

**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 Life Sciences 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 context of biology and the applications of biology to everyday life
b. Provide students with information about career opportunities in science and technology.	0002 Historical context of biology and the applications of biology to everyday life
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

NCATE Curriculum Guidelines	CEOE Competencies
4.3 Establish and maintain safety in classroom, field and storage areas.	0005 Safe use of equipment, materials, chemicals, and living organisms in biological studies
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.	<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>
c. Use electronic educational technology, including computers, interactive video, telecommunications and others.	<p>0001 Connections among mathematics, science, and technology</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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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 Measurement and processes of gathering, organizing, and analyzing data
b. Apply basic statistical methods and processes of data analysis to interpret scientific phenomena.	0004 Measurement and processes of gathering, organizing, and analyzing 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 context of biology and the applications of biology to everyday life 0029 Concepts of human ecology and the impact of human activity on the environment
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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5.1 Understand and develop the major concepts and principles of biology, including concepts in:	
a. anatomy and physiology	0016 The unity and diversity of life 0017 Characteristics, functions, and adaptations of viruses, monerans, protists, and fungi 0018 Characteristics, life functions, and adaptations of plants 0019 Characteristics, life functions, adaptations, and behaviors of animals 0020 Structures and functions of the human skeletal, muscular, and integumentary systems 0021 Structures and functions of the human respiratory and excretory systems 0022 Structures and functions of the human circulatory and immune systems 0023 Human nutrition and structures and functions of the human digestive system 0024 Structures and functions of the human nervous and endocrine systems 0025 Structures and functions of the human reproductive systems

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b. ecology	0026 Characteristics of populations and communities 0027 The development and structure of ecosystems and characteristics of biomes 0028 Connections within and among biogeochemical cycles 0029 Concepts of human ecology and the impact of human activity on the environment
c. behavior	0019 Characteristics, life functions, adaptations, and behaviors of animals 0024 Structures and functions of the human nervous and endocrine systems
d. evolution and genetics	0012 Concepts, principles, and applications of classical and molecular genetics 0013 Principles of population genetics 0014 Processes of natural selection and adaptation and evolutionary theory 0015 Principles of taxonomy

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e. cell biology and microbiology	0006 Cell structures and types of cells 0007 Basic chemistry and biochemistry 0008 Processes of photosynthesis and cellular respiration 0009 Structure and function of DNA and RNA 0010 Procedures and applications of genetic engineering 0011 The cell cycle and cell division 0017 Characteristics, functions, and adaptations of viruses, monerans, protocists, and fungi
f. diversity	0015 Principles of taxonomy 0016 The unity and diversity of life
g. growth	0011 The cell cycle and cell division 0016 The unity and diversity of life 0017 Characteristics, functions, and adaptations of viruses, monerans, protocists, and fungi 0018 Characteristics, life functions, and adaptations of plants 0019 Characteristics, life functions, adaptations, and behaviors of animals
h. human biology	0020 Structures and functions of the human skeletal, muscular, and integumentary systems 0021 Structures and functions of the human respiratory and excretory systems 0022 Structures and functions of the human circulatory and immune systems 0023 Human nutrition and structures and

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	<p>functions of the human digestive system</p> <p>0024 Structures and functions of the human nervous and endocrine systems</p> <p>0025 Structures and functions of the human reproductive systems</p>
<p>5.2 Develop student understanding of the interconnectedness of the sciences, and relate the major concepts of chemistry, the earth/space sciences, and physics to the teaching of biology.</p>	<p>0001 Connections among mathematics, science, and technology</p> <p>0007 Basic chemistry and biochemistry</p> <p>0028 Connections within and among biogeochemical cycles</p>
<p>5.3 Apply mathematics, including statistics and precalculus, to investigations in biology and the analysis of data.</p>	<p>0001 Connections among mathematics, science, and technology</p> <p>0004 Measurement and processes of gathering, organizing, and analyzing data</p>
<p>5.4 Relate the concepts of biology to contemporary, historical, technological and societal issues.</p>	<p>0001 Connections among mathematics, science, and technology</p> <p>0002 Historical context of biology and the applications of biology to everyday life</p> <p>0010 Procedures and applications of genetic engineering</p> <p>0029 Concepts of human ecology and the impact of human activity on the environment</p>

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5.5 Locate resources, design, and conduct inquiry-based, open-ended investigations in biology, interpret findings, communicate results and make judgements based on evidence.	0003 The process of scientific inquiry and experimentation 0004 Measurement and processes of gathering, organizing, and analyzing data
5.6 Use and care for living organisms in an ethical and appropriate manner.	0005 Safe use of equipment, materials, chemicals, and living organisms in biological studies