To Become
Effective October 15, 2025

Rule 505-3-.94. Stem Education Endorsement Program

Nature of Amendment(s):

__✓__ **Substantive**
____ **Clarification**
____ **Further Definition**

Discussion:
It is proposed that Rule 505-3-.94. STEM Education Endorsement Program, dated July 1, 2021, be AMENDED with the same number and a new name of STEM Education Endorsement, and to update program content standards.

Current/Amended Sections(s):
(Additions are underlined in bold type; deletions are marked through.)

(1) Purpose. This rule states field-specific content standards for approving endorsement programs that prepare individuals to model STEM content pedagogy in the field and at the grade level of their base certification**,** and supplements requirements in Rule 505-3-.01~~,~~ REQUIREMENTS AND STANDARDS FOR APPROVING EDUCATOR PREPARATION PROVIDERS AND EDUCATOR PREPARATION PROGRAMS.

(2) Definitions.

(a) Transdisciplinary. The integration of knowledge and methods from multiple disciplines, as well as engaging with stakeholders and community perspectives to innovate and solve authentic problems.

~~(2)~~ **(3) In-Field Statement**. Completers of the STEM Endorsement ~~program~~ have strengthened and enhanced competency in **Science, Technology, Engineering, and Mathematics (**STEM**)** content and instruction for teaching students in the field(s) and at the grade levels of their base certificate(s).

~~(3)~~ **(4) Requirements.**

(a) A GaPSC-approved ~~professional~~ educator preparation provider may seek ~~state~~ approval to offer this field as either a stand-alone endorsement program or as an endorsement program embedded in a GaPSC-approved initial preparation program or an advanced (degree-only) preparation program. In addition to meeting all applicable approval requirements and standards, embedded endorsement programs must meet requirements specified in paragraph (e) ~~3~~**4**. (ix) of GaPSC educator preparation rule 505-3-.01, REQUIREMENTS AND STANDARDS FOR APPROVING EDUCATOR PREPARATION PROVIDERS AND EDUCATOR PREPARATION PROGRAMS.

(b) To receive approval, a GaPSC-approved educator preparation provider shall offer a preparation program described in program planning forms, catalogs, and syllabi addressing the following standards for the preparation of teachers of STEM and STEM-related content:

1. The program will prepare candidates who demonstrate their understanding of STEM education as **a transdisciplinary** ~~an interdisciplinary~~ endeavor by demonstrating their ability to apply rigorous content across STEM and STEM related disciplines as indicated by the following:

(i) Candidates will demonstrate a comprehensive understanding of and the ability to integrate STEM content standards **in authentic ways that align to the expectations of grade level state standards**;

(ii) Candidates will be able to articulate a clear definition and understanding of what STEM education is and what it looks like in practice as both **transdisciplinary** ~~interdisciplinary~~ and process driven;

(iii) Candidates will demonstrate the **ability to integrate each of the STEM disciplines as necessary components in answering questions, in investigating local, regional and global issues, and in developing solutions for real-world problems; and** ~~apply integrated STEM and STEM related content to answer complex questions, to investigate local, regional and global issues to make connections and to develop solutions for challenges and real world problems; and~~

(iv) Candidates will demonstrate knowledge of the benefits of STEM education for all citizens, enabling them to make informed decisions about challenges facing the next generation, for future STEM **innovation,** workforce development and related career opportunities **with** ~~and~~ the skills necessary to be successful in them.

2. The program will prepare candidates who demonstrate that they understand ~~and can engage learners in~~ the ways of thinking and habits of mind used in STEM and STEM-related disciplines as indicated by the following:

(i) Candidates will demonstrate the ability to think critically, evaluate complex data, draw **data-driven** ~~evidence-based~~ conclusions, engage in effective argumentation and communicate effectively in written **and oral** format**s**;

(ii) Candidates will demonstrate the **dispositions necessary to be effective transdisciplinary STEM educators (i.e., life-long learning, value collaborations, flexible, high tolerance for ambiguity, risk taker, innovative, committed to the profession, self-reflective perseverance); and** ~~the ability to engage students in STEM reasoning that reveals how STEM professionals think and solve problems.~~

(iii) Candidates will demonstrate the **ability to effectively engage students in using STEM reasoning abilities, including computational reasoning, model-based reasoning, quantitative reasoning, and engineering design-based reasoning, and complex systems thinking that reveals how STEM professionals think and solve problems.** ~~dispositions necessary to be effective interdisciplinary STEM educators (i.e., life-long learning, value collaborations, flexible, high tolerance for ambiguity, risk taker, innovative, committed to the profession, self-reflective perseverance).~~

3. The program will prepare candidates who understand and demonstrate the role of meaningful collaboration and partnerships as evidenced by the following:

(i) Candidates will demonstrate the ability to work effectively within a STEM-focused multidisciplinary professional learning community to achieve a common goal and to co-plan authentic **standards-based** STEM ~~based~~ experiences and **transdisciplinary** ~~interdisciplinary~~ lessons;

Candidates will demonstrate the ability to involve **community and/or** business partners in identifying and solving relevant problems; and

(ii) Candidates will demonstrate the ability to **partner with local mathematicians, scientists, engineers, designers, and creative professionals to develop authentic, real-world learning experiences in STEM.** ~~engage local STEM experts in their programs.~~

4. The program will prepare candidates who demonstrate the ability to engage students using STEM and STEM-related discipline pedagogical practices as indicated by the following:

(i) Candidates will demonstrate the ability to effectively engage students in **process-based thinking** ~~engineering design processes~~ to solve open-ended problems or complete design challenges;

(ii) Candidates will demonstrate the ability to effectively engage students in authentic or investigative research to answer relevant questions;

(iii) Candidate will demonstrate the ability to effectively engage students in using STEM reasoning abilities (i.e., computational reasoning, model-based reasoning, quantitative reasoning, engineering design-based reasoning and complex systems thinking);

(iv) Candidates will demonstrate the ability to effectively engage students in experiential learning;

(v) Candidates will demonstrate the ability to effectively engage students in project management techniques;

(vi) Candidates will demonstrate proficiency in differentiating instruction related to integrated STEM concepts;

(vii) Candidates will demonstrate the ability to effectively assess students using **transdisciplinary** ~~interdisciplinary~~ STEM performance tasks, and portfolio assessments and create rubrics for these assessments;

(vii**i**) Candidates will be able to demonstrate the ability to facilitate student-led learning and to apply knowledge and skills to novel, relevant and authentic situations;

(ix) Candidates will demonstrate the implementation of authentic teaching and learning strategies, including project-based learning, problem-based learning, and **place-based** education **to promote creative thinking**;

(x) Candidates will foster a learning environment **where creativity, innovation, and risk-taking are encouraged; and** ~~which encourages risk taking, innovation and creativity; and~~

(xi) Candidates will demonstrate the ability to facilitate student-led team-based learning with appropriate etiquette.

5. The program will provide candidates with authentic experiences in STEM and STEM related careers and teaching environments (a clinical component) as indicated by the following:

   (i) Candidates will show evidence of an interaction with a STEM-related business or externships with STEM professionals to gain perspective of what it is to work in a ~~STEM or~~ STEM-related field;

   (ii) Candidates will show evidence of **in-person or virtual** field-based experiences that include observation of classrooms, collaborative planning, and interviewing of teachers in an integrated STEM education environment that is evidenced by reflective documentation; and

   (iii) Candidates will complete **a transdisciplinary STEM culminating project to include Science, Technology, Engineering and Mathematics.** ~~an interdisciplinary STEM culminating project~~.

Authority: O.C.G.A. § 20-2-200.