples in the paper offer opportunities to solve problems and to	Examples in the paper create opportunities to adapt and present a variety	Examples in the paper consistently create opportunities to adapt and

	of problem solving strategies and to make sense of problems and persevere in solving them.	make sense of them and persevere in solving them; however, a variety of problems are lacking.	of problem solving strategies and lead to making sense of problems and persevere in solving them.	present a variety of problem solving strategies and to make sense of problems and persevere in solving them.
2a.4	Examples in the paper include opportunities to formulate and test conjectures in order to frame generalizations.	Examples in the paper include discovery but lack the proper foundation to frame generalizations.	Lessons and instruction include an opportunity for candidate to formulate and test conjectures in order to frame generalizations.	Examples in the paper include opportunities that allow candidate to formulate and test conjectures in order to frame generalizations
2b.1	Examples presented in the paper allow opportunities to reason abstractly and quantitatively with attention to precision.	Examples presented in the paper allow opportunities to reason abstractly and quantitatively with attention to precision, yet inappropriate strategies or flawed arguments are within the presentation.	Examples presented in the paper primarily allow support opportunities to communicate mathematical reasoning with clarity, precision, and logical order.	Examples presented in the paper consistently allow opportunities to reason abstractly, reflectively, and quantitatively with attention to units.
2b.2	Candidate does not select examples that lead them to represent or model generalizations using mathematical reasoning.	Candidate rarely selects examples that lead them to represent or model generalizations using mathematical reasoning.	Candidate often selects examples that lead them to represent and model generalizations using mathematical reasoning.	Candidate consistently selects examples that lead them to to represent and model generalizations and to recognize patterns of mathematical reasoning.
2b.3	Lessons and instruction only allow student to communicate mathematical ideas using a single representation (e.g., only symbolic representation).	Lessons and instruction allow for communication using more than one representation, but no connections are made between/among the representations.	Lessons and instruction mostly require student communication and connections across a variety of representations.	Lessons and instruction consistently require student communication and connections across a variety of representations.

2b.4	Candidate does not use appropriate vocabulary and symbols to communicate mathematical ideas to other.	Candidate rarely uses appropriate vocabulary and symbols to communicate mathematical ideas.	Candidate primarily uses appropriate vocabulary and symbols to communicate mathematical ideas to others.	Candidate primarily uses appropriate vocabulary and symbols to communicate mathematical ideas to others.
2c.1	Lessons and instruction are not designed to recognize mathematical models derived from real-world contexts.	Lessons and instruction incorporate real-world contexts, but do not require students to formulate and represent them.	Lessons and instruction provide opportunities for students to formulate and represent mathematical models derived from real-world contexts.	Lessons and instruction provide opportunities for students to formulate and represent mathematical models derived from real-world contexts and to build mathematical understanding from the models.
2c.2	Examples provided in the paper would not lead students to recognize mathematical models derived from real-world contexts.	Examples provided in the paper incorporate real-world contexts, but would not require students to analyze and interpret them.	Examples provided in the paper would lead students to analyze and interpret mathematical models derived from real-world contexts.	Examples provided in the paper would provide opportunities for students to analyze and interpret mathematical models derived from real-world contexts and to build mathematical understanding from the models.
2d	Candidate does not organize thinking and use precise mathematical language.	Candidate minimally thinking and rarely use the language of mathematics to precisely communicate to multiple audiences.	Candidate organizes thinking and often uses the language of mathematics to precisely communicate ideas.	Candidate organizes thinking and consistently uses the language of mathematics to precisely communicate ideas to multiple audiences.

2e.1	Candidate not demonstrate the interconnectedness of mathematical ideas (i.e., division across sets of numbers) and how they build on each other.	Candidate minimally demonstrates the interconnectedness of mathematical ideas (i.e., division across sets of numbers) OR does show how they build on each other.	Candidate often demonstrate the interconnectedness of mathematical ideas (i.e., division across sets of numbers) and how they build on each other.	Candidate consistently demonstrates the interconnectedness of mathematical ideas (i.e., division across sets of numbers)and how they build on each other.
2e.2	Candidate does not apply mathematical connections among mathematical ideas and across various content areas and real-world contexts	Candidate rarely applies mathematical connections among mathematical ideas but not across various content areas and real-world contexts	Candidate often applies mathematical connections among mathematical ideas and across various content areas and real-world contexts.	Candidate consistently applies mathematical connections among mathematical ideas and across various content areas and real-world contexts.
2f	Candidate does not model how development of mathematical understanding within this mathematical domain intersects with the mathematics practices of problem solving, reasoning communicating, connecting, and representing.	Candidate models how the development of mathematical understanding within and among this mathematical domain intersects with *some* the mathematics practices of problem solving, reasoning communicating, connecting, and representing.	Candidate models how the development of mathematical understanding within this mathematical domain intersects with ***most*** of the mathematics practices of problem solving, reasoning communicating, connecting, and representing.	Candidate models how the development of mathematical understanding within and among mathematical domains intersects with ***all*** of the mathematics practices of problem solving, reasoning communicating, connecting, and representing.
			Mean Score for Standard 2	
			OVERALL MEAN SCORE	

LESSON PLANNING ASSESSMENT TASK

George Mason University College of Education and Human Development Secondary Education Program

EDCI 567 | EDCI 469/569 | EDCI 372/572 | EDCI 473/573

In the SEED program, the Lesson Planning Assessment is completed during Methods I and is assessed by the Methods I course instructor. The candidate must earn a score of 3 to be successful on this assignment. If a candidate does not earn a 3 on the assignment, they must meet with the course instructor or assessor prior to resubmitting. The data from this assessment are used to identify both best practice and identified gaps in developing and assessing a specific lesson plan and the impact on student learning.

STANDARDS

- **InTASC Standards**: 1, 3, 4, 5, 6, 7, 8, 9
- **CAEP Standards:** 1.1, 1.3, 1.4, 1.5
- **VDOE Standards:** 1, 2, 3, 4, 6

THEMES

-  **Technology**
-  **Diversity**
-  **College & Career Ready**

ASSESSMENT OBJECTIVE: The candidate will develop a research-supported lesson plan that effectively meets the needs of a specific population of learners.

RATIONALE

It is important that teacher candidates demonstrate their ability to design an effective lesson plan with specific, performance-based learning objectives that meet the learning needs of their learners. Lesson planning can be guided by four basic questions (adapted from Spencer, 2003):

1. *Who are my learners?* (Consider the number of learners, their academic readiness levels and cultural background, and prior knowledge, etc.)
2. *What do I want my learners to learn?* (Consider the content or subject (and interdisciplinary connections), the type of learning (knowledge, skills, behaviors), how to integrate college and career ready standards, etc.)
3. *How will I know what the learners understand?* (Consider the informal and formal assessments, formative and summative, higher order questioning techniques, feedback from learners, etc.)
4. *How will my learners learn best?* (Consider the teaching models, learning strategies, length of time available, materials, technology resources, differentiation, modifications, etc.)

You might also want to ask:

- What knowledge, skills, and understandings do my learners already have?
- What knowledge or prerequisite skills do I need to access, activate or build in this lesson? How will I access those prerequisite skills or activate that prior knowledge?
- Where have learners come from and what are they going on to next?
- How can I build in sufficient flexibility to respond to emergent needs indicated by ongoing observation and formative assessment?

During field experiences and the internship, a lesson plan must be developed for each teaching session. As a novice teacher, lesson plans are developed for each instructional episode (lesson, one-to-one instruction, and small group activity). When teaching new content or grade levels, your lesson plans will be more detailed. As you gain pedagogical content knowledge and are proficient, your lesson planning becomes less detailed. Part of the planning process includes considering the following tasks:

- list content and key concepts (research more if needed)
- define your aims and identify specific learning objectives/goals/outcomes aligned to appropriate curriculum standards, Virginia SOLs, ASOLs, and/or College-and-Career-Ready standards

- create assessments that are aligned to your specific learning objectives/goals/outcomes
- think about the structure of the lesson, pacing, and transitions, use of technology

- identify the strengths and needs of all learners
- identify adaptations/modifications/extensions needed to meet learner needs
- determine "best practice" and learning strategies aligned to the learning objectives/goals/outcomes
- identify learning resources and support materials, including technology

ASSIGNMENT DIRECTIONS

Develop and teach a lesson plan using the template attached. Review the rubric to guide the development of your lesson plan.

Section 1: Classroom Context (1/2 – 1 page)

Classroom decisions are made based upon your learners' strengths and needs. Your plan may vary based upon when in a unit of instruction the lesson takes place, and even the time of the lesson. In this section, you will provide basic information about your learners and classroom—including academic and cultural backgrounds and prior knowledge, including any assessments that will guide your planning. Make certain to address how your knowledge of your learners will affect your planning.

Section 2: Planning for Instruction (1-2 pages)

Before you teach a lesson, you must decide the learning objectives/goals/outcomes and connection to Virginia SOLs, ASOL.s and/or College-and-Career-Ready standards you will use and why have you selected these objectives and specific strategies to teach the lesson to your specific group of learners. You make these decisions based upon your learners, current research, contemporary meaningful ways, prior knowledge or pre-assessments of learning, aligned to appropriate curriculum standards. While planning your lesson, using your knowledge of your learners, you will make decisions as to the modification/differentiation and/or accommodations you will need to meet the needs of all learners in your classroom. Then, with an informed understanding of your audience and your content, identify the learning materials needed to teach the lesson and any technology you and/or your learners will use in this lesson. In this section, be sure to detail all of these planning elements, including how you will assess learner mastery of lesson content-both formatively throughout the lesson, and any summative assessment you might use. (Virginia Standards of Learning (SOLs), ASOLs, and/or College-and-Career Ready skills, and any content specific objectives should be included in lesson plans.)

Section 3: Instruction (2-3 pages)

After you have identified *what* your class will learn, you will begin to chart out specifically *how* you will teach the lesson. When completing this section of the lesson plan, you will identify the procedures you will use from the opening of the lesson through the lesson closure. Script this section of the plan, noting what you will say and do and what you are asking learners to do. Be certain to include formative assessments and guided practice activities and any independent practice and summative assessments you will have learners complete.

Section 4: Reflection after Instruction: Impact on Learning (1 page)

As John Dewey noted, without reflection, there is no learning. In this section, reflect upon the lesson and consider if your learners were able to meet the learning objectives/goals/outcomes for the lesson. How do you know learners were able to successfully meet the lesson objectives/goals/outcomes? (Be specific here and use formative/summative assessment results to guide your response). What was your impact on learning? (i.e., how did your instructional decisions seem to affect learning? Again, be specific.) What strategies or activities were the most successful? What could have made the lesson stronger? What did you learn about teaching, learners, and learning that will affect your next teaching experience?

NOTE: Lesson plans will be evaluated based on adherence to the provided lesson plan format; consistency with instructional methods taught in the program; appropriate rationale provided; specification of objectives, as related to state and national standards; appropriate match between assessment of learning and learning objectives; coherence of writing and mechanics. Additionally, plans should include the Virginia Standards of Learning (SOLs), College-and-Career-Ready skills, and other content specific objectives.

REFERENCES

Dewey, J. (1933). *How we think. A restatement of the relation of reflective thinking to the educative process* (Revised edn.), Boston: D. C. Heath.

Spencer, J. (2003). *Learning and teaching in the clinical environment*. London, England: BMJ Publishing Group.

LESSON PLANNING ASSESSMENT RUBRIC

George Mason University College of Education and Human Development Secondary Education Program

EDCI 567 | EDCI 469/569 | EDCI 372/572 | EDCI 473/573

In the SEED program, the Lesson Planning Assessment is completed during Methods I and is assessed by the Methods I course instructor. The candidate must earn a score of 3 to be successful on this assignment. If a candidate does not earn a 3 on the assignment, they must meet with the course instructor or assessor prior to resubmitting. The data from this assessment are used to identify both best practice and identified gaps in developing and assessing a specific lesson plan and the impact on student learning.

SCORING GUIDELINES

- **4 (Exceeds Standard):** Candidates receive a score of 4 if they perform beyond the expectations of candidates at this point in their programs. There is evidence that candidates have done additional research, identified additional resources, and/or demonstrate exceptional understanding and application of the standard.
- **3 (Meets Standard):** This is the **TARGET** score. This score reflects that candidates have met the standard at the level expected at this point in their program. Candidates who receive a 3 have successfully met the standard.
- **2 (Approaches Standard):** Candidates receive this score when their understanding and effort does not meet the target but shows basic understanding of the content being assessed.
- **1 (Does Not Meet Standard):** Candidates who do not submit work, and/or who submit work that is clearly below the expectations for a candidate at this point in their program.

Performance	Does Not Meet Standard (1)	Approaches Standard (2)	Meets Standard (3)	Exceeds Standard (4)
SECTION 1: CLASSROOM CONTEXT				
The candidate identifies individual and group prerequisites in order to design instruction to meet learners' needs in the following areas of development: cognitive, linguistic, social, emotional, and physical.	Candidate does not design instruction to meet learners' needs in each area of development.	Candidate identifies individual or group prerequisites to design instruction that meet learner needs in some areas of development.	Candidate identifies individual and group prerequisites to design instruction that meet learner needs in each area of development.	Candidate identifies specific individual and group prerequisites to design effective instruction to meet learner needs in each area of development. The candidate includes strategies to address these prerequisites within the lesson, as well as anticipated

InTASC 1; VDOE 1 				learner responses to these strategies.
SECTION 2: PLANNING FOR INSTRUCTION				
The candidate identifies performance-based objectives and/or appropriate curriculum goals/outcomes that are relevant to learners. **InTASC 7; VDOE 2**	Candidate does not identify performance-based objectives and appropriate curriculum goals/ outcomes that are relevant to learners.	Candidate identifies objectives and appropriate curriculum goals/ outcomes but they are not appropriate for the subject, grade level, or the learners.	Candidate identifies performance-based objectives and appropriate curriculum goals/outcomes which are appropriate for the subject, grade level, or the learners.	Candidate identifies well-developed, performance-based objectives, curriculum goals/outcomes that are appropriate for subject and/or grade level and learners; correctly formulated; and address multiple areas of relevance to the learners.

Performance	Does Not Meet Standard (1)	Approaches Standard (2)	Meets Standard (3)	Exceeds Standard (4)
The candidate identifies national/state/ local standards that align with objectives, are appropriate for curriculum goals, and are relevant to learners. **InTASC 7; VDOE 2** 	Candidate does not identify national/state/local standards that align with the objectives/goals/ outcomes or the standards are not appropriate for curriculum goals or are not relevant to learners.	Candidate identifies national/ state/local standards but the standards are not aligned with the objectives/goals/outcomes and/or marginally relevant to learners.	Candidate identifies national/ state/local standards that are aligned with the objectives/goals/outcomes and relevant to learners.	Candidate identifies national/ state/local standards that are clearly aligned with the objectives/goals/ outcomes and relevant to learners. The candidate provides a statement of rationale for the alignment of these goals with the learning objective.
The candidate creates learning experiences that make content accessible and meaningful for	Candidate conveys a negative attitude toward the content and suggests that the content is not	Candidate communicates importance of the work but with little conviction and only	Candidate conveys enthusiasm for the content, and learners demonstrate commitment to its	Candidate conveys genuine enthusiasm for the content, and learners demonstrate

learners to ensure content mastery. **InTASC 4; VDOE 1** 	important or was mandated by others.	minimal apparent buy-in by the learners. Candidate accepts responsibility for the success of learning but has only a limited repertoire of instructional strategies.	value. Candidate accepts responsibility for the success of all learners through a repertoire of instructional strategies.	consistent commitment to its value. Learners demonstrate through their active participation, curiosity, and taking initiative that they value the importance of the content.
The candidate organizes and creates face-to-face and virtual environments that support individual and collaborative learning. **InTASC 3; VDOE 5** 	There is little, if any, evidence of routines, procedures, or proactive actions to establish a climate for learning.	Candidate recognizes the value of a learner-centered classroom but the application of these tenets are not applied in all management situations.	The classroom is a learner-centered environment that is a safe and positive environment for learning. The classroom environment supports individual and collaborative learning.	The classroom conveys a safe, positive, and inclusive environment that is learner-centered, supports individual and collaborative learning and meets the needs of both the group and individual learners. Structures are incorporated that enable learners to guide their own learning experiences.
The candidate seeks appropriate ways to employ technology to engage learners and to assess and address learner needs. **InTASC 6; VDOE 4** 	Candidate does not identify appropriate technology to engage learners even though it was available.	Candidate identifies technology to engage learners though the technology would be ineffective to teach the content and address learner needs.	Candidate identifies appropriate technology to engage learners more fully, assess, and address learner needs.	Candidate identifies effective and appropriate technology to engage learners more fully, assess, and creatively meet learning needs.
The candidate facilitates learners' use of appropriate tools and resources to maximize content learning in varied contexts.	Candidate's plans do not provide evidence of opportunities for learners' use of appropriate tools or technology resources to	Candidate's plans provide evidence of opportunities for learners' use of appropriate tools and resources but are ineffective to maximize content learning in varied contexts.	Candidate's plans provide evidence of opportunities for learners' use of appropriate tools and resources that are effective to maximize content learning in varied contexts.	Candidate's plans provide substantial evidence of multiple opportunities for learners' use of appropriate tools and resources that are creative and effective to

InTASC 5; VDOE 2 	maximize content learning in varied contexts.			maximize content learning in varied contexts.

Performance	Does Not Meet Standard (1)	Approaches Standard (2)	Meets Standard (3)	Exceeds Standard (4)
The candidate plans how to achieve learning goals, choosing accommodations to differentiate instruction for individuals and groups of learners. **InTASC 7; VDOE 2**	Candidate's lesson plan does not provide evidence of differentiating instruction for individuals and groups of learners. .	Candidate's lesson plan provides evidence of an effort to meet learning goals, and attempts to differentiate instruction for individuals and groups of learners.	Candidate's lesson plan provides evidence of successfully meeting learning goals for each learner, and successfully instruction for individuals and groups of learners.	Candidate's lesson plan provides evidence of successfully meeting each learning goal for each learner, and successfully differentiates instruction for individuals and groups of learners. Reflection on why this differentiation was successful is included.
The candidate plans instruction based on pre-assessment data, prior learning knowledge and skill. **InTASC 7; VDOE 2**	Candidate does not plan instruction based on pre-assessment data, prior learning knowledge, or skills.	Candidate plans instruction based on pre-assessment data, prior learning knowledge, and skills but it was not effective.	Candidate plans instruction based on pre-assessment data, prior learning knowledge, and skills. Pre-assessment strategies/methods are appropriate and effectively assess learners' prior knowledge.	Candidate plans instruction based on pre-assessment strategies/methods that are creative and effective ways to assess learner prior knowledge and skills and to guide instruction.
SECTION 3: INSTRUCTION				
The candidate develops appropriate sequencing and pacing of learning experiences and provides multiple ways to demonstrate knowledge and skill.	Candidate does not plan for appropriate sequencing and pacing of learning experiences. Tasks, methods, strategies are not stated.	Candidate plans for appropriate sequencing and pacing of learning experiences. Tasks, methods and strategies are not stated and/or not appropriate or effective for the lesson.	Candidate plans for appropriate sequencing and pacing of learning experiences. All tasks, methods, and strategies are stated and/or are appropriate and effective for the lesson.	Candidate plans for appropriate sequencing and pacing of learning experiences. Instructional tasks, methods, and strategies include a variety of creative, active learning, instructional strategies that address learner

InTASC 7; VDOE 2				differences to maximize learning.
The candidate uses a variety of instructional strategies to encourage learners to develop an understanding of the content and to apply knowledge in meaningful ways. **InTASC 8; VDOE 3**	The instructional strategies used by the candidate do not encourage an understanding of content.	Candidate uses limited instructional strategies to encourage learners to develop an understanding of the content.	Candidate uses a variety of instructional strategies that encourage learners to develop an understanding of the content and to apply that knowledge in meaningful ways.	Candidate uses pedagogical content knowledge to use a variety of instructional strategies that encourage all learners to develop both an understanding of the content and apply that knowledge in authentic ways.
The candidate engages learners in multiple ways of demonstrating knowledge and skill as part of the assessment process. **InTASC 6; VDOE 4**	Candidate does not use assessment as closure to check for comprehension and learner knowledge and skills.	Candidate uses assessment as closure to demonstrate knowledge and skills to check for comprehension; however, they are inappropriate and/or ineffective (or misaligned).	Candidate uses appropriate assessment strategies as closure to allow learners to demonstrate knowledge and skills to check for understanding.	Candidate uses creative, appropriate assessments throughout the lesson to allow learners to demonstrate knowledge and skills to check for comprehension.

Performance	Does Not Meet Standard (1)	Approaches Standard (2)	Meets Standard (3)	Exceeds Standard (4)
The candidate designs assessments that match learning objectives with assessment methods. **InTASC 6; VDOE 4**	Candidate's lesson design does not include post-assessment strategies or methods.	Candidate's lesson design includes post-assessment strategies or methods but the strategies/methods were not effective.	Candidate's lesson design includes post-assessments that are appropriate to effectively assess learning.	Candidate's ongoing assessments and post-assessment matches learning objectives and includes creative strategies to effectively assess learning and check comprehension throughout the lesson.
SECTION 4: REFLECTION AND IMPACT ON LEARNING				
The candidate understands and knows how to use a variety of self-assessment and problem-solving strategies to analyze and reflect on his/her practice and to plan for adaptations/adjustments. **InTASC 9; VDOE 6**	Candidate's reflection does not demonstrate the use of self-assessment or problem-solving strategies to analyze and reflect on his/her practice.	Candidate's reflection demonstrates the use of self-assessment and/or problem-solving strategies to analyze and reflect on his/her practice but does not plan for adaptations/adjustments.	Candidate's reflection demonstrates a variety of self-assessment and problem-solving strategies to analyze and reflects on his/her practice and to plan for adaptations/adjustments.	Candidate's reflection demonstrates the application of a variety of appropriate self-assessment and problem-solving strategies to analyze and reflect on his/her practice and to effectively plan for adaptations/adjustments.

***NCTM* Standard 2: Mathematical Practices** Candidates solve problems, represent mathematical ideas, reason, prove, use mathematical models, attend to precision, identify elements of structure, generalize, engage in mathematical communication, and make connections as essential mathematical practices. *Plans include opportunities for students to engage in the following:*				
NCTM CAEP Sub-Element Alignment	**Does Not Meet Expectations (1)**	**Approaches Expectations (2)**	**Meets Expectations (3)**	**Exceeds Expectations (4)**
2a.1	Lessons provide no evidence of use of problem solving to develop conceptual understanding.	Lessons include limited or unclear uses of problem solving to develop conceptual understanding	Lessons include activities that use problem solving to develop conceptual understanding.	Lessons include activities that provide students with opportunities to use problem solving and to develop conceptual understanding.
2a.2	Lessons do not show evidence of connections to the field of mathematics or real-world contexts	Lessons do not engage students in problem solving activities or the activities only connect to the field of mathematics	Lessons engage students in problem solving activities within the field of mathematics. The candidate makes connections in real-world contexts.	Lessons engage students in problem solving activities within the field of mathematics and to connections in real-world contexts.
2a.3	Lessons offer few opportunities for students to adapt and present a variety of problem solving strategies and to make sense of problems and persevere in solving them.	Lessons offer opportunities for students to solve problems and to make sense of them and persevere in solving them. Opportunities to present a variety of problem are lacking.	Lessons create opportunities for students to adapt and present a variety of problem solving strategies and often lead to students making sense of problems and persevere in solving them.	Lessons consistently create opportunities for students to adapt and present a variety of problem solving strategies and to make sense of problems and persevere in solving them.
2a.4	Lessons do not include opportunities for students to formulate and test conjectures in order to frame generalizations.	Lessons include experiences that allow for student discovery but lack the proper foundation for students to frame generalizations.	Lessons include an opportunity for students to formulate and test conjectures in order to frame generalizations.	Lessons include several mathematical activities and investigations that allow for students to formulate and test conjectures in order to frame generalizations

2b.1	Lessons are not designed to allow students opportunities to reason abstractly and quantitatively with attention to precision.	Lessons are designed to allow students opportunities to reason abstractly and quantitatively with attention to precision, yet inappropriate strategies or flawed arguments are within the materials.	Lessons support opportunities to communicate mathematical reasoning with clarity, precision, and logical order.	Lessons support opportunities to reason abstractly, reflectively, and quantitatively with attention to units, constructing viable arguments and proofs.
2b.2	Lessons have no evidence of students having opportunity to understand the mathematical reasoning and strategies of others.	Lessons have evidence of attempts for students having opportunities to reason mathematically or understand the strategies of others. Candidate inconsistently interprets the reasoning of his/her student in the analysis or draws limited conclusions.	Lessons have evidence of consistent opportunities for students to reason mathematically and understand the strategies of others. Candidates can meaningfully interpret the reasoning of his/her students.	Lessons have evidence of consistent opportunities for students to reason mathematically and understand the strategies of others. Candidates can meaningfully interpret the reasoning of his/her students.
2b.3	Lessons do not include opportunities for students to represent or model generalizations using mathematical reasoning.	Lessons include very few opportunities for students to represent or model generalizations using mathematical reasoning.	Lessons include opportunities for students to represent and model generalizations using mathematical reasoning.	Lessons are designed around opportunities for students to represent and model generalizations and to recognize patterns of mathematical reasoning.
2b.4	Lessons only allow student to communicate mathematical ideas using a single representation (e.g., only symbolic representation).	Lessons allow for communication using more than one representation, but no connections are made between/among the representations.	Lessons mostly require student communication and connections across a variety of representations.	Lessons consistently require student communication and connections across a variety of representations.

2b.5	Lessons do not provide opportunities for students to use appropriate vocabulary and symbols to communicate mathematical ideas to other.	Lessons provide very few opportunities for students to use appropriate vocabulary and symbols, OR vocabulary is only used in a definitional way so students do not use it to communicate mathematical ideas.	Lessons mostly require students to use appropriate vocabulary and symbols to communicate mathematical ideas to others.	Lessons consistently require students to use appropriate vocabulary and symbols to communicate mathematical ideas to others.
2c.1	Lessons are not designed to recognize mathematical models derived from real-world contexts.	Lessons incorporate real-world contexts, but do not require students to formulate and represent them.	Lessons provide opportunities for students to formulate and represent mathematical models derived from real-world contexts.	Lessons provide opportunities for students to formulate and represent mathematical models derived from real-world contexts and to build mathematical understanding from the models.
2c.2	Lessons are not designed to recognize mathematical models derived from real-world contexts.	Lessons incorporate real-world contexts, but do not require students to analyze and interpret them.	Lessons provide opportunities for students to analyze and interpret mathematical models derived from real-world contexts.	Lessons provide opportunities for students to analyze and interpret mathematical models derived from real-world contexts and to build mathematical understanding from the models.
2d	Lessons do not create opportunities for students to organize thinking and use precise mathematical language.	Lessons minimally allow for students to organize thinking. Students rarely use the language of mathematics to precisely communicate to multiple audiences.	Lessons allow for students to organize thinking and use the language of mathematics to precisely communicate ideas.	Lessons allow for students to organize thinking and use the language of mathematics to precisely communicate ideas to multiple audiences.

2e.1	Lessons do not demonstrate the interconnectedness of mathematical ideas and how they build on each other.	Lessons minimally allow students to demonstrate the interconnectedness of mathematical ideas and do not allow student to show how they build on each other.	Lessons allow students to demonstrate the interconnectedness of mathematical ideas and often allow students to show how they build on each other.	Lessons consistently allow students to demonstrate the interconnectedness of mathematical ideas how they build on each other.
2e.2	Lessons do not allow student to apply mathematical connections among mathematical ideas and across various content areas and real-world contexts	Lessons allow student to apply mathematical connections among mathematical ideas but not across various content areas and real-world contexts	Lessons often allow student to apply mathematical connections among mathematical ideas and across various content areas and real-world contexts.	Lessons consistently allow student to apply mathematical connections among mathematical ideas and across various content areas and real-world contexts.
2f	Lessons do not model how the development of mathematical understanding within and among mathematical domains intersects with the mathematics practices of problem solving, reasoning communicating, connecting, and representing.	Lessons model how the development of mathematical understanding within and among mathematical domains intersects with *some* the mathematics practices of problem solving, reasoning communicating, connecting, and representing.	Lessons model how the development of mathematical understanding within and among mathematical domains intersects with all the mathematics practices of problem solving, reasoning communicating, connecting, and representing.	Lessons model and allow student to model how the development of mathematical understanding within and among mathematical domains intersects with some the mathematics practices of problem solving, reasoning communicating, connecting, and representing.
			Mean Score for Standard 2	
***NCTM* Standard 3: Content Pedagogy** Candidates apply knowledge of curriculum standards for mathematics and their relationship to student learning within and across mathematical domains. They incorporate research-based mathematical experiences and include multiple instructional strategies and mathematics-specific technological tools in their teaching to develop all students' mathematical understanding and proficiency. They provide students with opportunities to do mathematics – talking about it and connecting it to theoretical and real-world contexts. They plan, select, implement, interpret, and use formative and summative assessments for monitoring student learning, measuring student mathematical understanding, and informing practice.				

Lessons and/or narrative include the following:				
3a.	Candidate's goals of instruction are unclear and/or inappropriate.	Candidate identifies the goals of instruction, but do not align them to appropriate curriculum standards.	Candidate's Lessons are appropriate and align with the curricular standards.	Candidate clearly identifies the goals of the instruction and how they align with the appropriate curriculum standards. The candidate identifies learning outcomes based on the standards.
3b	Candidate does consider research in planning for rich mathematical learning experiences in their narrative or lesson plans.	Candidate cites research in planning for rich mathematical learning experiences in narrative, but it is not evident in the lessons.	Candidate cites and considers research in planning for rich mathematical learning experiences as evidenced in their narrative and lessons.	Candidate cites, analyzes, and considers research in planning for rich mathematical learning experiences as evidenced in their narrative and lessons.
3e.1	Lessons do not incorporate selection of high quality tasks.	Lessons rarely incorporate high-quality tasks	Lessons often incorporate high-quality tasks	Lessons consistently incorporate high-quality tasks
3e.2	Candidate does not engage students through guided mathematical discussions.	Candidate rarely engages students in guided mathematical discussions.	Candidate often engage students in guided mathematical discussions.	Candidate consistently engage student in guided mathematical discussions and encourage students to facilitate their own discourse.
3e.3	Lessons do not support students in identifying key mathematical ideas.	Lessons have potential to support students in identifying key mathematical ideas, but candidate does not plan for opportunities for students to conjecture.	Lessons often support students in identifying key mathematical ideas.	Lessons consistently support students in identifying key mathematical ideas.
3f.1	Candidate is not competent in planning, selecting, and implementing formative or summative assessments, as evidenced by materials and narrative.	Candidate is competent in planning, selecting, and implementing summative or formative assessments, but not both, as evidenced by materials and narrative.	Candidate is competent in planning selecting and implementing summative assessments, as evidenced by materials and narrative.	Candidate is competent in planning, selecting, implementing formative and summative assessments to inform instruction, as evidenced in materials and narrative. Candidate uses

				results to inform instructional planning as evidenced in materials and narrative.
3f.2	Candidate is not competent in interpreting and using formative assessments, as evidenced by materials and narrative.	Candidate is competent in interpreting and using formative assessments or summative assessments, but not both, as evidenced by materials and narrative.	Candidate is competent in interpreting and using results of formative and summative assessments to inform instruction by reflecting on mathematical proficiencies essential for all students, as evidenced by materials and narrative.	Candidate is competent in interpreting in and using results of formative and summative assessments to inform instruction by reflecting on mathematical proficiencies essential for all students, as evidenced by materials and narrative. Candidate uses assessment results for subsequent instructional planning, as evidenced in narrative.
			Mean Score for Standard 3	
***NCTM* Standard 4: Mathematical Learning Environment** Candidates exhibit knowledge of adolescent learning, development, and behavior and use this knowledge to create learning opportunities that are grounded in mathematics education research in which students are actively learning and building on prior knowledge and skills. *Plans include the following:*				
4a.1	Candidate does not demonstrate evidence of in-depth knowledge of adolescent development. Lessons contain activities that do not align with adolescent behavior and development.	Candidate demonstrates minimal evidence of general knowledge of adolescent development. Lessons contain some activities that do not align with adolescent behavior and development.	Candidate demonstrates evidence of general knowledge of adolescent development. Lessons contain activities that align with adolescent behavior and development.	Candidate demonstrates strong evidence of in-depth knowledge of adolescent development. Lessons contain activities that align with adolescent behavior and development.
4a.2	Candidate demonstrates evidence of fostering growth mind sets with students.	Candidate demonstrates evidence of fostering growth mind sets with students.	Candidate demonstrates evidence of fostering growth mind sets.	Candidate demonstrates strong evidence of fostering growth mind sets.

4b.1	Lesson plan activities were not developmentally appropriate and were not challenging enough or were too challenging.	Lesson plan activities were developmentally appropriate but were not challenging enough or were too challenging.	Lesson plan activities were developmentally appropriate and mostly integrated an adequate amount of challenge.	Lesson plan activities were sequenced to create challenge and learning opportunities that were developmentally appropriate.
4b.2	Instructional strategies are not grounded in mathematics education research.	Candidate references mathematics education research when selecting instructional strategies, but the enactment of strategies does not align with the research.	Instructional strategies are grounded in mathematics education research.	Instructional strategies are grounded in mathematics education research in which students are actively engaged.
4b.3	Lesson plans do not support students in building knowledge from prior knowledge and experiences	Lesson plans minimally support students in building new knowledge from prior knowledge and experiences.	Lesson plans support student in building new knowledge from prior knowledge and experiences.	Lesson plans actively engage students in building new knowledge from prior knowledge and experiences.
4d	Candidate demonstrates equitable treatment and high expectations for all students.	Candidate demonstrates minimal consideration for the equitable treatment and high expectations for all students.	Candidate demonstrates consideration for the equitable treatment and high expectations for all students.	Candidate demonstrates equitable treatment and high expectations for all students and incorporates students' experiences into the curriculum
4e.1	Instructional tools (e.g., manipulatives, models, virtual manipulatives, etc.) are not used in the lessons.	Lessons include instructional tools (e.g., manipulatives, models, virtual manipulatives, etc.) that do not enhance teaching and learning.	Lessons incorporate instructional tools (e.g., manipulatives, models, virtual manipulatives, etc.) in ways that enhance teaching and learning.	Lessons incorporate instructional tools (e.g., manipulatives, models, virtual manipulatives, etc.) in ways that enhance teaching and learning. Candidate recognizes both insights to be gained and possible limitations of such tools.
4e.2	Mathematics-specific technologies were not used by the candidate.	Lessons include mathematics-specific technologies that do not	Lessons incorporate mathematics-specific technologies in ways that	Lessons incorporate mathematics-specific technologies in ways that enhance teaching and

		enhance teaching and learning.	enhance teaching and learning.	learning. Candidate recognizes both insights to be gained and possible limitations of such tools.
			Mean Score for Standard 4	
***NCTM* Standard 6: Professional Knowledge and Skills** Candidates provide evidence of participating in professional development experiences specific to mathematics and mathematics education, draw upon mathematics education research to inform practice, continuously reflect on their practice, and utilize resources from professional mathematics organizations. Candidates demonstrate the following:				
6c.	Candidate does not utilize resources from professional mathematics education organizations.	Candidate cites and/or uses resources from professional mathematics education organizations, but often refers to resources that do not align with professional mathematics education organizations.	Candidate often utilizes resources from professional mathematics organizations such as print, digital, and virtual resources/collections.	Candidate consistently utilizes resources from professional mathematics education organizations such as print, digital, and virtual resources/collections.
			Mean Score for Section 6	

SEED LESSON PLAN TEMPLATE

INSTRUCTION

CLASSROOM CONTEXT

Grade level: Number of students:

Content Area: Name of Unit:

Lesson planned for ____ minutes

Lesson occurs at which point in the unit: __beginning __middle __end

Lesson was taught on:

Description of learners:

PLANNING FOR INSTRUCTION

Performance-Based Objective(s)

National Content Standards

VA Standards of Learning (SOL)

Career & College Ready Standards

Lesson Rationale (What research base did you use to make instructional decisions? Why have you selected these objectives and these specific strategies?)

Prerequisite skills needed to attain new learning:

Modifications/Differentiation and Accommodations

Materials/Technology

Procedures: Opening/Strategies/Assessments/Closure

REFLECTION: IMPACT ON LEARNING

College of Education and Human Development
Accreditation and Program Improvement
4400 University Dr MS 6C13, Fairfax, VA 22030
Phone: (703) 993-5290
Fax: (703) 993-5701

Memo:

To: all CEHD students seeking student teaching internships in spring 2018 and forward
From: Jeff Davis, Director of Educator Preparation, CEHD
Re: Internship application requirements
Date: May 1, 2017

Students – please note the following requirements for Spring 2018 internship applications. **No extensions to the application deadlines will be given for missing/incorrect/failing test scores, missing endorsements, or missing/incorrect CPR/AED/First Aid certifications**.

Student Clinical Practice: Internship Application Requirements

TESTING

Since 2015, internship applications must include **all** official and passing test scores must be submitted and in the Mason system (i.e. Banner/PatriotWeb) by the internship application deadline. Allow a **minimum** of six weeks for official test scores to arrive at Mason. Testing too close to the application deadline means scores will not arrive in time and the internship application will not be accepted.

For Spring 2018 internships, this means that the latest you could test in time for scores to be reported to Mason by September 15th is **August 1st**.

Required tests:

- Praxis Core Academic Skills for Educators Tests (or qualifying substitute)
- VCLA
- RVE (specific programs only…see link below)
- ACTFL (Foreign Language only…unofficial scores are acceptable *for this test only*)
- Praxis II (content knowledge exam in your specific endorsement area)

For details, please check http://cehd.gmu.edu/teacher/test/

ENDORSEMENTS

Please note that ALL endorsement coursework must be completed, with all transcripts submitted and approved by the CEHD Endorsement Office, prior to the internship application deadline. Since the internship application must be submitted in the semester prior to the actual internship,

please make an appointment to meet with the Endorsement Specialist and plan the completion of your Endorsements accordingly.

CPR/AED/First Aid – NEW hands-on training required for licensure!

Due to a recent change in Virginia law, effective July 1, 2017, all new license applications and license renewals must include verification that "hands-on" First Aid/CPR/AED training was completed. This means that applications for spring 2018 internships must also include verification of completing "hands-on" training. After June 30, 2017, the online training will no longer be accepted.

Emergency First Aid, CPR, and Use of AED Certification or Training requirement must be submitted and in the Mason system (i.e. Banner/PatriotWeb) by the application deadline. Students must submit one of the "acceptable evidence" documents listed at http://cehd.gmu.edu/teacher/emergency-first-aid to CEHD Student and Academic Affairs. In order to have the requirement reflected as met in the Mason system, documents can be scanned/e-mailed to CEHDacad@gmu.edu or dropped-off in Thompson Hall, Suite 2300.

DYSLEXIA AWARENESS TRAINING – NEW requirement for licensure!

Effective July 1, 2017, every person seeking initial licensure or renewal of a license shall complete awareness training, provided by VDOE, on the indicators of dyslexia, as that term is defined by the board and regulations, and the evidence-based interventions and accommodations for dyslexia. The training module is located at http://www.doe.virginia.gov/teaching/licensure/dyslexia-module/story.html.
Similar to the Child Abuse Prevention Module, students will need to save and print out the completion certificate at the end of the module.

BACKGROUND CHECKS/FINGERPRINTING

All local school systems require students to complete a criminal background check through their human resources office (not through George Mason University) **prior to beginning the internship**. Detailed instructions on the process will be sent to the student from either the school system or Mason.

When applying for their background check/fingerprinting, students are **strongly advised** to disclose any/all legal incidents that may appear on their records. School divisions can and will withhold internship placement if discrepancies are found between a student's disclosure and their official judicial record. Students must assume the risk that classes may be deferred and their program progress delayed or altered due to the individual severity of notations on such a check and review by individual agencies.

PLEASE NOTE:

Your G# must be clearly noted (visible and legible) on the face of any & all documents that you submit.

APPLICATION

The internship application can be downloaded at http://cehd.gmu.edu/teacher/internships-field-experience

DEADLINES

Spring 2018 internship application deadline:

* Traditional Internship: ***September 15, 2017***
* On-the Job Internship: ***November 1, 2015***

If you have any questions about the above requirements, **don't wait** - please contact your advisor or the Clinical Practice Specialist at internsh@gmu.edu Please be sure to include your G# and program/content area information in your email.

This communication to you, including all requirements and deadlines, will be referenced upon receipt of any request for application deadline extension.