

**George Mason University**  
**College of Education and Human Development**  
**Elementary Education PK-6 Program**

EDCI 552.C03 – Mathematics Methods for the Elementary Classroom  
3 Credits, Summer 2019

June 24- July 27 Mondays, Wednesdays, and Fridays 8:30 am-11:30 am  
Thompson Room 2021- Fairfax Campus

### **Faculty**

Name: Sara Birkhead  
Office Hours: Mondays and Wednesdays 11:30-12:30 or By Appointment  
Office Location: Thompson Suite 2400  
Email Address: sbirkhea@gmu.edu

### **Prerequisites/Corequisites**

Admission to the elementary education licensure program.

### **University Catalog Course Description**

Introduces methods for teaching all children topics in arithmetic, geometry, algebra, probability, and statistics in elementary grades. Focuses on using manipulatives and technologies to explore mathematics and solve problems.

### **Course Overview**

In this course we will begin an inquiry into mathematics teaching and learning that will guide you in your first teaching job and give you the tools that will enable you to continue to inquire and learn as part of your work as a teacher. Class sessions will be interactive and will include a variety of hands-on experiences with concrete and virtual manipulatives appropriate for elementary school mathematics. We will explore the teaching of mathematics, investigating both what to teach and how to teach it. We will explore what it means to do mathematics and what it means to understand mathematics through individual, small group, and large group mathematical problem solving. We will investigate ways to represent understandings of mathematical concepts, communicate reasoning about mathematical ideas, and construct mathematical arguments. We will investigate and read about ways children might represent mathematical concepts, looking at ways to help children build connections and see relationships among mathematical ideas. We will explore characteristics of a classroom environment conducive to mathematical learning by reading and discussing the importance of mathematical tasks, mathematical tools, the roles of teachers and students, and the assessment of mathematical understanding.

### **Course Delivery Method**

This course is delivered using a variety of instructional strategies. Session formats will vary and will include lecture, interactive hands-on activities, large and small group discussions, student presentations, cooperative learning groups, and hybrid (approximately 25% online) format.

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

- A. Know what constitute the essential topics in mathematics of the modern early and intermediate grades school program.
- B. Identify and use selected manipulatives and technology such as linking cubes, attribute blocks, geoboards, base-10 blocks, fraction circles, tangrams, calculators, and computers to teach appropriate mathematics content topics in the early and middle grades.
- C. Identify and use various instructional strategies and techniques (cooperative and peer group learning, activity centers, laboratories and workshops, teacher-directed presentations, etc.) to teach mathematical content topics appropriate for the early and intermediate grades to all children, including those from non-mainstreamed populations.
- D. Identify and use alternative methods for assessing students' work in mathematics in the early and intermediate grades.
- E. Solve problems in the mathematical content areas of logic, number theory, geometry, algebra, probability, and statistics appropriate for adaptation to the early and intermediate grades.
- F. Know and explain the learning progression in relation to the standards-based mathematics curriculum, the key elements of the National Council of Teachers of Mathematics Principles and Standards for School Mathematics, and the key elements of the Virginia Standards of Learning for Mathematics.

Additionally, this course supports the CEHD Core Values of collaboration, ethical leadership, research-based practice, social justice, and innovation. Statements of these goals are at <http://cehd.gmu.edu/values/>.

**Professional Standards** (Interstate Teacher Assessment and Support Consortium (InTASC) & Association for Childhood Education International Elementary Education Standards (ACEI):)

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

Course Student Outcomes (above)	INTASC Standard (2011)	ACEI
A Essential math	#4	1.0
B Planning and Teaching using manipulatives	#7	3.1
C Instructional Strategies	#8	1.0, 2.3, 3.1, 3.3, 3.4
D Assessing	#6	4.0
E Problem Solving	#5	2.3
F Learner Development and understanding of Learning Progression	#2/#1	1.0

**INTASC Standard (2011)****Standard #4: Content Knowledge**

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

**Standard #7: Planning for Instruction**

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

**Standard #8: Instructional Strategies**

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

**Standard #6: Assessment**

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

**Standard #5: Application of Content**

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

**Standard #1: Learner Development.** The teacher 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.

**Standard #2: Learning Differences**

The teacher uses understanding of individual differences and diverse cultures and communities to ensure inclusive learning environments that enable each learner to meet high standards.

## Association for Childhood Education International Elementary Education Standards 2007

1.0 Development, Learning, and Motivation—Candidates know, understand, and use the major concepts, principles, theories, and research related to development of children and young adolescents to construct learning opportunities that support individual students' development, acquisition of knowledge, and motivation.

2.3 Mathematics—Candidates know, understand, and use the major concepts and procedures that define number and operations, algebra, geometry, measurement, and data analysis and probability. In doing so they consistently engage problem solving, reasoning and proof, communication, connections, and representation.

3.1 Integrating and applying knowledge for instruction—Candidates plan and implement instruction based on knowledge of students, learning theory, connections across the curriculum, curricular goals, and community.

3.5 Communication to foster collaboration—Candidates use their knowledge and understanding of effective verbal, nonverbal, and media communication techniques to foster active inquiry, collaboration, and supportive interaction in the elementary classroom.

4.0 Assessment for instruction—Candidates know, understand, and use formal and informal assessment strategies to plan, evaluate and strengthen instruction that will promote continuous intellectual, social, emotional, and physical development of each elementary student.

Course & PBA	INTASC	ACEI
<b>552 Math Individualized Instruction and Assessment Plan</b>	#4 Content Knowledge  #1 & #2 Learner Development & Differences  #6 Assessment	1.0 Development  2.3 Math  3.1 Planning Instruction  3.5 Communication  4.0 Assessment

### Required Text:

Van De Walle, J., Karp, K. S., & Bay-Williams, J. M. (2012). *Elementary and Middle School Mathematics: Teaching Developmentally*. (10th edition) New York: Allyn & Bacon.

### Recommended Texts:

Smith, M. S. & Stein, M. K. (2011). *5 Practices for Orchestrating Productive Mathematics Discussions*. Reston, VA: NCTM.

Sullivan, P. & Lilburn, P. (2005). *Good Questions for Math Teaching: Why Ask Them and What to Ask*. (Grades K-6). California: Math Solutions.

### Course Performance Evaluation

Students are expected to submit all assignments on time in the manner outlined by the instructor (e.g., Blackboard, Tk20, hard copy).

- Assignments

### Participation & Attendance (5%)

Addresses Learner Outcomes: A, B, C, D, E, F

Active participation in all activities is expected. Rich, meaningful, problem-based tasks will be assigned in each session. Students are expected to complete these problems and incorporate their thinking about strategies used to solve the problems in class discussion. Work on problem sets will be shared in class and on occasion may be collected and evaluated. Students are expected to analyze and reflect on solution strategies, provide differentiated approaches to center activities, and actively participate in class discussions by applying field experiences and class readings. Professional dispositions are to be displayed at all times

while interacting with the instructor and other students. Cell phones are not to be used during class. Laptops are to be used for instructional purposes only.

It is your responsibility to attend all class sessions in their entirety. You are held accountable for all information from each class session whether you are present or not. Reasons for any tardiness or absence must be reported to the instructor in writing and immediate arrangements made for completing missed content. In- class participation is important not only to the individual student, but to the class as whole. *Class participation is a factor in grading; instructors may use absence, tardiness, or early departure as de facto evidence of nonparticipation and as a result lower the grade as stated in the course syllabus* (GMU, 2016).

### **Math Reflective Journals: Developing a Vision of High-Quality Math Instruction (15%)**

*Addresses Learner Outcomes: A, B, C, D, E, F*

Students will keep an online journal using the Blackboard Journal tool reflecting on course readings, activities, and mathematics experiences to build an understanding of how mathematics routines and practices used in primary and upper grade classrooms and provide opportunities to learn mathematics, as well as reflect on the nature of mathematics as a content area. Journal prompts will be posted weekly on Blackboard.

### **Exploring Resources for Teaching Elementary Mathematics (5%)**

*Addresses Learner Outcomes: A, B, C, D, F*

Resources to support mathematics instruction are numerous and can be overwhelming. Throughout the course, each class member will find one mathematics resource (physical or virtual, print or manipulative) to share with the class. The resources will be selected on June 28 and approved by the instructor. Presentations (3-5 minutes) will be given between July 8 and 15, with slide shows or presentation notes to be turned in July 8. Presentations will include a short demonstration of the resource, description of how and when the resource might be used including the content of the lesson(s) and the grade level(s) where the resource might be successfully employed. See Blackboard for more detail.

### **Mathematics Curriculum and Assessment Analysis: Number Talk and Reflection (25%)**

*Addresses Learner Outcomes: A, B, C, D, E, F*

You are required to plan, teach, and complete a reflection for a Number Talk taught to your classmates during the summer course, and to plan a number talk that could be presented to the students in the fall. Each 10-15 minute Number Talk will include the essential elements of Number Talks and address a fractions concept. A Number Talk lesson plan template will be provided, to which you will add your anticipated student responses, your expected series of questions, and your reflection.

- **Group Number Talk (10%):** The first Number Talk will be taught by a small group in Summer 2019 and presented to your classmates. Each group is expected to: 1) prepare any materials needed for the Number Talk; 2) anticipate possible student responses to the problems presented and plan your expected sequence of follow-up questions; and 3) reflection upon your number talk according to the prompts in the detailed assignment description. The group will submit one completed lesson plan and reflection. See rubric/Blackboard for more detail.

- **Individual Number Talk (15%):** Each individual will plan a whole class Number Talk appropriate to the grade level in your fall field placement or the grade level of your Interview Learner. You will: 1) prepare any materials needed for the Number Talk; 2) anticipate possible student responses to the problems presented and plan your expected sequence of follow-up questions; and 3) design a response to two possible difficulties, misconceptions, or need for extension that might occur in a classroom setting. See rubric/Blackboard for more detail.

**DUE: July 17**

### **Problem-Based Lesson Study Plan and Reflection on Teaching (20%)**

*Addresses Learner Outcomes: A, B, C, D, F*

You are required to collaborate with a small group of your peers to plan, teach, and complete a formal summary for one mathematics lesson. The lesson will be presented to your peers on a designated day. The lesson will come from the book *Good Questions for Math Teaching* or a similar resource for mathematically rich tasks and will last approximately 40-60 minutes. A lesson plan template will be provided for the lessons that integrates the use of mathematics tools (manipulatives, calculators, computers) and representations (concrete, pictorial, symbolic) to provide children with an interactive, conceptually-based mathematics experience. The lesson plan summary is a three-phase process: (1) Design the lesson plan and discussion of anticipated solutions, (2) Teach the lesson, and (3) Collect and report evidence of student learning from the lesson in a reflection. See Blackboard for more detail.

**DUE: Lesson Plan due July 22, Reflection due on date of Presentation (July 22-26)**

### **Individualized Instruction and Assessment Plan: Course Performance Based Assessment (30%)**

*Addresses Learner Outcomes: A, B, C, D, F*

In order to plan effective instruction, you will need to know how to assess children's knowledge of mathematical concepts. One way to assess children's thinking is a diagnostic assessment. This assignment has two parts: (1) Design a plan for the assessment, assessing a specific mathematics topic using concrete, pictorial and abstract representations, (2) Conduct the assessment with a child and write a report describing the outcome of the assessment. Based upon feedback from the instructor on your plan, you may make modifications to the final plan and report. The PBA will be turned in via Tk20 on Blackboard, under Assessments.

**DUE: Interview Draft due July 12, Final paper due July 26**

*Note: Faculty reserve the right to add, alter, or omit any assignment as necessary during the course of the semester. You will always receive advanced notice of any modifications.*

#### **• Course Performance Evaluation Weighting**

The assignments across the course are intended to further your understandings of what it means to teach, learn, and assess mathematics in light of current reforms in mathematics education. All assignments are to be turned in to your instructor on time. **Late work will not be accepted for full credit.** If the student makes prior arrangements with the instructor, assignments turned in late will receive a 10% deduction from the grade per late day or any fraction thereof (including weekends and holidays).

**Participation & Attendance (5%)**

Math Reflective Journals: Developing a Vision of High-Quality Math Instruction (15%)

Problem-Based Lesson Plan and Reflection on Teaching (20%)

Exploring Resources for Teaching Elementary Mathematics (5%)

Number Talk Reflections (25%)

Individualized Instruction and Assessment Plan (30%)

● **Grading**

The mathematics education courses in GSE's Elementary Education Program integrate pedagogy and mathematics content appropriate for the elementary school grades. For students to earn a grade of A in the course, they must demonstrate excellence in *both* the pedagogical knowledge and the content knowledge of the mathematics appropriate at their level of teaching. Thus, the grading in the course is structured to help evaluate fairly student excellence in both areas. Problem sets and assessment work focuses primarily on ascertaining student excellence in handling mathematics content appropriate for the elementary grades, and represents 50% of students' grades. Pedagogical knowledge is ascertained primarily from readings, assignments and participation in the course, and represents 50% of students' grades. Therefore students who demonstrate excellence in both pedagogical knowledge and content knowledge receive grades of A.

At George Mason University course work is measured in terms of quantity and quality. A credit normally represents one hour per week of lecture or recitation or not fewer than two hours per week of laboratory work throughout a semester. The number of credits is a measure of quantity. The grade is a measure of quality. The university-wide system for grading graduate courses is as follows:

Grade	GRADING	Grade Points	Interpretation
A	94-100	4.00	Represents mastery of the subject through effort beyond basic requirements.
A-	90-93	3.67	
B+	85-89	3.33	Reflects an understanding of and the ability to apply theories and principles at a basic level
B	80-84	3.00	
C*	70-79	2.00	Denotes an unacceptable level of understanding and application of the basic elements of the course
F*	<69	0.00	

*Note: "C" is not satisfactory for a licensure course.*

*"F" does not meet requirements of the Graduate School of Education*

**TK20/Performance-Based Assessment(s) Submission Requirement**

Every student registered for any Elementary Education course with a required TK20 performance-based assessment (designated as such in the syllabus) must submit this/these assessment(s) (**EDCI 552: Individualized Instruction and Assessment Plan**) to Tk20 through '**Assessments**' in Blackboard. Failure to submit the assessment(s) to Tk20 (through Blackboard) will result in the course instructor reporting the course grade as Incomplete (IN). Unless this grade is changed upon completion of the required Tk20 submission, the IN will convert to an F nine weeks into the following semester.

## Professional Dispositions

See <https://cehd.gmu.edu/students/polices-procedures/>

Students are expected to exhibit professional behaviors and dispositions at all times. (See Elementary Education Program Handbook).

## Class Schedule

The assigned readings are dynamic and flexible to meet the needs of the learners. All readings are subject to change.		
Date (Location)	Topic/Learning Experiences	Readings & Assignments Due
Mon, June 24 (T 2021)	What is Problem Solving? Selecting Worthwhile Tasks Planning for Mathematics Instruction	<b>READINGS</b> Chapter 1. Teaching Mathematics in the 21st Century Chapter 2. Exploring What It Means to Know and Do Mathematics Chapter 3: Teaching through Problem Solving
Wed, June 26 (T 2021)	Supporting Rich Tasks and Facilitating Class Discussions	<b>READINGS</b> Chapter 6. Teaching Mathematics Equitably to All Students <i>5 Practices for Orchestrating Productive Mathematics Discussions</i> excerpt (On Blackboard)  <b>ASSIGNMENTS DUE</b> Form Problem-Based Lesson Groups Math Journal: Math Autobiography
Fri, June 28 (T 2021)	Number Sense, Counting, Patterns and Place Value Helping Children Master the Basic Math Facts Developing Strategies for Whole Number Place Value Concepts  PBA Assignment details and timeline	<b>READINGS</b> Chapter 7: Early Number Concepts Chapter 8: Developing Meaning of Operations  <b>ASSIGNMENTS DUE</b> Choose Resource for “Exploring Resources” assignment Math Journal: Understanding of Number

Mon, Jul 1  (Online, Asynchronous)	Lesson Planning and Assessment Seeing Instruction in Action	<b><u>READINGS</u></b> Chapter 4: Planning in the Problem-Based Classroom Chapter 5: Creating Assessments for Learning  <b><u>ASSIGNMENTS DUE</u></b> Draft Problem-Based Lesson Plan posted in Group Discussion Board
Wed, Jul 3  (Online, Asynchronous)		<b><u>READINGS</u></b> Chapter 9: Basic Facts Chapter 10: Place Value  <b><u>ASSIGNMENTS DUE</u></b> Math Journal: Understanding of Mathematics Instruction
Friday, July 5- 4 <sup>th</sup> of July Holiday		
Mon, July 8  (T 2021)	Developing Strategies for Whole Number Computation	<b><u>READINGS</u></b> Chapter 11: Addition and Subtraction Chapter 12: Multiplication and Division  <b><u>PRESENTATIONS</u></b> Exploring Resource Presentations  <b><u>ASSIGNMENTS DUE</u></b> Choose Student, Grade-level, and topic for “Individualize Instruction” Interview “Exploring Resources” Assignment due to Blackboard
Wed, July 10  (T 2021)	Fraction Concepts and Computation Multiple Representations Rational Number Concepts  Number Talks	<b><u>READINGS</u></b> Chapter 14: Fractions Chapter 15: Fractions Operations- Addition, Subtraction, Multiplication  <b><u>PRESENTATIONS</u></b> Exploring Resource Presentations  <b><u>ASSIGNMENTS DUE</u></b> Form Number Talk Groups Math Journal: Understanding of Operations
Fri, July 12  (Online, Synchronous)	PBA Planning Day	<b><u>ASSIGNMENTS DUE</u></b> Interview Draft due to Blackboard
Mon, July 15  (T 2021)	Fraction and Decimals Operations with Fractions and Decimals	<b><u>READINGS</u></b> Chapter 15: Fractions Operations- Division Chapter 16: Decimals & Percent  <b><u>PRESENTATIONS</u></b> Exploring Resource Presentations (if needed)

Wed, July 17  (T 2021)	Algebraic Thinking  Rich Tasks Selecting and Sequencing Student Work for Discussions	<p><b><u>READINGS</u></b> Chapter 13: Algebraic Thinking</p> <p><b><u>PRESENTATIONS</u></b> Number Talks</p> <p><b><u>ASSIGNMENTS DUE</u></b> Math Journal: Understanding of Rational Numbers Number Talk: Group Lesson Plans and Reflections due to Blackboard</p>
Fri, July 19  (Online, Synchro nous)	Geometry and Measurement  Rich Tasks in Action  PBA Interviews	<p><b><u>READINGS</u></b> Chapter 18: Measurement Chapter 19: Geometry</p>
Mon, July 22  (T 2021)	Data Analysis Probability Experiments	<p><b><u>READINGS</u></b> Chapter 20: Data Analysis Chapter 21: Probability</p> <p><b><u>PRESENTATIONS</u></b> Problem-Based Lesson Presentations</p> <p><b><u>ASSIGNMENTS DUE</u></b> Problem-Based Learning Lesson Plan due to Blackboard Problem-Based Reflections due to Blackboard</p>
Wed, July 24  (T 2021)		<p><b><u>READINGS</u></b> Chapter 22: Integers TBD from Mathematics Education Journals</p> <p><b><u>PRESENTATIONS</u></b> Problem-Based Lesson Presentations</p> <p><b><u>ASSIGNMENTS DUE</u></b> Problem-Based Reflections due to Blackboard</p>
Fri, July 26  (T 2021)		<p><b><u>READINGS</u></b> TBD from Mathematics Education Journals</p> <p><b><u>PRESENTATIONS</u></b> Problem-Based Lesson Presentations (If needed)</p> <p><b><u>ASSIGNMENTS DUE</u></b> Problem-Based Reflections due to Blackboard Individualized Instruction and Assessment Plan (PBA) due to Tk20</p>

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

## Core Values Commitment

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

## **WORK TIMELINESS EXPECTATIONS:**

It is expected that all class assignments will be submitted on time to the correct location; therefore, late assignments will not receive full credit. Assignments turned in late will receive an automatic deduction of one letter grade making the highest possible score equivalent to 80% (B). All assignments must be submitted by the beginning of class (Eastern standard time) on the due date stated within the syllabus (see below) and should only be submitted via Blackboard.

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

## **OTHER EXPECTATIONS**

All written papers are expected to be double-spaced, with 1" margins, and in 12-point font (Times New Roman, Calibri, or Arial). APA format is expected. If you do not have a 6<sup>th</sup> Edition APA manual, the OWL at Purdue is an excellent

resource: <http://owl.english.purdue.edu/owl/resource/560/01/>

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

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

### *Policies*

- Students must adhere to the guidelines of the Mason Honor Code (see <https://catalog.gmu.edu/policies/honor-code-system/> ).
- Students must follow the university policy for Responsible Use of Computing (see <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 <https://ds.gmu.edu/>).
- Students must silence all sound emitting devices during class unless otherwise authorized by the instructor.

### *Campus Resources*

- Support for submission of assignments to Tk20 should be directed to [tk20help@gmu.edu](mailto:tk20help@gmu.edu) or <https://cehd.gmu.edu/aero/tk20>. Questions or concerns regarding use of Blackboard should be directed to <http://coursesupport.gmu.edu/>.
- 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 <https://cehd.gmu.edu/students/> .**

## **INDIVIDUALIZED INSTRUCTION AND ASSESSMENT PLAN TASK**

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

In the Elementary Education program, the Individualized Instruction and Assessment Plan Task is completed during EDCI 552 and is assessed by the instructor. The candidate must earn a score of 3 to be successful on this assignment. If a student 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 to impact on individual learning.

### **STANDARDS**

- **InTASC Standards:** 1, 2, 5, 6, 7, 8
- **CAEP Standards:** 1.1, 1.3, 1.4, 1.5
- **VDOE Standards:** 1, 2, 3, 4, 5
- **SPA Standards:** ACEI 1, 3.1, 3.2, 3.3, 4

### **THEMES**

-  Technology
-  Diversity
-  College & Career Ready

### **ASSESSMENT OBJECTIVES**

- The candidate will use knowledge of individual learning differences and assessment to develop an instructional plan for a learner with developmental, learning, physical or linguistic differences.
- The candidate will develop an assessment of learner progress.

### **RATIONALE**

Lesson planning is an essential skill for an educator. A lesson plan is a road map for instruction. When planning teachers and teacher candidates need to answer four main questions:

- Who are my learners? (Context/Learner Needs)
- What do the learners need to know and be able to do? (Objectives/Goals)
- How will I get all learners to know and do the new tasks? (Teaching and learning strategies)
- How will I know the learning objectives were achieved? (Goals/Outcomes/Assessments)

The first step in planning is aligning the learning objectives with the goals/outcomes/assessments for the lesson. This should include considerations based on learner abilities, challenges, and prior knowledge. Before developing specific learning activities, determine how you will assess if learners have met the lesson objectives. Once you know how you will assess learning, you can develop activities that align instruction with the assessment. Additionally, a teacher must consider learner prior knowledge, how to differentiate to meet learner needs, and how to do so within the time allotted. Lesson plans include pacing, transitions, checking for understanding, and ideas for re-teaching or extending learning based upon learner needs.

The planning process is the same whether you are planning a lesson for a class or for an individual. For this assessment you will develop an instructional plan for a learner with developmental, learning, physical or linguistic differences, including a plan for assessing the learner's progress.

### **ASSESSMENT DIRECTIONS**

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. *The lesson does not have to be taught, though it can be taught or co-taught, based upon your program and clinical placement options.* The individualized instruction and assessment plan should include the following sections:

## **Section 1. Description of the Learner** (2-3 pages)

**Who is the learner?** Seek out an individual who can provide you with a picture of who the individual is as a learner. Describe the individual include cognitive, linguistic, social, emotional, and/or physical developmental skill levels and abilities, interests, and educational progress and statement of educational need.

Include in your planning a response to the following question: How do you address the special needs of the learner? Write a description of and rationale for instructional adaptations and accommodations needed.

## **Section 2. Learning Objectives and Rationale** (1/2 – 1 page)

**What should they learn?** Identify at least three learning objectives/goals and develop a rationale that supports why the objectives/goals are meaningful learning outcomes. (Virginia Standards of Learning (SOLs), ASOLs, College-and-Career-Ready skills, and other content specific objectives should be included in lesson plans.)

## **Section 3. Instructional Strategies** (1-2 pages)

**How will you teach, and how will the individual learn?** Describe at least three evidence-based instructional strategies that address the identified learning objectives/goals and reflect the learner's cognitive, linguistic, social, emotional, and/or physical developmental skill levels and abilities, interests and educational needs. Include the use of augmentative and alternative communication systems and assistive technologies or other appropriate technologies used to address learning needs. Write a rationale for each showing how the strategies support learning and success for this learner.

## **Section 4. Assessment and Documentation of Learner Progress** (1-2 pages)

**How will I know the learning objectives/goals were achieved?** Write a plan for the assessment and documentation of the learner's progress toward the identified objectives/goals.

## **Section 5. Reflection** (1-2 pages)

How long did the assessment last?

What did you learn about assessment techniques?

What did you learn about your ability to create mathematical questions and tasks for this concept?

If you were to conduct the assessment with another child, would there be any changes in your questions, either the order or level of difficulty, or the materials you had available for the child to use? Why or why not?

Reflect on your use of questioning? Did you use a variety of questions (high, low, mid, mixed)? What questions would you ask if you could do this assessment again?

What have you learned about how children learn mathematics from this assessment?

How might a teacher use the diagnostic mathematics assessment to assess children?

## **REFERENCE**

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

# INDIVIDUALIZED INSTRUCTION AND ASSESSMENT PLAN RUBRIC

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

In the Elementary Education program, the Individualized Instruction and Assessment Plan Task is completed during EDCI 552 and is assessed by the instructor. The candidate must earn a score of 3 to be successful on this assignment. If a student 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 to impact on individual 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)
<b>SECTION 1. DESCRIPTION OF THE LEARNER</b>				
The candidate regularly assesses individual and group performance in order to design and adapt instruction to meet learners' needs in each area of development (cognitive, linguistic, social, emotional, and physical) and scaffolds the next level of development.  <b>InTASC 1; VDOE 1; ACEI 1.0</b> 	The candidate does not provide a description of the learner and/or does not include assessment data related to cognitive, linguistic, social, emotional, and/or physical and developmental skill levels and abilities, interests, or educational progress.	The candidate provides description of the learner that includes appropriate assessment data but does not address all of the following: cognitive, linguistic, social, emotional, and/or physical developmental skill levels and abilities, interests, or educational progress.	The candidate provides description of the learner that includes appropriate 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 current impact of learner characteristics on learning.	The candidate provides description of the learner that includes both appropriate and 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 learner characteristics on learning.
The candidate accesses resources, supports, and specialized assistance and services to meet particular learning differences or needs.  <b>InTASC 2; VDOE 1; ACEI 3.2</b> 	The candidate does not identify either adaptations or accommodations to support learner achievement of learning objectives.	The candidate identifies either adaptations or accommodations that do not fully align with identified needs.	The candidate identifies and describes appropriate adaptations or accommodations that support learner achievement of learning objectives/goals, including technology.	The candidate thoroughly describes multiple, appropriate adaptations or accommodations that clearly support learner achievement of learning objectives/goals, including technology.

<b>Performance</b>	<b>Does Not Meet Standard (1)</b>	<b>Approaches Standard (2)</b>	<b>Meets Standard (3)</b>	<b>Exceeds Standard (4)</b>
<b>Statement of Educational Need</b>				
The candidate effectively uses multiple and appropriate types of assessment data to identify each learner's learning needs and to develop differentiated learning experiences.  InTASC 6; VDOE 4; ACEI 4.0 	The candidate does not address learner 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 not well 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 directly aligned with assessment results.
<b>SECTION 2. LEARNING OBJECTIVES</b>				
The candidate individually and collaboratively selects and creates learning objectives that are appropriate for curriculum goals and content standards, and are relevant to learners.  InTASC 7; VDOE 2; ACEI 3.1 	The candidate identifies learning objectives that are either incomplete because related outcomes are not identified or the objectives are not directly related to learner educational need.	The candidate identifies learning objectives without relevance to learner educational need.	The candidate identifies learning objectives with related outcomes that are relevant to individual learner needs.	The candidate identifies distinct learning objectives with related outcomes that are relevant to individual learner needs. These learning outcomes allow for different and individualized learning pathways that can be accessed fluidly during instruction.
<b>Rationale for Learning Objectives</b>				
The candidate identifies objectives for instruction based on formative and summative assessment data, prior learner knowledge, and learner interest.  InTASC 7; VDOE 2; ACEI 4.0 	The candidate does not identify objectives for the learner that are aligned to specific learning goals/outcomes and/or the relationship of the learning objectives to learner educational needs is missing or unclear.	The candidate selects objectives for the learner that are poorly aligned to specific learning goals/outcomes and/or the relationship of the learning objectives to learner educational needs is missing or unclear.	The candidate selects objectives for the learner that are aligned to specific learning goals/outcomes and/or the relationship of the learning objectives to learner educational needs is clear.	The candidate selects objectives for the learner that are aligned to specific learning goals/outcomes and/or the relationship of the learning objectives to learner educational needs is clear. Rationales for the selection of those objectives and how they support the achievement of the learning goals are included.
<b>SECTION 3. INSTRUCTIONAL STRATEGIES AND ADAPTATIONS</b>				
The candidate plans how to achieve each learner's learning goals, choosing appropriate strategies and accommodations, resources, and materials to differentiate instruction for individuals and groups of learners.  InTASC 7; VDOE 2; ACEI 3.2	The candidate does not identify instructional strategies or identifies instructional strategies that are not related to the learning objectives or learning needs.	The candidate identifies instructional strategies that are inappropriate for meeting the learning objectives or learning needs.	The candidate identifies evidence-based instructional strategies that are aligned to the learning objectives and learning needs.	The candidate identifies evidence-based instructional strategies that are aligned to specific learning objectives and learning needs.  The candidate provides evidence of the effectiveness of these selected learning

				strategies through data analysis of the assessment.
--	--	--	--	---

Performance	Does Not Meet Standard (1)	Approaches Standard (2)	Meets Standard (3)	Exceeds Standard (4)
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; ACEI 3.3  	The instructional strategies used by the candidate do not encourage an understanding of content.	The candidate uses limited instructional strategies to encourage learners to develop an understanding of the content and to apply that knowledge in meaningful ways.	The 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.	The candidate provides insight into their own pedagogical and content knowledge to discuss the selection of instructional strategies for the learning experience. These instructional strategies encourage all learners to develop an understanding of the content and authentic application of the new knowledge.
The candidate connects concepts and uses different perspectives and digital resources to engage learners in critical thinking, creativity, and collaborative problem solving.  InTASC 5; VDOE 2; ACEI 3.3  	Candidate does not connect concepts, address different perspectives or use digital resources to engage learners in higher-level learning.	Candidate connects concepts, addresses different perspectives or uses digital resources to engage learners but at a basic level of learning and recall.	Candidate connects concepts, addresses different perspectives and uses digital resources to engage learners in higher-level learning in using at least one of these higher-order skills: critical thinking, creativity, and collaborative problem solving.	Candidate creates multi-disciplinary opportunities and a range of multiple perspectives to engage learners in critical thinking, creativity, and collaborative problem solving.

### Rationale for Instructional Strategies and Adaptations

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; VDOE 1; ACEI 1.0 	The candidate does not provide rationales that are aligned to the specific instructional strategies and/or the relationship of instructional strategies to the learning objectives and learner educational needs is missing or unclear.	The rationales provided do not align to the specific instructional strategies and, the relationship of the instructional strategies to the learning objectives that meet learner educational needs is unclear.	The rationales provided are aligned to instructional strategies and, the relationship of the instructional strategies to the learning objectives that meet learner educational needs is clearly identified.	The rationales provided are aligned to the strategies and, the relationship of the instructional strategies to specific learning objectives that meet learner educational needs is clearly and effectively aligned. Multiple pathways to learner achievement of the learning outcomes are provided.
---	---	--	---	---

## SECTION 4. ASSESSMENT AND DOCUMENTATION OF LEARNER PROGRESS

<p>The candidate designs assessments that match learning objectives with assessment methods and minimizes sources of bias that can distort assessment results.</p> <p><b>InTASC 6; VDOE 4; ACEI 4.0</b></p>	<p>The candidate does not describe an assessment plan that evaluates all learning objectives or describes a plan that does not directly measure all of the learning objectives (e.g., is not observable, measurable).</p>	<p>The candidate describes an assessment plan that evaluates all learning objectives but does not include documentation of both formative and summative measures that (and) does not address possible assessment bias.</p>	<p>The candidate describes an assessment plan that evaluates all learning objectives and includes both formative and summative assessments that minimize sources of bias.</p> <p>The candidate describes the assessment results that would prompt modification of instructional plans and those specific modifications.</p>	<p>The candidate describes an assessment plan that evaluates all learning objectives, includes formative and summative assessments that minimize sources of bias and includes multiple data sources for each objective.</p> <p>The candidate describes multiple assessment results that would prompt modification of instructional plans and those specific modifications.</p>
---	---	--	---	--

## SECTION 5 REFLECTION

<p>The candidate uses ongoing analysis and reflection to improve planning and practice</p> <p><b>InTASC 9; ACEI 5.1</b></p>	<p>There was no evidence that the candidate used ongoing analysis and/or reflection to improve planning and practice.</p>	<p>The candidate uses marginal analysis and reflection strategies to improve planning and practice.</p>	<p>The candidate uses ongoing analysis and reflection to improve planning and practice</p>	<p>The candidate effectively uses ongoing analysis and deep reflection to improve planning and practice.</p>
---	---	---	--	--

