

**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 Chemistry and CEOE Competencies

NCATE Curriculum Guidelines	CEOE Competencies
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 0002 Historical and contemporary contexts of the study of chemistry
b. Provide students with information about career opportunities in science and technology.	0002 Historical and contemporary contexts of the study of chemistry
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 0011 (OPTE) Comprehension of the "Oklahoma Criteria for Effective Teaching Performance" and its incorporation into instructional strategies 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 chemistry

NCATE Curriculum Guidelines	CEOE Competencies
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 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 0006 (OPTE) Curriculum integration and instructional strategies to encourage student critical thinking, problem solving, and performance and technological skills 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 0004 Processes of collecting, organizing, and analyzing scientific data

NCATE Curriculum Guidelines	CEOE Competencies
b. Apply basic statistical methods and processes of data analysis to interpret scientific phenomena.	0004 Processes of collecting, organizing, and analyzing scientific data
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.	0001 Connections among mathematics, science, and technology 0002 Historical and contemporary contexts of the study of chemistry
4.7 Use techniques for assessing student outcomes which are aligned with instruction and consistent with contemporary assessment goals.	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 0008 (OPTE) Assessment strategies to evaluate and modify the teaching/learning process
4.8 Apply contemporary research findings to the teaching and learning of science.	0006 (OPTE) Curriculum integration and instructional strategies to encourage student critical thinking, problem solving, and performance and technological skills 0010 (OPTE) Effects of teacher choices and actions on students, parents, and professionals, the modification of these actions, and promotion of continued professional growth

NCATE Curriculum Guidelines	CEOE Competencies
<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> <p>0004 (OPTE) Comprehension of lifelong learning, making learning enjoyable, and the willingness to change to promote student learning and development</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>

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<p>6.1 Understand and develop the major concepts and principles of chemistry, including concepts in inorganic, organic, analytical, physical and biochemistry.</p>	<p>0006 Chemical and physical properties of, and changes in, matter</p> <p>0007 Models of atomic structure, principles of quantum theory, and properties of subatomic particles</p> <p>0008 Organization of the periodic table</p> <p>0009 Kinetic molecular theory, the nature of phase changes, and the gas laws</p> <p>0010 Process of nuclear transformation</p> <p>0011 Principles of thermodynamics and calorimetry</p> <p>0012 Energy relationships in chemical bonding and chemical reactions</p> <p>0013 Atomic bonds and their effects on the properties of substances</p> <p>0014 Types and characteristics of molecular interaction and their influence on properties of substances</p> <p>0015 Nomenclature and structure of organic compounds</p> <p>0016 Factors that affect, and methods of measuring, reaction rates</p> <p>0017 Principles of chemical equilibrium</p> <p>0018 Theories, principles, and applications of acid-base chemistry</p> <p>0019 Redox reactions and electrochemistry</p> <p>0020 The nature of organic reactions</p> <p>0021 The mole concept</p> <p>0022 The relationship between the mole concept and chemical formulas</p> <p>0023 Quantitative relationships expressed in</p>

NCATE Curriculum Guidelines	CEOE Competencies
	chemical equations 0024 Properties of solutions and colloidal suspensions, and factors that affect solubility
6.2 Develop student understanding of the interconnectedness of the sciences, and relate the major concepts of biology, the earth/space sciences, and physics to the teaching of chemistry.	0001 Connections among science, mathematics, and technology 0002 Historical and contemporary contexts of the study of chemistry
6.3 Apply mathematics, including calculus, to investigations in chemistry and the analysis of data.	0004 Processes of collecting, organizing, and analyzing scientific data
6.4 Relate the concepts of chemistry to contemporary, historical, technological and societal issues.	0001 Connections among science, mathematics, and technology 0002 Historical and contemporary contexts of the study of chemistry 0025 Industrial and household chemistry 0026 The uses and hazards of nuclear reactions
6.5 Locate resources, design and conduct inquiry-based, open-ended investigations in chemistry, interpret findings, communicate results and make judgements based on evidence.	0003 The process of scientific inquiry and experimentation 0004 Processes of collecting, organizing, and analyzing scientific data 0005 Proper use of equipment, materials, and chemicals in chemistry