Biology and Chemistry Student Teaching Standards

Thank you for your role in the evaluation of our teacher education candidates' student teaching experience! To enhance the effective and accurate assessment of our candidates, in relation to their content knowledge and pedagogical knowledge and skills, the School of Education has documented the expectations for our candidates through the identification of standards that should be used as part of the assessment process.

Below you will find a listing of the Peru State College Conceptual Framework standard and their alignment to INTASC. You will also find specific standards from The Nebraska Department of Education's Rule 24 Guidelines for **Biology or Chemistry Education** that have been aligned to our student teaching evaluation indicators. As you complete both the Content Studies and Pedagogical Studies sections of the evaluation, please critically analyze the student teaching candidate in relation to the specific standards listed below.

Again, thank you for your participation in this crucial aspect of our teacher education program. The School of Education appreciates your time and efforts.

Peru State College Conceptual Framework Outcomes Content Knowledge		
PERU-U.1.2.1	Teacher education candidates interrelate all content areas, use tools of inquiry, and emphasize the significance of literacy and diversity across the curriculum.	INTASC Standards 1, 2, 3, 4, 7, 8, 9
PERU-U.1.2.2	Teacher education candidates identify, select and evaluate appropriate resources to support a coherent lesson sequence in their content area which creates meaningful learning experiences and productive student work.	INTASC Standards 2, 4, 7, 8
PERU-U.1.2.3	Teacher education candidates demonstrate comprehension of the evolving nature of theory and research in their content area.	INTASC Standards 1, 8, 9

Indicator 1: The teacher candidate presents the central concepts of the content area(s) knowledgeably and in sufficient depth.

A. Demonstrate knowledge and understanding of and be able to teach the concepts, skills and processes of science as defined in the Nebraska Content Standards for eighth and twelfth grades. Preparation for subject endorsements will not include the same level of depth of understanding as the Natural Science endorsement. Demonstrate the appropriate depth of understanding of the subject area endorsement;
D1. Apply the unifying concepts and processes of systems, order and organization;
D2. Apply the unifying concepts and processes of evidence, models and explanation;
D3. Apply the unifying concepts and processes of change, constancy and measurement;
D4. Apply the unifying concepts and processes of evolution and equilibrium;
D5. Apply the unifying concepts and processes of form and function;
F1. Apply facts/theories/principles/models of structure and properties of the atom;
F2. Apply facts/theories/principles/models of structure and properties of matter;

F3. Apply facts/theories/principles/models of chemical reactions;
F4. Apply facts/theories/principles/models of motions and forces;
F5. Apply facts/theories/principles/models of conservation of energy and increase in disorder;
F6. Apply facts/theories/principles/models of interactions of energy and matter;
G1. Apply facts/theories/principles/models of the cell;
G2. Apply facts/theories/principles/models of molecular basis of heredity;
G3. Apply facts/theories/principles/models of biological evolution;
G4. Apply facts/theories/principles/models of interdependence of organisms;
G5. Apply facts/theories/principles/models of matter, energy and organization in human and other living systems;
G6. Apply facts/theories/principles/models of behavior of organisms;
H1. Apply facts/theories/principles/models of structure of the earth system;
H2. Apply facts/theories/principles/models of earth's history;
H3. Apply facts/theories/principles/models of earth in the solar system;
H4. Apply facts/theories/principles/models of energy in the earth system;
H5. Apply facts/theories/principles/models of geochemical cycles;
H6. Apply facts/theories/principles/models of origin and evolution of the earth system;
H7. Apply facts/theories/principles/models of origin and evolution of the universe;
I2. Describe the relationship between science and technology, including the cyclical relationship for advancement.
J1. Apply concepts/principles/processes of personal and community health;
J2. Apply concepts/principles/processes of population growth;
J3. Apply concepts/principles/processes of natural resources;
J4. Apply concepts/principles/processes of environmental quality;
J5. Apply concepts/principles/processes of natural and human-induced hazards; and
J6. Apply concepts/principles/processes of science and technology in local, national, and global challenges.

Indicator 2: The teacher candidate integrates professional knowledge and research into lesson planning within the content area(s).

B1. Manage physical spaces within which science learning occurs;
B2. Demonstrate proper treatment and ethical use of living organisms;
B3. Demonstrate safety in all areas related to science instruction; and
I1. Plan, create or modify, and evaluate a technological solution to a scientific problem.

Indicator 3: The teacher candidate integrates related aspects of other content areas into lessons.

C1. Utilize social and community support networks;
C2. Relate science teaching and learning to the needs and values of the community;
C3. Involve people and institutions from the community in the teaching of science; and
I3. Demonstrate an understanding of the interdisciplinary nature of science as it approaches human problems, e.g., engineering, geophysics and biochemistry.

Indicator 4: The teacher candidate communicates the evolving nature of the content area(s) to students.

K1a. Describe significant scientists, including individuals from both genders, and of different races and ethnic groups;
K1b. Describe the societal, cultural, and personal beliefs that influence scientists;

K1c. Demonstrate the nature and practice of scientists, for example, ethical behaviors, peer review, truthful reporting, public disclosure;
K2. Demonstrate the nature of scientific knowledge; and
K3. Demonstrate the history of science.

Indicator 5: The teacher candidate provides opportunities for students to develop general and content area literacy.

E1. Identify questions and concepts that guide scientific investigations;
E2. Design and conduct scientific investigations;
E3. Use appropriate tools and techniques to gather, analyze and interpret data;
E4. Develop descriptions, explanations, predictions and models using evidence;
E5. Think critically and logically to make relationships between evidence and explanation;
E6. Recognize and analyze alternative explanations and models;
E7. Communicate and defend a scientific argument; and
E8. Understand the unique characteristics of scientific inquiry.

Peru State College Conceptual Framework Outcomes Pedagogical Knowledge/Skills		
PERU-U.1.3.1	Teacher education candidates understand human development and socio-cultural, philosophical, and historical foundations of education processes in a democratic society.	INTASC Standards 2, 3, 8
PERU-U.1.3.2	Teacher education candidates design classroom experiences that develop critical, creative, and independent thinking, respect, safety and well-being to meet the diverse learning needs of all students and reflect knowledge of how different students learn and develop.	INTASC Standards 2, 4, 5, 6, 7
PERU-U.1.3.3	Teacher education candidates utilize standards-based curricula, assessment strategies, research, technology resources, and diversity in curriculum development, planning and implementation.	INTASC Standards 1, 2, 3, 7
PERU-U.1.3.4	Teacher education candidates design and teach lessons that integrate general content and technological, professional, and pedagogical knowledge to meet the needs of, and, have the ability to motivate, all students.	INTASC Standards 1, 2, 3, 4, 5, 6, 7, 8, 9
PERU-U.1.3.5	Teacher education candidates design and implement a variety of written and oral on-going assessment strategies directly related to standards used to assess individual student progress and to modify teaching and learning strategies.	INTASC Standards 2, 4, 7, 8
PERU-U.1.3.6	Teacher education candidates create a positive, well organized learning community with clearly defined classroom goals linked to standards dedicated to purposeful learning activities that motivate students' interest and engagement and minimize student off-task behavior.	INTASC Standards 5, 6, 9, 10
PERU–U.1.3.7	Teacher education candidates employ multiple, purposeful teaching and learning strategies to engage students in active learning opportunities that promote the development of problem solving, critical thinking, and goal setting and help students assume responsibility for their own learning.	INTASC Standards 2, 4, 5, 7