# Iowa Department of EducationAppendix 2: Curriculum Map

Use this curriculum map to document where and how each key area of mathematics educator preparation is addressed within your program. For each criterion listed under the five domains, identify the course(s) where the content is taught and assessed. Include evidence for both **content knowledge** and **application**, such as assignments, practicum experiences, or curriculum development tasks.

* In the **Course columns**, list the course code or title where the criterion is addressed.
* In the **Assessment sections**, describe how candidates demonstrate proficiency (e.g., exams, lesson plans, instructional videos, performance tasks).
* Ensure alignment with Iowa Academic Standards, HF 784 requirements, and the components of high-quality instructional materials.

This tool supports continuous improvement and alignment with expectations for mathematics teacher preparation across the K–12 spectrum.

## Domain 1: Understanding Mathematical Development

| **Criteria and**  **Key Performance Area** | **Course 1** | **Course 2** | **Course 3** |
| --- | --- | --- | --- |
| 1.a.1 The candidate demonstrates the ability to set reasonable goals and expectations for learners at various stages of mathematical development, informed by the Iowa Academic Standards for Mathematics and the structure of high-quality instructional materials aligned to those standards. |  |  |  |
| 1.a.2 The candidate demonstrates an understanding of how students construct mathematical knowledge by developing conceptual understanding, procedural fluency, and application, emphasizing fluency through strategic reasoning and metacognition rather than speed or rote memorization. |  |  |  |
| 1.a.3.a. For K-6  The candidate demonstrates awareness of key learning progressions in K–6 mathematics that build number sense, including subitizing, cardinality, object and verbal counting, spatial relationships, benchmark numbers, and part–part–whole reasoning.  1.a.3.b. For 6-12  The candidate demonstrates awareness of key learning progressions in grades 6–12 that build number and algebraic reasoning, including rational numbers, proportional relationships, expressions and equations, functions, and the structure of the real number system. |  |  |  |
| 1.b Assessment of Content Knowledge |  |  |  |
| 1.c Assessment of Application (practicum, curriculum development) |  |  |  |

## Domain 2: Instructional Practices for Diverse Learners – “The Who”

| **Criteria and**  **Key Performance Area** | **Course 1** | **Course 2** | **Course 3** |
| --- | --- | --- | --- |
| 2.a.1 The candidate understands and responds to students' diverse cultural backgrounds, languages, identities, learner differences, and lived experiences that shape their mathematical thinking. |  |  |  |
| 2.a.2 The candidate integrates developmentally appropriate, evidence-based supports for students with disabilities and those identified as needing intervention in mathematics. |  |  |  |
| 2.a.3 The candidate demonstrates a commitment to maintaining high expectations for all students. |  |  |  |
| 2.b Assessment of Content Knowledge |  |  |  |
| 2.c Assessment of Application (practicum, curriculum development) |  |  |  |

## Domain 3: Structured Mathematics Instruction – "The How"

| **Criteria and**  **Key Performance Area** | **Course 1** | **Course 2** | **Course 3** |
| --- | --- | --- | --- |
| 3.1 The candidate establishes mathematics goals to focus learning. Effective teaching of mathematics establishes clear goals for the mathematics that students are learning, situates these goals within learning progressions, and uses them to guide instructional decisions. |  |  |  |
| 3.2 The candidate implements tasks that promote mathematical reasoning and problem solving, providing multiple entry points and supporting varied solution strategies. |  |  |  |
| 3.3 The candidate engages students in using and connecting mathematical representations to deepen their understanding of mathematical concepts and procedures, and to support problem-solving. |  |  |  |
| 3.4 The candidate facilitates meaningful mathematical discourse that enables students to build shared understanding by analyzing and comparing their mathematical approaches and reasoning. |  |  |  |
| 3.5 The candidate poses purposeful questions to assess and advance students’ reasoning and sense-making about key mathematical ideas and relationships. |  |  |  |
| 3.6 The candidate builds procedural fluency from conceptual understanding, enabling students to use procedures flexibly and skillfully as they solve mathematical and real-world problems. |  |  |  |
| 3.7 The candidate supports productive struggle in learning mathematics by providing opportunities and scaffolds that encourage students to persevere as they make sense of mathematical ideas and relationships. |  |  |  |
| 3.8 The candidate elicits and uses evidence of student thinking to assess mathematical understanding and adapt instruction to support and extend learning. |  |  |  |
| 3- Assessment of Content Knowledge |  |  |  |
| 3- Assessment of Application (practicum, curriculum development) |  |  |  |

## Domain 4: Structured Mathematics Instruction – “The What”

| **Criteria and**  **Key Performance Area** | **Course 1** | **Course 2** | **Course 3** |
| --- | --- | --- | --- |
| 4.a.1 The candidate uses learning and developmental progressions across K–12 to design instruction that is responsive to how students build an understanding of mathematical ideas, from foundational number sense to algebraic thinking, functions, and modeling. |  |  |  |
| 4.a.2 The candidate builds procedural fluency through flexible strategy use, guiding students to select, apply, and justify efficient strategies grounded in conceptual understanding, with an emphasis on reasoning rather than memorization. |  |  |  |
| 4.a.3 The candidate anticipates and addresses common misconceptions by analyzing students’ reasoning, identifying their developmental stages, and using that information to inform targeted instructional decisions that advance mathematical understanding. |  |  |  |
| 4.b- Assessment of Content Knowledge |  |  |  |
| 4.c- Assessment of Application (practicum, curriculum development) |  |  |  |

## Domain 5: Assessment Practices in Mathematics

| **Criteria and**  **Key Performance Area** | **Course 1** | **Course 2** | **Course 3** |
| --- | --- | --- | --- |
| 5.1 The candidate selects and appropriately uses a range of assessment types, including formative and summative assessments, to inform instructional decisions and support student learning in mathematics |  |  |  |
| 5.2 The candidate analyzes student work and performance-based assessments to identify appropriate instructional next steps and provides feedback that supports conceptual development and extends mathematical learning. |  |  |  |
| 5.3 The candidate supports student progress within a Multi-Tiered System of Supports (MTSS) framework by using assessment data to inform instructional goals and guide differentiated mathematics instruction. |  |  |  |
| 5- Assessment of Content Knowledge |  |  |  |
| 5- Assessment of Application (practicum, curriculum development) |  |  |  |