

**Certification Examinations for Oklahoma Educators (CEOE)  
Framework Development Correlation Table**

The Framework Development Correlation Table provides information about possible alignment of some of the knowledge and skills contained within the CEOE framework for a test field with other conceptualizations of the knowledge and skills of a field. It was produced using Oklahoma and educator association standards documents that were publicly available at the time of framework development. In the preparation of the Correlation Table, the alignment of a CEOE test competency with standards documents was indicated if the content of a standard was covered, in whole or in part, by the CEOE test competency. For some CEOE test competencies, multiple standards from Oklahoma, or other documents were aligned with the content of a CEOE test competency. An indication of alignment in the Correlation Table does not necessarily imply complete congruence of the content of a CEOE test competency with the standard.

**Matrix Showing Match between NCATE Curriculum Guidelines for Physical Sciences and CEOE Competencies**

| NCATE Curriculum Guidelines                                                                          | CEOE Competencies                                                                                                                                                                                                                                                                                                                                                                                                                                          |
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| 4.1 Provide all students with a holistic, interdisciplinary understanding of science, as well as to: |                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| a. Relate science to contemporary events, research results, and the students' daily lives.           | 0001 Connections among mathematics, science, and technology<br><br>0002 Historical and contemporary contexts of the study of science                                                                                                                                                                                                                                                                                                                       |
| b. Provide students with information about career opportunities in science and technology.           | 0002 Historical and contemporary contexts of the study of science                                                                                                                                                                                                                                                                                                                                                                                          |
| 4.2 Fulfill the professional and legal obligations of science teaching.                              | 0010 (OPTE) Effects of teacher choices and actions on students, parents, and professionals, the modification of these actions, and promotion of continued professional growth<br><br>0011 (OPTE) Comprehension of the "Oklahoma Criteria for Effective Teaching Performance" and its incorporation into instructional strategies<br><br>0013 (OPTE) Legal aspects of teaching, including student and family rights and teacher rights and responsibilities |
| 4.3 Establish and maintain safety in classroom, field and storage areas.                             | 0005 Proper use of equipment, materials, and chemicals in science                                                                                                                                                                                                                                                                                                                                                                                          |

| NCATE Curriculum Guidelines                                                                                      | CEOE Competencies                                                                                                                                                                                                                                                                                                                                                                  |
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| 4.4 Use a variety of instructional strategies, science curricula and community resources, as well as to:         |                                                                                                                                                                                                                                                                                                                                                                                    |
| a. Adapt instruction to the needs of wide range of learner abilities, backgrounds and goals.                     | 0002 (OPTE) Differing student approaches to learning and instructional opportunities that are adaptable to individual differences                                                                                                                                                                                                                                                  |
| b. Plan instruction based on the prior knowledge and conceptualizations of the students.                         | 0005 (OPTE) Application of curriculum goals, the educational process, subject matter, student ability, and the community to instruction, and adaptation of instruction based on assessment and reflection<br><br>0006 (OPTE) Curriculum integration and instructional strategies to encourage student critical thinking, problem solving, and performance and technological skills |
| c. Use electronic educational technology, including computers, interactive video, telecommunications and others. | 0001 Connections among mathematics, science, and technology<br><br>0006 (OPTE) Curriculum integration and instructional strategies to encourage student critical thinking, problem solving, and performance and technological skills<br><br>0007 (OPTE) Effective communication techniques fostering classroom inquiry, collaboration, and supportive interaction                  |
| 4.5 Design and implement laboratory and field-based learning activities which will:                              |                                                                                                                                                                                                                                                                                                                                                                                    |
| a. Foster the development of student research skills in the laboratory and field.                                | 0003 The process of scientific inquiry and experimentation<br><br>0004 Processes of collecting, organizing, and analyzing scientific data                                                                                                                                                                                                                                          |
| b. Apply basic statistical methods and processes of data analysis to interpret scientific phenomena.             | 0004 Processes of collecting, organizing, and analyzing scientific data                                                                                                                                                                                                                                                                                                            |

| NCATE Curriculum Guidelines                                                                                                                                                                                              | CEOE Competencies                                                                                                                                                                                                                                                                                                                                                                                                                |
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| <p>4.6 Foster the development of decision-making and value-analysis skills needed to explore issues and relationships involving scientific, technological, societal and individual human issues and cultural values.</p> | <p>0001 Connections among mathematics, science, and technology</p> <p>0002 Historical and contemporary contexts of the study of science</p> <p>0006 Types and uses of natural resources and the effects of human activities on the environment</p>                                                                                                                                                                               |
| <p>4.7 Use techniques for assessing student outcomes which are aligned with instruction and consistent with contemporary assessment goals.</p>                                                                           | <p>0005 (OPTE) Application of curriculum goals, the educational process, subject matter, student ability, and the community to instruction, and adaptation of instruction based on assessment and reflection</p> <p>0008 (OPTE) Assessment strategies to evaluate and modify the teaching/learning process</p>                                                                                                                   |
| <p>4.8 Apply contemporary research findings to the teaching and learning of science.</p>                                                                                                                                 | <p>0006 (OPTE) Curriculum integration and instructional strategies to encourage student critical thinking, problem solving, and performance and technological skills</p> <p>0010 (OPTE) Effects of teacher choices and actions on students, parents, and professionals, the modification of these actions, and promotion of continued professional growth</p>                                                                    |
| <p>4.9 Use effective classroom management techniques to establish and maintain an environment conducive to learning science.</p>                                                                                         | <p>0001 (OPTE) Student learning and development and learning opportunities that support student intellectual, social, and physical development at all grade levels</p> <p>0002 (OPTE) Differing student approaches to learning and instructional opportunities that are adaptable to individual differences</p> <p>0003 (OPTE) Application of motivational and behavioral practices to create positive learning environments</p> |

| NCATE Curriculum Guidelines                                      | CEOE Competencies                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
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|                                                                  | <p>0004 (OPTE) Comprehension of lifelong learning, making learning enjoyable, and the willingness to change to promote student learning and development (OPTE)</p> <p>0005 (OPTE) Application of curriculum goals, the educational process, subject matter, student ability, and the community to instruction, and adaptation of instruction based on assessment and reflection</p> <p>0006 (OPTE) Curriculum integration and instructional strategies to encourage student critical thinking, problem solving, and performance and technological skills</p> <p>0007 (OPTE) Effective communication techniques fostering classroom inquiry, collaboration, and supportive interaction</p> |
| 9.1 Understand and develop the major concepts and principles of: |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| a. physics:                                                      | <p>0007 Concepts of motion in one and two dimensions</p> <p>0008 Characteristics of forces and the laws of motion</p> <p>0009 Concepts of energy, work, and power, and the principles of conservation of energy and motion</p> <p>0010 Concepts of electric charge, electric fields, capacitance, and electric potential</p> <p>0011 Electric current and electric circuits, capacitance, and direct current circuits</p> <p>0012 Magnetic fields and electromagnetic induction</p> <p>0013 Simple harmonic motion, waves and</p>                                                                                                                                                         |

| NCATE Curriculum Guidelines                                                                                                                                                 | CEOE Competencies                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
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|                                                                                                                                                                             | <p>wave motion</p> <p>0014 Characteristics of sound waves and electromagnetic waves, including light and optics</p>                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <p>b. chemistry:</p>                                                                                                                                                        | <p>0015 Models of atomic structure, and the organization of the periodic table</p> <p>0016 The physical and chemical properties of matter and the types of bonds between atoms</p> <p>0017 The relationship between the mole concepts, chemical formulas, and chemical equations</p> <p>0018 Principles of thermodynamics</p> <p>0019 The kinetic theory of matter</p> <p>0020 Chemical reactions, reaction rates, and chemical equilibrium</p> <p>0021 The properties of solutions and theories, principles, and applications of acid-base chemistry</p> |
| <p>c. earth/space sciences.</p>                                                                                                                                             | <p>0006 Types and uses of natural resources and the effects of human activities on the environment</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <p>9.2 Develop student understanding of the interconnectedness of the sciences, including biology, and relate these understandings to the teaching of physical science.</p> | <p>0001 Connections among science, mathematics, and technology</p> <p>0002 Historical and contemporary contexts of the study of physical sciences</p> <p>0003 The process of scientific inquiry and experimentation</p> <p>0004 Processes of collecting, organizing, and analyzing scientific data</p>                                                                                                                                                                                                                                                    |
| <p>9.3 Apply mathematics, including statistics and precalculus, to investigations in physical science and the analysis of data.</p>                                         | <p>0001 Connections among science, mathematics, and technology</p> <p>0004 Processes of collecting, organizing,</p>                                                                                                                                                                                                                                                                                                                                                                                                                                       |

| NCATE Curriculum Guidelines                                                                                                                                                                 | CEOE Competencies                                                                                                                                                                                                                                                                                                                                                      |
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|                                                                                                                                                                                             | <p>and analyzing scientific data</p> <p>0007 Concepts of motion in one and two dimensions</p> <p>0008 Characteristics of forces and the laws of motion</p> <p>0017 The relationship between the mole concepts, chemical formulas, and chemical equations</p> <p>0021 The properties of solutions and theories, principles, and applications of acid-base chemistry</p> |
| <p>9.4 Relate the concepts of physical science to contemporary, historical, technological and societal issues.</p>                                                                          | <p>0001 Connections among science, mathematics, and technology</p> <p>0002 Historical and contemporary contexts of the study of science</p> <p>0005 Proper use of equipment, materials, and chemicals in physical science</p> <p>0006 Types and uses of natural resources and the effects of human activities on the environment</p>                                   |
| <p>9.5 Locate resources, design and conduct inquiry-based, open-ended investigations in physical science, interpret findings, communicate results and make judgments based on evidence.</p> | <p>0001 Connections among science, mathematics, and technology</p> <p>0003 The process of scientific inquiry and experimentation</p> <p>0004 Processes of collecting, organizing, and analyzing scientific data</p> <p>0006 Types and uses of natural resources and the effects of human activities on the environment</p>                                             |