CALIFORNIA STATE UNIVERSITY, NORTHRIDGE
E ED 565S Science Curriculum and Methods
SPRING 2024
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General Information

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Michael D. Eisner College of Education Conceptual Framework

The faculty of the Michael D. Eisner College of Education, regionally focused and nationally recognized, is committed to excellence, innovation, and social justice. Excellence includes the acquisition of professional dispositions, skills, and research-based knowledge, and is demonstrated by the development of ethical and caring professionals—faculty, staff, candidates—and those they serve. Innovation occurs through the leadership and commitment of faculty, and through collaborative partnerships among communities of diverse learners who engage in creative and reflective thinking. We are dedicated to promoting social justice and becoming agents of change in schools and our communities. We continually strive to achieve the following competencies and values that form the foundation of the Conceptual Framework.

- We value academic excellence in the acquisition of research-based professional knowledge and skills.
- We strive to positively impact schools and communities. Therefore, we foster a culture of evidence to determine the impact of our programs, to monitor candidate growth, and to inform ongoing program and unit improvement.
- We value ethical practice and what it means to become ethical and caring professionals.
- We value collaborative partnerships within the Michael D. Eisner College of Education as well as across disciplines with other CSUN faculty, P-12 educators and related professionals, and other members of regional and national educational and service communities.
- We value people from diverse backgrounds and experiences and are dedicated to addressing the varied strengths, interests, and needs of communities of diverse learners.
- We value creative, critical, and reflective thinking and practice.

Course Description:

This course is designed to provide *Multiple Subject Credential Candidates* opportunities to learn from their teaching of science. Our foci for teaching elementary school science will be on acquiring the skills and understandings needed to effectively plan, implement, and evaluate instructional programs in science, including those for STEM education, for diverse student populations. It is designed to provide teacher candidates with models of instruction consistent with the nature of science and our current understanding of learning processes, opportunities to develop related science and engineering practices, for K-5 and skills in implementing inquiry-based lessons and units of study to lay a foundation for students to develop into scientifically literate citizens.

In addition, students will explore and apply the various dimensions of science teacher knowledge, including state-adopted standards, curriculum frameworks, and science/engineering curriculum materials; students' alternative conceptions; and teaching strategies. Teacher candidates will develop strategies for teaching children of widely differing cultural and linguistic heritages, developmental levels and learning styles, and students with special learning needs to provide all children equal access to the science curriculum. Prerequisites: Admission to the Multiple Subject Credential Program; E ED/EPC 500 Fundamentals of Teaching; EED 520 Teaching Reading in the Elementary School; EED 565M Mathematics Curriculum and Methods.

Course Objectives

Theoretical Components

1. Develop select pedagogical knowledge and skills in science appropriate to the elementary school curriculum (TPEs 3.1, 3.3).
2. Develop critical thinking in science, e.g., the use of scientific processes and science inquiry strategies in both the primary and secondary languages of the students, as appropriate (TPE 3.3).
3. Develop an appreciation for science as a mode of thinking and strategy of inquiry into the natural world (TPE 3.1).
4. Develop positive attitudes towards science and teaching science in the elementary school (TPEs 3.1, 3.4, 6.2, 6.3, 6.6).
5. Integrate and correlate the science curriculum with the standards, goals, and recommendations of California, local districts, and professional organization standards, goals and recommendations (TPE 3.1, 3.6).
6. Become familiar with, evaluate, and analyze strengths and limitations of a variety of media and technological applications that are designed to enhance the science curriculum (TPEs 1.4, 3.6, 3.7, 4.4, 4.8).
7. Gain the necessary knowledge and skills to effectively teach science to students whose primary language is not English (including primary language instruction, as appropriate) (TPEs 1.1, 1.4, 3.2, 3.5, 4.4).
8. Develop an understanding of the interdependence of science in a child's explorations of the environment and the interplay of science with other areas of the curriculum (TPEs 3.3, 4.3).
9. Examine applications of all communication modes (collaborative, interpretive, and productive) for developing English proficiency in reading, writing, listening, speaking within science (TPEs 1.4, 1.6, 3.4, 3.5, 4.3, 4.4).
10. Examine applications of cross-mode language processes (structuring cohesive texts, expanding and enriching ideas, and connection and condensing ideas) within science (TPEs 1.4, 1.6, 3.5, 4.3, 4.4).

Pedagogical Components

11. Develop the ability to plan, implement and evaluate science curriculum for a diverse student population (TPEs 1.4, 1.6, 1.7, 4.1, 5.2, 5.6, 6.6).
12. Develop appropriate oral and written assignments that are designed to improve reading/writing skills in science and which ask students to cite specific evidence from a scientific text, both informational and narrative (TPEs 1.6, 4.1, 5.7, 7.3, 7.6, 7.9).

13. Employ a range of effective teaching strategies for science based on sound theory and/or research (TPEs 1.3, 1.4, 1.5, 1.7 3, 4.1, 6.1).

14. Model, analyze and implement a range of effective Specially Designed Academic Instruction in English (SDAIE) teaching strategies for science (TPEs 1.3, 1.4, 1.6, 2.1-2.5, 3.2, 3.3, 3.5, 3.6).
15. Design and use effective, research-based teaching strategies that support English language learners as they increase independence in reading and accessing informational text in science, including use of SDAIE, identifying elements of the text structure, elements of text complexity, and strategies for reducing complexity (TPEs 1.4, 1.6, 4.1 – 4.4, 6.6, 7.3, 7.4).
16. Design and use a variety of effective teaching strategies that develop more language proficiency and independence needed for reading, speaking, listening, and writing in the genres utilized by experts in the field of science, including attention to audience needs, language purpose, language conventions, developing more complex academic language, and purpose of the author/speaker/reader (TPEs 1.5, 1.6, 2.2, 2.5, 3.5, 4.1, 4.3, 4.4, 4.7, 7.1).
17. Adapt science curriculum and instructional strategies to address the needs of special populations of students: the mainstreamed child, the culturally and/or language different student, the gifted and talented student, the struggling reader/writer (TPEs 1.1, 1.3, 1.4, 1.6, 1.7, 2.2, 2.3, 3, 4.1, 4.2, 4.4, 4.5, 4.7, 4.8, 6.2, 6.6, 7.3, 7.4).
18. Evaluate and develop instructional materials for science lessons, including guidelines for selecting high-quality trade books that are suitable to the curricular purpose and of appropriate text complexity for the K-5 student' reading and language levels (TPEs 2.6, 3.1, 3.2, 3.3, 7.3, 7.6, 7.9).

Assignments and Projects (*also see Course Assignments*):

Assignments/Projects	**Points**	**Example: Student A**
Class participation and commitment to learning	100	75
Reflections (2) ~ 50 points ea.	100	80
Learning Segment (Science Lesson plans/Group Activity)	300	275
Total Course Points	**500**	**430/500 = 86% = B**

Grading:

The following grading scale will be used to determine final course grades.

95-100%	A	87-89%	B+	80-82%	B-	73-76%	C	67-69%	D+	60-62%	D-
90-94%	A-	83-86%	B	77-79%	C+	70-72%	C-	63-66%	D	< 60%	F

Grading Policy: **Timely submission of all assignments is expected. Assignments turned in late will be graded based on half the allotted points!**

Textbook & Course Readings

Martin, Sexton, and Franklin (2009). *Teaching Science for All Children: An Inquiry Approach* (5th Edition). Boston, MA: Allyn and Bacon.

➢ Additional readings related to learning and teaching science will be distributed in class when relevant.

Course Assignments:

1. Class Participation - Education is a social endeavor and your attendance in class is expected. You will be required to contribute in relevant ways to discussion, insight, and the critique of ideas posed in class. Therefore, your *attendance*, *class participation*, and *comportment* will all be factored into your earned class participation and commitment to learning points. That is, in order for a student to acquire full participation points in this course she or he must, (a) attend all classes, (b) participate in a meaningful way on a consistent basis, and (c) behave in a professional manner relative to any aspect of this course.

2. Description of your thinking about science and science teaching (**Reflections**). Reflections related to the course readings will be submitted according to dates on the course calendar (see calendar for due dates). TPEs 3.1, 3.3, 6.2, 7.2 TPEs 4.2, 4.3

TPE 3.1 (Demonstrate knowledge of subject matter, including the adopted California State Standards and curriculum frameworks.), TPE 3.3 (Plan, design, implement, and monitor instruction consistent with current subject-specific pedagogy in the content area(s) of instruction, and design and implement disciplinary and cross-disciplinary learning sequences), TPE 4.2 (Understand and apply knowledge of the range and characteristics of typical and atypical child development from birth through adolescence to help inform instructional planning and learning experiences for all students.), TPE 4.3 (Design and implement instruction and assessment that reflects the interconnectedness of academic content areas and related student skills development in literacy across the curriculum), TPE 6.2 (Recognize their own values and implicit and explicit biases, the ways in which these values and implicit and explicit biases may positively and negatively affect teaching and learning, and work to mitigate any negative impact on the teaching and learning of students.), TPE 7.2 Plan and implement evidence-based literacy instruction (and integrated content and literacy instruction) grounded in an understanding of Universal Design for Learning; California's Multi-Tiered System of Support (Tier 1–Best first instruction, Tier 2–Targeted, supplemental instruction, and Tier 3–Referrals for intensive intervention); and the *California Dyslexia Guidelines*, including the definition and characteristics of dyslexia and structured literacy (i.e., instruction for students at risk for and with dyslexia that is comprehensive, systematic, explicit, cumulative, and multimodal and that includes phonology, orthography, phonics, morphology, syntax, and semantics).

3. Designing and assessing a science learning segment

Utilizing information gleaned from course content, you will be required to design and assess the value of a learning segment using subject-specific pedagogy in science, literacy in/of science. This will involve writing a set of science lessons (collectively/individually) that build upon one another focused on specific grade-level science concepts, using student learning goals and making accommodations and/or modifications as needed, as well as knowledge of student language proficiency across content. The learning segment should be oriented to student learning about relevant NGSS for California Public Schools and evidence planning to differentiate and make accommodations and/or modify instruction. TPEs 3.1, 3.3, 6.2, 7.2 TPEs 4.1, 4.2, 4.3, 5.7, 7.1, 7.4, 7.6, 7.9 TPEs 1.5, 2.6, 3.1, 3.2, 3.3, 5.7, 5.8, 7.2, 7.3, 7.9

TPE 3.1 (Demonstrate knowledge of subject matter, including the adopted California State Standards and curriculum frameworks.), TPE 3.3 (Plan, design, implement, and monitor instruction consistent with current subject-specific pedagogy in the content area(s) of instruction, and design and implement disciplinary and cross-disciplinary learning sequences), TPE 4.1 (Locate and apply information about students' current academic status, content-and standards-related learning needs and goals, assessment data, language proficiency status, and cultural background for both short-term and long-term instructional planning purposes.) TPE 4.2 (Understand and apply knowledge of the range and characteristics of typical and atypical child development from birth through adolescence to help inform instructional planning and learning experiences for all students.), TPE 4.3 (Design and implement instruction and assessment that reflects the interconnectedness of academic content areas and related student skills development in literacy across the curriculum), TPE 5.7 (Interpret English learners' assessment data to identify their level of academic proficiency in English as well as in their primary language, as applicable, and use this information in planning instruction.), TPE 5.8 (Use assessment data, including information from students' IEP, IFSP, ITP, and 504 plans, to establish learning goals and to plan, differentiate, make accommodations and/or modify instruction.), TPE 6.2 (Recognize their own values and implicit and explicit biases, the ways in which these values and implicit and explicit biases may positively and negatively affect teaching and learning, and work to mitigate any negative impact on the teaching and learning of students.), TPE 7.2 Plan and implement evidence-based literacy instruction (and integrated content and literacy instruction) grounded in an understanding of Universal Design for Learning; California's Multi-Tiered System of Support (Tier 1–Best first instruction, Tier 2–Targeted, supplemental instruction, and Tier 3–Referrals for intensive intervention); and the *California Dyslexia Guidelines*, including the definition and characteristics of dyslexia and structured literacy (i.e., instruction for students at risk for and with dyslexia that is comprehensive, systematic, explicit, cumulative, and multimodal and that includes phonology, orthography, phonics, morphology, syntax, and semantics), TPE 7.3 (Incorporate asset-based pedagogies, inclusive approaches, and Implement evidence-based integrated content literacy instruction), TPE 7.4 (Provide literacy instruction for all students that is active, motivating, and engaging; responsive to students' age, language and literacy development, and literacy goals), TPE 7.6 (Engage students in meaning making by building on prior knowledge and using complex literary and informational print, digital, and oral text, questioning, and discussion to develop students' higher order cognitive skills), TPE 7.9 (Promote students' content knowledge by engaging students in science literacy instruction that integrates reading, writing, listening, and speaking in discipline specific ways through hands-on exploration).

Other Course Considerations

COMPORTMENT: Please be courteous to your classmates and to me. During class time, please turn off your cell phones and other electronic devices (or put them on vibrate if you are expecting an emergency call). It is NOT appropriate to answer calls or text during class time unless it is an emergency.

RESPONSIBILITY TAKING: Once we have discussed the syllabus, it becomes your responsibility to know what the assignments are and when they are due. I will, of course, always answer any questions that you have, but "I didn't know it was due today!" is not a valid excuse for turning work in late. Late assignments will be graded based on half of the total assignment points.

Department of Elementary Education Professional Dispositions Policy

In accordance with state and national standards, students in the Department of Elementary Education at California State University, Northridge are assessed on knowledge, performance, and professional dispositions. Faculty in the Department of Elementary Education fully expect students to be successful and meet all program standards, but poor academic preparation, poor academic work, poor performance, or observed professional dispositional deficiencies will constitute grounds for a decision regarding separation from

the teacher preparation program (or any other Elementary Education program) at California State University, Northridge. The Department of Elementary Education has adopted a process for ensuring that all CSUN students uphold standards of knowledge, performance, and professional dispositions recognized by the education profession. Obtain detailed information about the involuntary delay/withdrawal process, the *Statement of Concern* form, student appeals, and the list of *Qualities Important to Future Teachers and Educational Professionals* at www.csun.edu/coe/eed/delay_withdrawal

Your lesson plans should follow the provided Lesson Design Frame. Your lesson plans should thus include:

- **Setting** information such as school, grade level, title of the lesson, and estimated time frame.
- **Rationale** for the lesson.
- **Cognitive**, **affective**, **social** objectives.
- **Content Information** – including CA science content standards.
- **Administrative Considerations** – including safety and management issues.
- **Materials**.
- **Lessons procedures**. Use and describe the "science teaching model" described in class (learning cycle or "5-E).
- **Assessment**, both process and product of instruction.
- **Analysis** of student work.
- **Reflection** on your teaching experience as well as the value of creating and teaching a science learning segment.

Course Calendar

Week	Date	*Topics and Assignments*	Readings
1	1/23	Introductions and Course Overview **(Virtual)**	No reading
2	1/30	The Nature of Science **(In-person)** TPE 3.1, (Demonstrate knowledge of subject matter, including the adopted California State Standards and curriculum frameworks.) 3.3 (Plan, design, implement, and monitor instruction consistent with current subject-specific pedagogy in the content area(s) of instruction, and design and implement disciplinary and cross-disciplinary learning sequences)	Martin: Ch. 1
3	2/6	Instructional strategies: Cooperative inquiry Children's ideas and learning science What does inquiry for all mean? ***Reflection #1: Due*** **(In-person)**	Martin: Ch. 2
4	2/13	Learning to Plan Standards-Based Inquiry Lessons Science Process Skills, Attitudes, and Habits of Mind ***Download CA Science Content Standards at:*** http://www.cde.ca.gov/ci/sc/ ***Download NGSS for California Public Schools, K-12 at:*** http://www.cde.ca.gov/pd/ca/sc/ngssstandards.asp **(Virtual)**	Martin: Ch. 4
5	2/20	Constructing Scientific Meaning Through Scientific Inquiry **(In-person)** TPE 4.2, (Apply knowledge of student development to help inform instructional planning and learning experiences for all students.) 4.3 (Design and implement instruction and assessment in science content and in literacy across the curriculum)	Martin Ch. 5
6	2/27	Using the California Common Core State Standards (CCCSS) and the Next Generation Science Standards (NGSS) to Teach Science to all Students ***Reflection #2: Standards Review Due*** **(Virtual)** TPE 4.1, (Apply student data to short-term and long-term instructional planning purposes.) 4.2, (see TPE description wk. 5) 4.3, (see TPE description wk. 5) TPE 6.2 (Recognize their own values and implicit and explicit biases, the ways in which these values and implicit and explicit biases may positively and negatively affect teaching and learning, and work to mitigate any negative impact on the teaching and learning of students.), 7.2 Plan and implement evidence-based literacy instruction (and integrated content and literacy instruction) grounded in an understanding of Universal Design for Learning; California's Multi-Tiered System of Support (Tier 1–Best first instruction, Tier 2– Targeted, supplemental instruction, and Tier 3–Referrals for intensive intervention); and the *California Dyslexia Guidelines*, including the definition and characteristics of dyslexia and structured literacy (i.e., instruction for students at risk for and with dyslexia that is comprehensive, systematic, explicit, cumulative, and multimodal and that includes phonology, orthography, phonics, morphology, syntax, and semantics).	Martin: Ch. 3

7	3/5	Planning Inquiry Lessons with the NGSS: Constructing a Science Lesson Understanding the Learning Segment Group Assignment **(In-person)** TPE 3.1, (see TPE description wk. 2) 7.1 (Plan and implement evidence-based literacy instruction grounded in an understanding of applicable literacy-related standards as related to science learning) TPE 5.7 (Use English learners' assessment data in planning instruction.) TPE7.3. (Incorporate asset-based pedagogies inclusive approaches, and culturally and linguistically affirming and sustaining practices in integrated content and literacy instruction). Group Planning exercise 7.1 (Plan and implement evidence-based literacy instruction grounded in an understanding of applicable literacy-related standards as related to science learning)	Martin: Ch. 4
8	3/12	Defining Scientific Literacy Assessing students' science learning Lesson Planning with accommodations for ELLs using SDAIE **(Virtual)** TPE 7.4 (Provide literacy instruction in science that is responsive to students' age, language and literacy development, and literacy goals) TPE 1.3, providing real-life contexts to engage student interest and provide motivation for learning science, 7.1, (see TPE description wk. 7) **Group Planning exercise** 7.4 ((Provide literacy instruction in science that is responsive to students' age, language and literacy development, and literacy goals)	Martin Ch. 5 Martin: Ch. 7 Handouts provided
	3/19	**No Class** ☺ Live it up.	Spring Recess
9	3/26	Teaching Impact of Questioning and Inquiry ***Group Assignment Due* (In-person)** TPE 7.6, (Engage students in meaning making by building on prior knowledge and using complex literary and informational print, digital, and oral text, questioning, and discussion to develop students' higher order cognitive skills) TPE 5.7, (see TPE description wk. 7) 5.8 (Use assessment data, including information from students' IEP, IFSP, ITP, and 504 plans, to establish learning goals and to plan, differentiate, make accommodations and/or modify instruction.) TPE 7.6, **Group Planning exercise**	Martin: Ch. 6
10	4/2	Integrating Science into the Curriculum Group Assignment Presentations Science Learning Segment Explained **(Virtual)** TPE 7.9 (Promote students' content knowledge by engaging students in science literacy instruction that integrates reading, writing, listening, and speaking in discipline specific ways through hands-on exploration)	Martin: Ch. 9
11	4/9	Creating Safe Science Classrooms Science Materials, Programs, and Resources (Learning Segment Work time.) **(In-person)**	Martin: Ch. 10 Martin: Ch. 11
12	4/16	Instructional strategies: Technology Science, Technology, Engineering and Mathematics (STEM): Linking CA science standards/NGSS to STEM Begin Science Learning Segment Presentations ***Learning Segment Due* (In-person)** TPE 3.1, (see TPE description wk. 2) 3.2,	Martin: Ch. 8

		7.9 (see TPE description wk. 10)	
13	4/23	Science Learning Segment Presentations **(In-person)** TPE 1.5, (Promote students' critical and creative thinking and analysis through activities that provide opportunities for inquiry, problem solving, responding to and framing meaningful questions, and reflection.) 2.6, (Establish and maintain clear expectations for positive classroom behavior and for student-to-student and student-to-teacher interactions by communicating classroom routines, procedures, and norms to students and families.) 3.1, (see TPE description wk. 2) 3.2, (student understanding of subject matter, making accommodations and/or modifications) 3.3 (see TPE description wk. 2)	No reading
14	4/30	Science Learning Segment Presentations **(In-person/Virtual?)**	No reading
15	5/7	Final presentations, wrap-up, reflections on teaching science **(Virtual)**	No reading
16	5/14	Final Examinations Week: (5/11-5/17)	**No Class** ☺

Note: Course content subject to change.

Teaching Performance Expectations (TPEs) Legend:

Introduce	Yellow
Practice	Blue
Assess	Green

TPEs (sequential)	**Course Week**	**Syllabus Page**	**Course Example**
TPE 1.3	Week 8	Page 8	SDAIE Group Discussion
TPE 1.5	Week 13	Page 9	Learning Segment Presentations
TPE 2.6	Week 13	Page 9	Learning Segment Presentations
TPE 3.1	Week 2	Page 7	The Nature of Science
TPE 3.1	Week 12	Page 8	Learning Segment Presentations
TPE 3.1	Learning Segment	Page 4	Learning Segment
TPE 3.2	Learning Segment	Page 4	Learning Segment
TPE 3.3	Week 2	Page 7	The Nature of Science
TPE 3.3	Learning Segment	Page 4	Learning Segment Presentations
TPE 4.1	Week 6	Page 7	Using the California Common Core State Standards (CCCSS) and the Next Generation Science Standards (NGSS) for all
TPE 4.2	Week 5	Page 7	Constructing Scientific Meaning Through Scientific Inquiry
TPE 4.3	Week 5	Page 7	Constructing Scientific Meaning Through Scientific Inquiry

TPE 5.7	Week 7	Page 8	Science Learning Segment Group Assignment
TPE 5.7	Learning Segment	Page 4	Learning Segment
TPE 5.8	Learning Segment	Page 4	Learning Segment

TPE 7.1	Week 7	Page 8	Science Learning Segment Group Assignment
TPE 7.1	Week 7	Page 8	Science Learning Segment Group Assignment
TPE 7.3	Week 7	Page 8	Understanding the Learning Segment Group Assignment
TPE 7.4	Week 8	Page 8	Scientific Literacy Lecture
TPE 7.4	Week 8	Page 8	Scientific Literacy Planning Activity
TPE 7.6	Week 9	Page 8	Questioning and Inquiry Discussion/Activity
TPE 7.9	Week 10	Page 8	Learning Segment Group Presentations
TPE 7.9	Learning Segment	Page 4	Science Learning Segment Assignment

TPEs (sequential) **Addressed in each class session:**

TPE 1.3, Connect subject matter to real-life contexts and provide active learning experiences to engage student interest, support student motivation, and allow students to extend their learning.

TPE 1.5 (Promote students' critical and creative thinking and analysis through activities that provide opportunities for inquiry, problem solving, responding to and framing meaningful questions, and reflection).

TPE 2.6 (Establish and maintain clear expectations for positive classroom behavior and for student-to-student and student-to-teacher interactions by communicating classroom routines, procedures, and norms to students and families).

TPE 3.1 (Demonstrate knowledge of subject matter, including the adopted California State Standards and curriculum frameworks.).

TPE 3.2 (Use knowledge about students and learning goals to organize the curriculum to facilitate student understanding of subject matter and, make accommodations and/or modifications as needed to promote student access to the curriculum).

TPE 3.3 (Plan, design, implement, and monitor instruction consistent with current subject-specific pedagogy in the content area(s) of instruction, and design and implement disciplinary and cross-disciplinary learning sequences).

TPE 4.1 (Locate and apply information about students' current academic status, content-and standards-related learning needs and goals, assessment data, language proficiency status, and cultural background for both short-term and long-term instructional planning purposes).

TPE 4.2 (Understand and apply knowledge of the range and characteristics of typical and atypical child development from birth through adolescence to help inform instructional planning and learning experiences for all students).

TPE 4.3 (Design and implement instruction and assessment that reflects the interconnectedness of academic content areas and related student skills development in literacy across the curriculum).

TPE 5.7 (Interpret English learners' assessment data to identify their level of academic proficiency in English as well as in their primary language, as applicable, and use this information in planning instruction).

TPE 5.8 (Use assessment data, including information from students' IEP, IFSP, ITP, and 504 plans, to establish learning goals and to plan, differentiate, make accommodations and/or modify instruction).

TPE 6.2 (Recognize their own values and implicit and explicit biases, the ways in which these values and implicit and explicit biases may positively and negatively affect teaching and learning, and work to mitigate any negative impact on the teaching and learning of students).

TPE 7.1 (Plan and implement evidence-based literacy instruction grounded in an understanding of

applicable literacy-related standards).

TPE 7.2 Plan and implement evidence-based literacy instruction (and integrated content and literacy instruction) grounded in an understanding of Universal Design for Learning; California's Multi-Tiered

System of Support (Tier 1–Best first instruction, Tier 2–Targeted, supplemental instruction, and Tier 3–Referrals for intensive intervention); and the *California Dyslexia Guidelines*, including the definition and characteristics of dyslexia and structured literacy (i.e., instruction for students at risk for and with dyslexia that is comprehensive, systematic, explicit, cumulative, and multimodal and that includes phonology, orthography, phonics, morphology, syntax, and semantics).

TPE 7.3. (Incorporate asset-based pedagogies, inclusive approaches, and Implement evidence-based integrated content literacy instruction).

TPE 7.4 (Provide literacy instruction for all students that is active, motivating, and engaging; responsive to students' age, language and literacy development, and literacy goals).

TPE 7.6, (Engage students in meaning making by building on prior knowledge and using complex literary and informational print, digital, and oral text, questioning, and discussion to develop students' higher order cognitive skills).

TPE 7.9 (Promote students' content knowledge by engaging students in science literacy instruction that integrates reading, writing, listening, and speaking in discipline specific ways through hands-on exploration).