Semester: Fall 2019  
Course: EDTE 302/502 (3)  
Course Title: Elementary Methods I: Math and Science

Days/Times: Monday, 1:00-3:50 Section 1; 4:00-6:50 Section 2  
Room: MRH 127  
Instructor: C. Bobbi Hansen  
Email: chansen@sandiego.edu  
Telephone: X2381  
Office Hours: Monday, 12:00-1:00 and Wednesday, 12:00-4:00, and by appt.

Conceptual Framework

SCHOOL OF LEADERSHIP AND EDUCATION SCIENCE (SOLES)  
MISSION & VISION STATEMENT

Mission  
The mission of SOLES is to engage with students and our communities to continuously learn through inquiry and practice that supports social justice and effects meaningful change in our diverse society.

Vision  
We shape the future by providing inclusive education as the foundation of social justice and the means to enhance human dignity and improve the quality of life.

Core Values  
We base our courses of study and our worldview in several key values embraced by program leadership, faculty, staff and students.  
- Multiculturalism and social justice  
- Excellence in teaching  
- Care for the whole person  
- Community engagement  
- Excellence in scholarship
Diversity & Inclusion: By the end of the program, students will:
- Be able to identify and navigate sources of power/resistance, decision making and resources
- Challenge all forms of discrimination including race, class, gender, sexual orientation, language, religion, disability-in local, national, and global contexts, and will work as change agents to undermine oppression. Students will:
  - Be skilled at being aware of own biases
  - Understand forms of capital (funds of knowledge/identity)
  - Examine deficit models and reframe/transform
  - Understand historical experience, knowledge and struggles of education systems
  - Develop cultural competencies/proficiency models
  - Engage in continuous reflection about practice, society, and institutional systems
  - Improve self-efficacy and self-advocacy
- Understand access and equity to be an overarching goal of education
- Use UDL to support all learners

2. Changemaking for a more just world: By the end of the program, students will:
- Be relevant
- Transform themselves, students/classrooms and environment
- Make a difference - innovate, lead
- Problem-solve
- Build and utilize relationships, teamwork, and collaborate

3. Critical Inquiry: By the end of the program all students will:
- Understand positionality, privilege, power, and educational systems within social/political/eco contexts
• Examine and analyze their biases and beliefs towards the shaping of their instructional practice
  ○ Critically and theoretically analyze schools of thought, research theories and practices relating to education
• Apply critical inquiry to evidence based pedagogical practices
• Use action research as a tool to create:
  ○ Equitable, accessible, inclusive learning environments

4. Internationalization & Global Citizenship: By the end of the program all students will:
• Participate in an international course or cross-cultural experience
• Engage with local populations
• Develop personal understanding of their global role and implement learning experience in practice

Course Description

This course provides elementary (TK-6) teacher candidates an overview of key dimensions of curriculum and instruction theory and practice in mathematics and science in accordance with State and National STEM Standards. Using pertinent contributions from research in learning theory, motivation, social-emotional learning, individual differences, candidates will be provided with opportunities to observe, teach and self-reflect on student learning in culturally diverse and inclusive settings. Emphasis will be placed on demonstrating understanding of content-specific pedagogical practices including reasoning, questioning, modeling, developing arguments, and communicating conclusions. Candidates will learn to build equitable learning environments through Universal Design for Learning (UDL), to plan inclusive lessons and units using backward design process, to construct formative and summative assessments, to use appropriate digital tools, and to provide for accommodations and/or modifications to promote student access to the curriculum.

Course Objectives

I. Diversity & Inclusion

<table>
<thead>
<tr>
<th>Course Objectives/Student Learning Outcomes</th>
<th>Evidence: Assignments/Activities</th>
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<tbody>
<tr>
<td>Know and apply strategies for learning that meet the learning styles, interests and cognitive abilities of all students. (GenEd TPE 1.1, 2.4; InTASC 1,2,3,9; NBPTS 1, 3,5)</td>
<td>Field-based video-taped Lesson and self and peer reflection</td>
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<tr>
<td>Understand the purpose for establishing classroom meetings as a way of fostering a democratic classroom environment.</td>
<td>In-class activity of Classroom meeting</td>
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(GenEd TPE 1.1, 2.4; InTASC 1, 3, 9; NBPTS 1, 3, 5)

| Demonstrate an understanding of assessment techniques and tools appropriate for individuals with diverse backgrounds and varying language, communication and cognitive abilities. (GenEd TPE 1.1, 2.4; InTASC 2, 6, 9; NBPTS 1, 3) | Field-based video-taped Lesson and self and peer reflection |

II. Changemaking for a more just world

<table>
<thead>
<tr>
<th>Course Objectives/Student Learning Outcomes</th>
<th>Assignments/Activities</th>
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<tbody>
<tr>
<td>Demonstrate understanding of Changemaking as a pedagogy. (GenEd TPE 1.1, 2.4; InTASC 3, 5, 9, 10; NBPTS 1, 2, 4, 5)</td>
<td>STEM (Science, Technology, Engineering and Mathematics) unit of study</td>
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III. Critical Inquiry: (Note: This category may be your longest as it will probably encompass the majority of your course objectives)

<table>
<thead>
<tr>
<th>Course Objectives/Student Learning Outcomes</th>
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<tr>
<td>Demonstrate knowledge of the state frameworks, standards and assessments related to the teaching of mathematics, science, (GenEd TPE 1.1, 2.4; InTASC 4, 5, 6, 9; NBPTS 1, 2, 5)</td>
<td>Field-based video-taped Lesson and self and peer reflection</td>
</tr>
<tr>
<td>Demonstrate uses of a variety of subject-specific pedagogical approaches such as simulations, debates, project-based learning, to the teaching of mathematics, science. (GenEd TPE 1.1, 2.4; InTASC 8, 9; NBPTS 1, 2, 3, 5)</td>
<td>Field-based video-taped Lesson and self and peer reflection</td>
</tr>
<tr>
<td>Demonstrate an understanding of lesson plan development, implementation and evaluation. (GenEd TPE 1.1, 2.4; InTASC 6, 7, 8, 9; NBPTS 1, 5)</td>
<td>Field-based video-taped Lesson and self and peer reflection</td>
</tr>
<tr>
<td>Apply knowledge of lesson plan development using developmentally appropriate teaching strategies and are based on theories of motivation and learning (GenEd TPE 1.1, 2.4; InTASC 1, 7, 8, 9; NBPTS 1, 2, 3, 5)</td>
<td>Field-based video-taped Lesson and self and peer reflection</td>
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<td>Adapt, modify, accommodate and differentiate the instruction of students with identified disabilities in order to develop appropriate goals and accommodations and facilitate access to the Least Restrictive Environment (LRE) and demonstrate knowledge of disabilities and their effects on learning, skills development, social-emotional development, mental health, and behavior, and of how to access and use related services and additional supports to organize and support effective instruction.  (GenEd TPE 1.1, 2.4; InTASC 1,4,6,7,9; NBPTS 1, 4, 5)</td>
<td>STEM (Science, Technology, Engineering and Mathematics) unit</td>
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<tr>
<td>Demonstrate an understanding of appropriate use of a variety of assessments, including norm referenced and criterion referenced tests and alternative measures such as formative and summative evaluations, works samples, observation, portfolios, and standards-based.  (GenEd TPE 1.1, 2.4; InTASC 6,9; NBPTS 1, 3,5)</td>
<td>Field-based video-taped Lesson and self and peer reflection</td>
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<tr>
<td>Design, administer and interpret a variety of assessments in mathematics and science.  (GenEd TPE 1.1, 2.4; InTASC 1,2,6,9; NBPTS 1, 3,5)</td>
<td>Field-based video-taped Lesson and self and peer reflection</td>
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<td>Demonstrate awareness of and ability to evaluate the material and community resources available in the teaching of mathematics and science.  (GenEd TPE 1.1, 2.4; InTASC 2,5,9,10; NBPTS 1, 4, 5)</td>
<td>STEM (Science, Technology, Engineering and Mathematics) Unit.</td>
</tr>
<tr>
<td>Know and apply strategies for supporting reading informational text (GenEd TPE 1.1, 2.4; InTASC 4,5,9; NBPTS 1, 2,3,5)</td>
<td>Field-based video-taped Lesson and self and peer reflection</td>
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<td>Apply knowledge of lesson plan development to an integrated unit of study.  (GenEd TPE 1.1, 2.4; InTASC 1,7,8,9; NBPTS 1, 3,5)</td>
<td>STEM Unit (Science, Technology, Engineering and Mathematics)</td>
</tr>
<tr>
<td>Demonstrate ability to cultivate critical thinking and problem-solving skills in students (GenEd TPE 1.1, 2.4; InTASC 5,8,9; NBPTS 1, 5)</td>
<td>Field-based video-taped Lesson and self and peer reflection</td>
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<td>Demonstrate competence in the use of digital resources (GenEd TPE 1.1, 2.4; InTASC 1,2,3,8,9; NBPTS 1, 2,3,5)</td>
<td>Field-based video-taped Lesson and self and peer reflection</td>
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<td>Demonstrate competence in examining and evaluating internet and software resources for mathematics and science. (GenEd TPE 1.1, 2.4; InTASC 1,7,9; NBPTS 1,2,4,5)</td>
<td>STEM Unit (Science, Technology, Engineering and Mathematics)</td>
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<tr>
<td>Demonstrate ability to engage in cycles of self-evaluation of planning and teaching practices, alone and in collaborative groups (GenEd TPE 1.1, 2.4; InTASC 9,10; NBPTS 4,5)</td>
<td>Field-based video-taped Lesson and self and peer reflection</td>
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<td>Demonstrating an awareness of privacy issues and confidentiality concerns related to technology. (GenEd TPE 1.1, 2.4; InTASC 7,9; NBPTS 1, 4, 5)</td>
<td>STEM Unit (Science, Technology, Engineering and Mathematics)</td>
</tr>
<tr>
<td>Know and apply strategies for creating a positive learning environment. (GenEd TPE 1.1, 2.4; InTASC 1,2,3,9; NBPTS 1, 3,5)</td>
<td>Field-based video-taped Lesson and self and peer reflection</td>
</tr>
<tr>
<td>Engage in cycles of self-evaluation of planning and teaching practices, alone and in collaborative groups. (GenEd TPE 1.1, 2.4; InTASC 9,10; NBPTS 1,4,5)</td>
<td>Field-based video-taped Lesson and self and peer reflection</td>
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IV. Internationalization & Global Citizenship

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<th>Course Objectives/Student Learning Outcomes</th>
<th>Assignments/Activities</th>
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<tbody>
<tr>
<td>Demonstrate your ability to select, plan, implement and evaluate methodologies and resources for teaching science and mathematics for TK-6 students designed to help them develop as college and career ready and globally competent citizens. (GenEd TPE 1.1, 2.4; InTASC 4,5,6,7,8,9; NBPTS 1,2,3, 5)</td>
<td>STEM (Science, Technology, Engineering and Mathematics) unit of study</td>
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<tr>
<th>Key Course-based TPEs</th>
<th>Evidence/Assignment</th>
<th>Benchmark/Criterion</th>
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<tr>
<th>GenEd</th>
<th>Interdisciplinary Unit</th>
<th>85% of MCC Elementary Dual Program candidates will earn a rubric equivalent score of at least a B on this assignment.</th>
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</thead>
<tbody>
<tr>
<td>1.3 Connect subject matter to real-life contexts and provide hands-on experiences to engage student interest, support student motivation, and allow students to extend their learning.</td>
<td>Field Experience: Lesson Reflection</td>
<td>85% of MCC Elementary Dual Program candidates will earn a rubric equivalent score of at least a B on this assignment.</td>
</tr>
<tr>
<td>1.4 Use a variety of developmentally and ability-appropriate instructional strategies, resources, and assistive technology, including principles of Universal Design and Multi-tiered System of Supports (MTSS), to support access to the curriculum for a wide range of learners within the general education classroom and environment.</td>
<td>Interdisciplinary Unit</td>
<td>85% of MCC Elementary Dual Program candidates will earn a rubric equivalent score of at least a B on this assignment.</td>
</tr>
<tr>
<td>1.7 Provide students with opportunities to access the curriculum by incorporating the visual and performing arts, as appropriate to the content and context of learning.</td>
<td>Interdisciplinary Unit</td>
<td>85% of MCC Elementary Dual Program candidates will earn a rubric equivalent score of at least a B on this assignment.</td>
</tr>
<tr>
<td>3.1 Demonstrate knowledge of subject matter, including the adopted California state standards and curriculum frameworks.</td>
<td>Interdisciplinary Unit</td>
<td>85% of MCC Dual Program candidates will earn a rubric equivalent score of at least a B on this assignment.</td>
</tr>
<tr>
<td>3.3 Plan, design, implement, and monitor instruction consistent with current subject-specific pedagogy in the content area(s) of</td>
<td>Interdisciplinary Unit</td>
<td>85% of MCC Elementary Dual Program candidates will earn a rubric equivalent score of at least a B on this assignment.</td>
</tr>
<tr>
<td>3.4 Individually and through consultation and collaboration with other educators and members of the larger school community, plan for effective subject matter instruction and use multiple means of representation, expression, and engagement for students to demonstrate their knowledge in a range of ways.</td>
<td>Field Experience: Lesson Reflection</td>
<td>85% of MCC Elementary Dual Program candidates will earn a rubric equivalent score of at least a B on this assignment.</td>
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<tr>
<td>4.3 Design and implement instruction and assessment that reflects the interconnectedness of academic content areas and related student skills development in literacy, mathematics, science, and other disciplines across the curriculum, as applicable to the subject area of instruction.</td>
<td>Interdisciplinary Unit</td>
<td>85% of MCC Elementary Dual Program candidates will earn a rubric equivalent score of at least a B on this assignment.</td>
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<tr>
<td>5.1 Apply knowledge of the purposes, characteristics, and appropriate uses of different types of assessments (e.g., diagnostic, informal, formal, progress monitoring, formative, summative, and</td>
<td>Field Experience: Lesson Reflection</td>
<td>85% of MCC Elementary Dual Program candidates will earn a rubric equivalent score of at least a B on this assignment.</td>
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performance) to design and administer classroom assessments, including use of scoring rubrics.

| SPED 3.1 Adapt, modify, accommodate and differentiate the instruction of students with identified disabilities in order to develop appropriate goals and accommodations and facilitate access to the Least Restrictive Environment (LRE). | Field Experience: Lesson Reflection | 85% of MCC Elementary Dual Program candidates will earn a rubric equivalent score of at least a B on this assignment. |

| 4.2 Demonstrate the ability to use evidenced-based high leverage practices with a range of student needs, and evaluate a variety of pedagogical approaches to instruction, including instructional sequences, unit and lesson plans, in order to provide students with disabilities equitable access to the content and experiences aligned with the state-adopted core curriculum. | Interdisciplinary Unit | 85% of MCC Elementary Dual Program candidates will earn a rubric equivalent score of at least a B on this assignment. |

Course TPEs and Evidence:

| Full List of Teaching Performance Expectations | Evidence |
TPE 1: Engaging and Supporting All Students in Learning

1.1 Apply knowledge of students, including their prior experiences, interests, and social-emotional learning needs, as well as their funds of knowledge, cultural, language, and socioeconomic backgrounds to engage them in learning. I, P, A

1.2 Maintain ongoing communication with students and families, including the use of technology to communicate with and support students and families, and to communicate achievement expectations and student progress. I

1.3 Connect subject matter to real-life contexts and provide hands-on experiences to engage student interest, support student motivation, and allow students to extend their learning. I, P, A

1.4 Use a variety of developmentally and ability-appropriate instructional strategies, resources, and assistive technology, including principles of Universal Design and Multi-tiered System of Supports (MTSS), to support access to the curriculum for a wide range of learners within the general education classroom and environment. I, P

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. I, P, A

1.6 Provide a supportive learning environment for students’ first and/or second language acquisition by using research-based instructional approaches, including focused English Language Development, Specially Designed Academic Instruction in English (SDAIE), scaffolding across content areas, and structured English immersion, and demonstrate an understanding of the difference between students whose only instructional need is to acquire Standard English proficiency, students who may have an identified disability affecting their ability to acquire Standard English proficiency, and students who may have both a need to acquire Standard English proficiency and an identified disability. I, P,

Assignment: STEM (Science, Technology, Engineering and Mathematics) unit of study that will advance TK-6 students’ understanding of the sciences. The lessons in this unit will meet the California Common Core State Literacy Standards for Science, NGSS-Practices and The California Common Core State Standards: Mathematics (CA CCSSM) while addressing Universal Access for All Students. Unit will include critical and creative thinking practices, SDAIE strategies, UDL, MTSS, SEL, Digital Resources including assistive technology, visual and performing arts, monitoring student progress toward learning goals as identified in the academic content standards and the IEP/Individual Transition plan

Assignment: Field-based Lesson and self and peer reflection including:

Content standards, Prior Academic Knowledge, Learning Activities, Instructional Strategies, Organization of Students, Student Assets and Needs, RTI, MTSS, Social-Emotional Considerations, Resources, Materials, Tools, and/or Educational and Assistive Technology to
1.7 Provide students with opportunities to access the curriculum by incorporating the visual and performing arts, as appropriate to the content and context of learning. I, P, A

1.8 Monitor student learning and adjust instruction while teaching so that students continue to be actively engaged in learning. I, P

SPED
1.1 Demonstrate the ability to collaboratively develop and implement Individualized Education Programs (IEP), including instructional goals that ensure access to the Common Core State Standards and California Preschool Learning Foundations, as appropriate, that lead to effective inclusion of students with disabilities in the general education core curriculum. I, P

1.4 Monitor student progress toward learning goals as identified in the academic content standards and the IEP/Individual Transition plan (ITP). I, P,


Assignment: Final Portfolio: Synthesis of Subject Specific Pedagogical Knowledge: Throughout the semester you will be engaged in learning tasks that exemplify best practices in standards-based instruction in science and mathematics with the goal of gaining competence in (1) knowing and presenting accurate content of each discipline, (2) using subject specific pedagogical processes, (3) using elements of universal design for learning (UDL, MTSS and RTI), (4) using formative and summative assessment strategies to support content and learning outcomes, and (5) selecting appropriate digital and other resources to enhance the learning goals for all students. You will compile your analysis of these tasks into a course portfolio with 8 entries. This final portfolio will assess your learning regarding course readings, lectures, videos, and lab-based workshops. The portfolio will focus on
personal development and individual reflection on the six TPE domains for General Education

<table>
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<tr>
<th>TPE 2: Creating and Maintaining Effective Environments for Student Learning</th>
<th>Assignment: STEM (Science, Technology, Engineering and Mathematics) unit of study that will advance TK-6 students’ understanding of the sciences. The lessons in this unit will meet the California Common Core State Literacy Standards for Science, NGSS-Practices and The California Common Core State Standards: Mathematics (CA CCSSM) while addressing Universal Access for All Students. Unit will include critical and creative thinking practices, SDAIE strategies, UDL, MTSS, SEL, Digital Resources including assistive technology, visual and performing arts,</th>
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| **GEN ED** | 2.2 Create physical/online learning environments that promote productive student learning, encourage positive interactions among students, reflect diversity and multiple perspectives, and are culturally responsive. I, P, A  
2.5 Maintain high expectations for learning, with appropriate support for the full range of students in the classroom. I, P,  
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. (I, P) |
| **SPED** | 2.1 Develop accommodations and modifications specific to students with disabilities to allow access to learning environments, including incorporating instructional and assistive technology, and alternative and augmentative |
procedures to optimize the learning opportunities and outcomes for all students, and to move them toward effective inclusion in general education settings. I, P

2.2 Demonstrate the ability to support the movement, mobility, sensory and specialized health care needs required for students to participate fully in classrooms, schools and the community. Organize a safe environment for all students that include barrier free space for independent mobility, adequate storage and operation of medical equipment (as appropriate) and other mobility and sensory accommodations. I, P

2.3 Demonstrate the ability to address functional limitations of movement and/or sensation for students with orthopedic impairments who may have a co-existing health impairment and/or intellectual disability but have difficulty accessing their education due to physical limitations. I, P

2.8 Apply and collaboratively implement supports needed to establish and maintain student success in the least restrictive environment, according to students’ unique needs. I, P

2.9 Demonstrate the skills required to ensure that interventions and/or instructional environments are appropriate to the student’s chronological age, developmental levels, and disability-specific needs, including community-based instructional environments. I, P

monitoring student progress toward learning goals as identified in the academic content standards and the IEP/Individual Transition plan

**Assignment:**

**Field-based Lesson and self and peer reflection**

including:

- Content standards, Prior Academic Knowledge,
- Learning Activities,
- Instructional Strategies,
- Organization of Students.
- Student Assets and Needs, RTI, MTSS, Social-Emotional Considerations,
- Resources, Materials, Tools, and/or Educational and Assistive Technology to Support Learning,
- SDAIE Academic language demands, Assessment:
- Formative, Summative, Progress Monitoring,
- Assessment, Lesson revision
- Motivation/Developmental/ Learning theories.

**Assignment: Final Portfolio: Synthesis of Subject Specific Pedagogical Knowledge:**

Throughout the semester you will be engaged in learning tasks that exemplify best practices in standards-based instruction in science and mathematics with the goal of gaining competence in (1) knowing and presenting accurate content of each discipline,
(2) using subject specific pedagogical processes, (3) using elements of universal design for learning (UDL, MTSS and RTI), (4) using formative and summative assessment strategies to support content and learning outcomes, and (5) selecting appropriate digital and other resources to enhance the learning goals for all students. You will compile your analysis of these tasks into a course portfolio with 8 entries. This final portfolio will assess your learning regarding course readings, lectures, videos, and lab-based workshops. The portfolio will focus on personal development and individual reflection on the six TPE domains for General Education.

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<tr>
<th>TPE 3: Understanding and Organizing Subject Matter for Student Learning</th>
<th>Assignment: STEM (Science, Technology, Engineering and Mathematics) unit of study that will advance TK-6 students’ understanding of the sciences. The lessons in this unit will meet the California Common Core State Literacy Standards for Science, NGSS-Practices and The California Common Core State Standards: Mathematics (CA CCSSM) while addressing Universal Access for All Students. Unit will include critical and creative thinking practices, SDAIE</th>
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<tbody>
<tr>
<td>GenEd</td>
<td>3.1 Demonstrate knowledge of subject matter, including the adopted California state standards and curriculum frameworks. I, P, A</td>
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<td>3.2 Use knowledge about students (e.g., IEP, IFSP, ITP, and 504 plans) and learning goals to organize curriculum to facilitate student understanding of subject matter, and make accommodations and/or modifications as needed to promote student access to the curriculum. I, P</td>
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<td>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, including integrating the visual and performing arts as applicable to the discipline. I, P, A</td>
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</tbody>
</table>
3.4 Individually and through consultation and collaboration with other educators and members of the larger school community, plan for effective subject matter instruction and use multiple means of representation, expression, and engagement for students to demonstrate their knowledge in a range of ways. I, P

3.5 Adapt subject matter curriculum, organization, and planning to support the acquisition and use of academic language within learning activities to promote the subject matter knowledge of all students, including the full range of English learners, Standard English learners, students with disabilities, and students with other learning needs in the least restrictive environment. I, P

3.6 During in person or online subject matter instruction, use and adapt resources, standards-aligned instructional materials, and a range of technology, including assistive technology, to facilitate students’ equitable access to the curriculum. I, P

3.7 Model and develop digital literacy by using technology to engage students and support their learning, and promote digital citizenship, including respecting copyright law, understanding fair use guidelines, the use of creative commons license, and maintaining internet security. I, P

3.8 Demonstrate knowledge of effective teaching strategies aligned with the internationally-recognized educational technology standards of the International Society for Technology in Education (ISTE) and the International Association for K-12 Online Learning (iNACOL). S

**SPED**

3.1 Adapt, modify, accommodate and differentiate the instruction of students with identified disabilities in order to develop appropriate goals and accommodations and facilitate access to the Least Restrictive Environment (LRE). I, P

3.2 Demonstrate knowledge of disabilities and their effects on learning, skills development, social-emotional development, mental health, and behavior, and of how to access and use related services and additional supports to organize and support effective instruction. I, P

| strategies, UDL, MTSS, SEL, Digital Resources including assistive technology, visual and performing arts, monitoring student progress toward learning goals as identified in the academic content standards and the IEP/Individual Transition plan |

**Assignment:** Final Portfolio: Synthesis of Subject Specific Pedagogical Knowledge: Throughout the semester you will be engaged in learning tasks that exemplify best practices in
standards-based instruction in science and mathematics with the goal of gaining competence in (1) knowing and presenting accurate content of each discipline, (2) using subject specific pedagogical processes, (3) using elements of universal design for learning (UDL, MTSS and RTI), (4) using formative and summative assessment strategies to support content and learning outcomes, and (5) selecting appropriate digital and other resources to enhance the learning goals for all students. You will compile your analysis of these tasks into a course portfolio with 8 entries. This final portfolio will assess your learning regarding course readings, lectures, videos, and lab-based workshops. The portfolio will focus on personal development and individual reflection on the six TPE domains for General Education.

TPE 4: Planning Instruction and Designing Learning Experiences for All Students
Gen Ed
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.
I, P, A
4.3 Design and implement instruction and assessment that reflects the interconnectedness of academic content areas and related student skills development in literacy, mathematics, science, and other disciplines across the

Assignment:
STEM (Science, Technology, Engineering and Mathematics) unit of study that will advance TK-6 students’ understanding of the sciences. The lessons in this unit will meet the California Common Core State Literacy Standards for Science, NGSS-Practices and The California Common Core State Standards:
curriculum, as applicable to the subject area of instruction. I, P, A

4.4 Plan, design, implement and monitor instruction, making effective use of instructional time to maximize learning opportunities and provide access to the curriculum for all students by removing barriers and providing access through instructional strategies that include:

a. appropriate use of instructional technology, including assistive technology
b. applying principles of Universal Design and Multi-tiered System of Supports;
c. use of developmentally, linguistically, and culturally appropriate learning activities, instructional materials, and resources for all students, including the full range of English learners;
d. appropriate modifications for students with disabilities in the general education classroom;

e. opportunities for students to support each other in learning; and,
f. use of community resources and services as applicable.

4.6 Access resources for planning and instruction, including the expertise of community and school colleagues through in-person or virtual collaboration, co-teaching, coaching, and/or networking.

4.7 Plan instruction that promotes a range of communication strategies and activity modes between teacher and student, and among students, that encourage student participation in learning.

4.8 Model how to use digital tools to learn and create new content, and provide personalized and integrated technology-rich lessons to engage students in learning, promote digital literacy, and offer students multiple means to demonstrate their learning. I, P

4.9 Demonstrate how and when you use blended and online learning technologies, how and when to use other technologies such as hand-held devices and phones to improve teaching and learning I,P

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<tr>
<th>Mathematics (CA CCSSM)</th>
<th>while addressing Universal Access for All Students. Unit will include critical and creative thinking practices, SDAIE strategies, UDL, MTSS, SEL, Digital Resources including assistive technology, visual and performing arts, monitoring student progress toward learning goals as identified in the academic content standards and the IEP/Individual Transition plan</th>
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<tbody>
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<td>Assignment: Final Portfolio: Synthesis of</td>
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</tbody>
</table>
**SPED**

4.1 Demonstrate the ability to use assistive technology, augmentative and alternative communication (AAC) including low- and high-tech equipment and materials to facilitate communication, curriculum access, and skills development of students with disabilities. I, P

4.2 Demonstrate the ability to use evidenced-based high leverage practices with a range of student needs, and evaluate a variety of pedagogical approaches to instruction, including instructional sequences, unit and lesson plans, in order to provide students with disabilities equitable access to the content and experiences aligned with the state-adopted core curriculum. I, P, A

4.3 Demonstrate the ability to identify and use behaviorally based teaching strategies with the understanding that behaviors are communicative and serve a function. I, P

4.4 Demonstrate the ability to create short and long-term goals that are responsive to the unique needs of the student and meet the grade level requirements of the core curriculum, and which are systematically adjusted as needed to promote maximum learning and academic achievement within inclusive environments. I, P

**Subject Specific Pedagogical Knowledge:**

Throughout the semester you will be engaged in learning tasks that exemplify best practices in standards-based instruction in science and mathematics with the goal of gaining competence in (1) knowing and presenting accurate content of each discipline, (2) using subject specific pedagogical processes, (3) using elements of universal design for learning (UDL, MTSS and RTI), (4) using formative and summative assessment strategies to support content and learning outcomes, and (5) selecting appropriate digital and other resources to enhance the learning goals for all students. You will compile your analysis of these tasks into a course portfolio with 8 entries. This final portfolio will assess your learning regarding course readings, lectures, videos, and lab-based workshops. The portfolio will focus on personal development and individual reflection on the six TPE domains for General Education.

<table>
<thead>
<tr>
<th>TPE 5: Assessing Student Learning</th>
<th>Assignment:</th>
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<tbody>
<tr>
<td><strong>Gen ED</strong></td>
<td><strong>STEM (Science, Technology, Engineering and Mathematics) unit of study that will advance TK-6 students’ understanding of the sciences. The lessons in this unit will meet the</strong></td>
</tr>
</tbody>
</table>
| 5.1 Apply knowledge of the purposes, characteristics, and appropriate uses of different types of assessments (e.g., diagnostic, informal, formal, progress monitoring, formative, summative, and performance) to design and | }
administer classroom assessments, including use of scoring rubrics. I, P, A

5.2 Collect and analyze assessment data from multiple measures and sources to plan and modify instruction and document students’ learning over time. I, P

5.3 Involve all students in self-assessment and reflection on their learning goals and progress and provide students with opportunities to revise or reframe their work based on assessment feedback. I, P, A

5.4 Use technology as appropriate to support assessment administration, conduct data analysis, and communicate learning outcomes to students and families. I, P

5.5 Use assessment information in a timely manner to assist students and families in understanding student progress in meeting learning goals. I, P

**SPED**

5.1 Apply knowledge of the purposes, characteristics, and appropriate uses of different types of assessments used to determine special education eligibility, progress monitoring, and decision making regarding eligibility, placement in LRE, and services. Candidates also apply knowledge of when and how to use assessment sources that integrate alternative statewide assessments, formative assessments, and formal/informal assessment results as appropriate, based on students’ needs. I, P

5.2 Each candidate utilizes assessment data to: 1) identify effective intervention and support techniques, 2) develop needed augmentative and alternative systems, 3) implement instruction of communication and social skills, 4) create and facilitate opportunities for interaction; 5) develop communication methods to demonstrate student academic knowledge; and 6) address the unique learning, sensory and access needs of students with physical/orthopedic disabilities, other health impairments, and multiple disabilities. I, P

5.3 Demonstrate knowledge of special education law, including the administration and documentation of assessments and how to hold IEP meetings according to the guidelines established by law. I

5.4 Demonstrate knowledge of requirements for appropriate assessment and identification of students whose cultural, ethnic, gender, or linguistic differences

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### California Common Core State Literacy Standards for Science, NGSS-Practices and The California Common Core State Standards: Mathematics (CA CCSSM) while addressing Universal Access for All Students. Unit will include critical and creative thinking practices, SDAIE strategies, UDL, MTSS, SEL, Digital Resources including assistive technology, visual and performing arts, monitoring student progress toward learning goals as identified in the academic content standards and the IEP/Individual Transition plan

### Assignment:

Field-based Lesson and self and peer reflection including:

- **Content standards, Prior Academic Knowledge, Learning Activities, Instructional Strategies, Organization of Students. Student Assets and Needs, RTI, MTSS, Social-Emotional Considerations, Resources, Materials, Tools, and/or Educational and Assistive Technology to Support Learning, SDAIE Academic language demands, Assessment:** Formatative, Summative,
may be misunderstood or misidentified as manifestations of a disability. I

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. I,P

| Progress Monitoring, Assessment, Lesson revision |
| Motivation/Developmental/ Learning theories. |

**Assignment: Final Portfolio: Synthesis of Subject Specific Pedagogical Knowledge:**
Throughout the semester you will be engaged in learning tasks that exemplify best practices in standards-based instruction in science and mathematics with the goal of gaining competence in (1) knowing and presenting accurate content of each discipline, (2) using subject specific pedagogical processes, (3) using elements of universal design for learning (UDL, MTSS and RTI), (4) using formative and summative assessment strategies to support content and learning outcomes, and (5) selecting appropriate digital and other resources to enhance the learning goals for all students. You will compile your analysis of these tasks into a course portfolio with 8 entries. This final portfolio will assess your learning regarding course readings, lectures, videos, and lab-based workshops. The portfolio will focus on personal development and individual reflection on the six TPE domains for General Education.
TPE 6: Developing as a Professional Educator

6.1 Reflect on their own teaching practice and level of subject matter and pedagogical knowledge to plan and implement instruction that can improve student learning.

I, P, A

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.

Beginning teachers recognize and appropriately address instances of intolerance and harassment among students such as bullying, racism, and sexism. I

6.4 Demonstrate how and when to involve other adults and to communicate effectively with peers and colleagues, families, and members of the larger school community to support teacher and student learning. I

6.5 Demonstrate professional responsibility for all aspects of student learning and classroom management, including responsibility for the learning outcomes of all students, along with appropriate concerns and policies regarding the privacy, health, and safety of students and families. Beginning teachers conduct themselves with integrity and model ethical conduct for themselves and others. I, P

Assignment: Final Portfolio: Synthesis of Subject Specific Pedagogical Knowledge:
Throughout the semester you will be engaged in learning tasks that exemplify best practices in standards-based instruction in science and mathematics with the goal of gaining competence in (1) knowing and presenting accurate content of each discipline, (2) using subject specific pedagogical processes, (3) using elements of universal design for learning (UDL, MTSS and RTI), (4) using formative and summative assessment strategies to support content and learning outcomes, and (5) selecting appropriate digital and other resources to enhance the learning goals for all students. You will compile your analysis of these tasks into a course portfolio with 8 entries. This final portfolio will assess your learning regarding course readings, lectures, videos, and lab-based workshops. The portfolio will focus on personal development and individual reflection on the six TPE domains for General Education.

Dispositions
In accordance with state and national standards, students in the Department of Learning and Teaching at the University of San Diego, are assessed on knowledge, performance, and professional dispositions. Faculty in the Department of Learning and Teaching 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 at USD. The Department of Learning and Teaching has adopted a process for ensuring that all students uphold standards of knowledge, performance, and professional dispositions recognized by the education profession.

Qualities Important to Future Teachers and Educational Professionals
A. Personal qualities important to the teaching/education profession
B. Qualities important to collaboration
C. Commitment to professional growth
D. Commitment to diversity and social justice
E. Commitment to ethical practices

Course Readings/Videos

Required
California State Frameworks and Standards (all online):
4. Other readings as assigned on NSTA& NCTM websites and other digital sources

Readings: Mathematics

CCSS Math Standards

An Introduction to Cognitively Guided Instruction (CGI)  
https://macmillanmh.com/FL/mathconnects_econsultant/assets/rscrharti/articles/cgi_classroom.pdf

Algebra, It’s Elementary  
https://qrc.depaul.edu/algebrainitiative/articles/algebra_elementary_article_carole_greene.pdf

Say “Yes” to Early Algebra,  


Productive Math Struggle  
https://hechingerreport.org/opinion-taking-the-drama-out-of-math-class/

Math as Social Justice Lever  
https://www.edutopia.org/blog/math-as-social-justice-lever-jose-vilson


Readings: Science

CA Science NGSS Standards https://www.cde.ca.gov/pd/ca/sc/ngssstandards.asp

Conceptual Shifts in the Next Generation Science Standards:  

Science Pedagogical Content Knowledge- http://dro.dur.ac.uk/6634/1/6634.pdf


Phenomenon-based Science Teaching
https://districtadministration.com/ngss-science-promotes-phenomena-based/

Using Phenomena in NGSS-Designed Lessons and Units

A framework for K-12 science education:
*Practices, crosscutting concepts, and core ideas*
National Research Council
http://www.nap.edu/catalog.php?record_id=13165


**Supplementary Mathematics**

This book provides an overview of the development of children’s thinking in whole number and provides an introduction to setting up classrooms that focus on children’s thinking.


This book is about project-based learning (PBL) in an Information and Communication Technology (ICT) environment. It is designed for teachers who want to implement PBL using ICT in their classrooms. Teachers who do this will gain increased understanding of ICT alongside their students. The overarching goal of this book is to help students learn to use their minds (higher-order thinking and problem-solving skills) and ICT effectively as they plan and carry out complex projects.

**Science**


**Science:**

Readings and Websites

Other readings as assigned on NSTA and NCTM websites

**State and National Documents**

**Recommended Websites:**

National Council of Teachers of Mathematics
http://www.nctm.org

National Science Teachers Association
http://www.nsta.org

**Course Requirements/Assignments/Grading**

1. **STEM Unit**
   Each class member will prepare an interdisciplinary STEM (Science, Technology, Engineering and Mathematics) unit of study that will advance TK-6 students’ understanding of the sciences. The lessons in this unit will meet the *California Common Core State Literacy Standards for Science, NGSS-Practices* and *The California Common Core State Standards: Mathematics (CA CCSSM)* while incorporating Universal Design for Learning (UDL), 21st century skills, SDAIE strategies, formative and summative assessments, digital resources including assistive technologies, community resources,

   Unit will include:
   1) Title and Grade level (TK-6)
   2) Introduction Letter to Parents (Address why STE(A)M understanding is important for students in the 21st century and how the unit addresses key STE(A)M standards.
   3) 10 individual lessons on a TK-6 grade level science topic:
      - 1 lesson that incorporates CA-CCSS in mathematics (graphing, problem solving, measurement, statistics)
      - 1 lesson that incorporates CA-CCSS in literacy using *information text*
      - 1 lesson that incorporates engineering
- 1 lesson that incorporates drama, art, movement or music
- 1 lesson that incorporates student use of digital technologies (include ISTE Standards)
- 1 lesson that incorporates diverse cultural perspectives
- 1 Changemaking project* that will provide opportunities for TK-6 students to engage in both problem-finding and problem-solving at the local or global level

* Changemakers: a global community of leading elementary, middle and high schools that prioritize empathy, teamwork, leadership, problem-solving and changemaking as student outcomes to effectively solve problems and drive positive change.

4) A Summative Assessment for the entire unit that is Performance or Portfolio based and includes a Scoring Rubric allowing students to show some depth of understanding with respect to the standards/objectives.

Candidate competencies include:
- Connecting subject matter to real-life contexts
- Engaging student interest and motivation
- Promoting students' critical and creative thinking through inquiry, problem solving, and reflection
- Incorporating the visual and performing arts
- Removing barriers and providing access to the curriculum for all students
- Utilizing different types of assessments (e.g., diagnostic, informal, formal, progress-monitoring, formative, summative, and performance) including use of scoring rubrics.

SPED candidate competencies include:
- demonstrating knowledge, skills and abilities to become proficient in implementing evidence based and multifaceted methodologies and strategies necessary in teaching and engaging students with disabilities from diverse populations.
- demonstrating knowledge and application of pedagogical theories, principles, and practices for the development of academic language, comprehension and knowledge in the subjects of the curriculum, making grade-appropriate or advanced curriculum content comprehensible to English learners.
- demonstrating the ability to develop, implement, adapt, modify, and evaluate a variety of pedagogical approaches to instruction, including instructional sequences, unit and lesson plans.
- demonstrating knowledge of how mild/moderate disabilities impact student learning in these areas and know how to ensure evidence-based methods for teaching subject-specific reading skills in science and mathematics to students with mild/moderate disabilities.
2. **Field-based Assignment: Complete a practicum in a TK-6 Grade Classroom**
   - Observe and support instruction in the classroom of the cooperating teacher (CT)
   - Teach a minimum of two mathematics lesson and engage in self and peer reflection. These lessons should be planned with the guidance of the cooperating teacher.
   - Observe and reflect upon data demonstrating evidence of student learning.
   - Draw connections between practicum, course readings and experiential activities.
   - *Candidates cannot successfully complete course without a satisfactory practicum evaluation.*

**Write a reflection that includes:**

a. **CCSS Mathematics Content Learning Objective** – What did you want students to know and be able to do at the end of this lesson? What *content* does this lesson address? Include CA CCSS Mathematics grade level standard(s)

b. **Prior Academic Knowledge:** Explain how the lesson plan builds on students’ prior academic knowledge related to the content-specific learning objectives selected for the lesson.

c. **Designing Learning Activities:** Explain why you selected the learning activities in this lesson and how they will increase engagement with and access to learning for the students you are teaching.

d. **Designing Instructional Strategies:** Explain your decisions to use specific instructional strategies to support student engagement with and access to learning (e.g., explaining, modeling, scaffolding, asking questions that guide a discussion, providing instructions to guide an activity).

e. **Organization of Students:** Explain your rationale for grouping students in this lesson—whole group, small group, pairs, individual.

f. **Student Assets and Needs:** Explain how the lesson plan incorporates or builds on students’ cultural and linguistic resources, socioeconomic backgrounds, funds of knowledge, prior experiences, and interests.

g. **Social-Emotional Development Considerations:** Explain how the lesson addressed the social-emotional development of your students.

h. **Resources, Materials, Tools, and/or Educational Technology to Support Learning:** Explain why you chose particular resources,
materials, tools, and/or educational technology to support student learning in this lesson.

i. **Academic language demands**: Describe the academic language demands of the text(s) that will be used in this lesson. What words were challenging for students? What text structures were challenging? (ex. Graphs, Charts, Headings). How did you address that in your teaching?

j. **Lesson Delivery**: Throughout the lesson consider how you incorporated elements of UDL so that all students would have access to the lesson?

k. **Assessment**: What did you do to assess students’ learning during the instruction (formative) and at the end of the lesson (summative)?

l. **Lesson revision**: If you could go back and teach this lesson again to the same group of students, what would you do differently?

m. **Theories**: Discuss any educational models, theorists, and research support for any strategies used in this lesson?

n. **Self-assessment**: What did you learn from this lesson about yourself as a teacher? How will this learning inform future lessons?

**Candidate competencies include:**

- Adapting subject matter curriculum, organization, and planning to support the acquisition and use of academic language.

- Planning, designing, implementing and monitoring instruction, making effective use of instructional time to maximize learning opportunities and providing access to the curriculum for all students by removing barriers and providing access through instructional strategies that include:
  - appropriate use of instructional technology, including assistive technology;
  - applying principles of UDL and MTSS;
  - use of developmentally, linguistically, and culturally appropriate learning activities, instructional materials, and resources for all students, including the full range of English learners;
  - appropriate modifications for students with disabilities in the general education classroom;
  - opportunities for students to support each other in learning;
  - use of community resources and services as applicable.

- Using effective methods for mathematical skills, applications and problem-solving methods, and to know how to select and adapt standards-based curricula and supplementary materials in these skill areas.

3. **Reflective Commentary**
Semi-structured reflective writing assignments to be done in class and shared in discursive conversations with peers

4. **Blended Learning Goals**
This course will model practices of blended learning (also known as hybrid learning) that allows students to integrate face-to-face learning with technology-based, digital instruction. Learning takes place in settings (or in a combination of settings) that include the classroom, home, or mobile environments and gives students an element of control over the time and the pace of their learning. A portion of our classroom activities will include blended/digital learning and will adhere to the ISTE Standards.

5. **Final Portfolio: Synthesis of Subject Specific Pedagogical Knowledge:**
Throughout the semester you will be engaged in learning tasks that exemplify best practices in standards-based instruction in science and mathematics with the goal of gaining competence in (1) knowing and presenting accurate content of each discipline, (2) using subject specific pedagogical processes, (3) using elements of universal design for learning (UDL, MTSS and RTI), (4) using formative and summative assessment strategies to support content and learning outcomes, and (5) selecting appropriate digital, community and other resources to enhance the learning goals for all students. You will compile your analysis of these tasks into a course portfolio with 8 entries. Models of this assignment will be given in class.

This final portfolio will assess your learning regarding course readings, lectures, videos, and lab-based workshops. The portfolio will focus on personal development and individual reflection on the six TPE domains.

*Candidate competencies include:*

- **Self-reflecting on teaching practice and level of subject matter and pedagogical knowledge to plan and implement instruction that can improve student learning.**

### Class Schedule

<table>
<thead>
<tr>
<th>Session/ Date</th>
<th>Topics</th>
<th>Assignments/Activities</th>
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<td>Session 1</td>
<td>Course Overview: Teaching in the 21st Century 21st Century Skills and digital learning environments</td>
<td>Review: CA Preliminary MS Teaching Performance Expectations (TPEs)</td>
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<tr>
<td>Session 2</td>
<td><strong>Teaching Mathematics in the 21st Century</strong></td>
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<td></td>
<td>Understanding Learning Theory, Cognitive Development, and Math Instruction</td>
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<td>CA Common Core State Standards (CA-CCSS)</td>
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<td>Prior Knowledge &amp; Children’s Misconceptions</td>
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<td>Teaching Math as Social Justice</td>
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<td>Textbooks, Digital Resources, Community Resources</td>
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<tr>
<th>Session 3</th>
<th><strong>Teaching Number and Operations Conceptually:</strong></th>
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<tr>
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<td>Counting and Cardinality (K only)</td>
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<tr>
<td></td>
<td>Number &amp; Operations in Base Ten</td>
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<td></td>
<td>Number &amp; Operations: Fractions</td>
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<td></td>
<td><strong>Read:</strong> An Introduction to Cognitively Guided Instruction (CGI) [<a href="https://macmillanmh.com/FL/mathconne">https://macmillanmh.com/FL/mathconne</a> cts_econsultant/assets/rscrarticles/cgi_cl assroom.pdf](<a href="https://macmillanmh.com/FL/mathconne">https://macmillanmh.com/FL/mathconne</a> cts_econsultant/assets/rscrarticles/cgi_cl assroom.pdf)</td>
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| Session 4 | **Teaching Mathematics Conceptually:** Operations and Algebraic Thinking | **Read:** Algebra, It’s Elementary [https://qrc.depaul.edu/algebrainitiative/articles/algebra_elementary_article_carole_greene.pdf](https://qrc.depaul.edu/algebrainitiative/articles/algebra_elementary_article_carole_greene.pdf)  
**Read:** Say “Yes” to Early Algebra, [file:///Users/chansen/Desktop/tcm2015-09-92a.pdf](file:///Users/chansen/Desktop/tcm2015-09-92a.pdf) |
|---|---|---|
| Session 6 | **Teaching Mathematical Reasoning**  
8 Practices for Mathematical Thinking  
Problem posing and problem recognition to produce a clearly defined problem;  
| Session 7 | **Planning and Assessing Instruction in Math and Science through a UDL lens**  
Universal Design for Learning  
Using evidence-based and developmentally appropriate teaching strategies based on theories of motivation and learning  
MTSS: RTI and PBIS  
Using Technology and Internet Resources  
Planning Interdisciplinary Lessons  
Assessment: Formative and Summative | **Jigsaw reading:** Choose one article below to read and share with peers.  
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<tr>
<th>Session 8</th>
<th><strong>Micro-teaching in Math: Self and Peer-Mediated</strong></th>
<th><strong>Lesson Planning Resources:</strong> <a href="http://illuminations.nctm.org">http://illuminations.nctm.org</a></th>
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<tr>
<td><strong>IEP and 504 Plans</strong></td>
<td>The steps in the development of an IEP</td>
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<tr>
<td><strong>Session 9</strong></td>
<td><strong>Best Practices in Science Teaching and Learning: CA Next Generation Science Standards (NGSS)</strong></td>
<td><strong>Read:</strong> CA Science NGSS Standards <a href="https://www.cde.ca.gov/pd/ca/sc/ngssstandards.asp">https://www.cde.ca.gov/pd/ca/sc/ngssstandards.asp</a></td>
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<td>Constructivist Teaching Practices in Science</td>
<td><strong>Read:</strong> Science Pedagogical Content Knowledge <a href="http://dro.dur.ac.uk/6634/1/6634.pdf">http://dro.dur.ac.uk/6634/1/6634.pdf</a></td>
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<td>Examining Global Issues in Science</td>
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<td>Teaching science to special populations</td>
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<td>Classroom Management for Science: Using spaces and materials for learning</td>
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<td>Planning and Implementing Instruction in Science Using State-adopted Standards, Textbooks, Digital Resources, Community Resources</td>
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<td>Inquiry</td>
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<td></td>
<td>Group discussion, small-group activities, cooperative learning</td>
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<td></td>
<td>The 5-E Learning cycle</td>
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</tbody>
</table>
| Session 11 | Phenomenon-based Science | Read: Phenomenon-based Science Teaching  
https://districtadministration.com/ngss-science-promotes-phenomena-based/  
Using Phenomena in NGSS-Designed Lessons and Units  
| --- | --- | --- |
|  | Students as Scientists/ Higher Order Thinking  
Providing students opportunities to use science concepts and investigation skills to make sense of a real-world phenomenon.  
SEPs -Obtaining, evaluating, and communicating information  
Observing/ Comparing/ Classifying/ Inferring Hypothesizing/ Drawing Conclusions/ Communicating |  |  |
| Session 12 | Explorations in Life Science, Earth and Space, Physical Science: Next Generation Science Standards (DCIs and CCCs) | Read:  
FREE PDF  
http://www.nap.edu/catalog.php?record_id=13165 |
|  | Cross-cutting Concepts |  |  |
Science and Engineering Practices  
Disciplinary Core Ideas (DCI)  
Physical Science  
Life Science  
Earth and Space Science

Session 13  
**Engineering and Design Thinking**  
**Essential Questions**  
What is Design Thinking?  
How does it connect to 21st Century skills?  
How does PBL help students with special needs?  
Micro-teaching in Science: Self and Peer-Mediated Reflections


Session 14  
**Course Closure:**  
Synthesis  
Final Portfolio Peer Presentations

**Bibliography**

**Mathematics**  
Common Core State Standards: http://www.corestandards.org/Math  

Lessons Planning Resources: http://illuminations.nctm.org


NCTM Standards: http://standards.nctm.org/


Science


**Important Resources**

**Academic Writing Support**
For academic writing support, please use the following link for online writing support and on-site in-person tutoring specialized to meet your individual academic writing needs - [sandiego.edu/soles/current/writing-center.php](http://sandiego.edu/soles/current/writing-center.php)

**Academic Research Support**
For academic research/library support, please contact our SOLES librarian, Vanjuri “V” Dozier at (619) 260-4695 or vdozier@sandiego.edu

**Requests for Accommodation**

Reasonable accommodations in accordance with the Americans with Disabilities Act will be made for course participants with disabilities who require specific instructional and testing modifications. Students needing accommodations can identify themselves to the University of San Diego Disability Services Office (619.260.4655) before the beginning of the course. Every effort will be made to accommodate students’ needs, while performance standards for the course will not be modified in considering specific accommodations.

**Grade of Incomplete**

The grade of Incomplete (“I”) may be recorded to indicate (1) that the requirements of a course have been substantially completed but, for a legitimate reason, a small fraction of the work remains to be completed, and, (2) that the record of the student in the course justifies the expectation that he or she will complete the work and obtain the passing grade by the deadline. It is the student’s responsibility to explain to the instructor the reasons for non-completion of work and to request an incomplete grade prior to the posting of final grades. Students who receive a grade of incomplete must submit all missing work no later than the end of the tenth week of the next regular semester; otherwise the “I” grade will become a permanent “F.”

A Petition for a grade of incomplete must accompany all requests for an incomplete at the end of the course term. Criteria for changing a grade of incomplete to a letter grade must be negotiated with the instructor before the final class. The criteria must be outlined on the signed Incomplete Request Form. A completed form with both the instructor and student signature must be turned in by the last session of the class. Without a student signed form the registrar requires assignment of a grade of F. A student must complete an incomplete by the 10th week of the next session or a grade of F is permanently calculated.
in the overall grade point average. Any attempts to complete an incomplete after the 10-week deadline requires the approval of the Associate Dean of the School of Education.

**SOLES Online Course Evaluation**

Student evaluations in SOLES are collected via an online system that maintains student anonymity. SOLES uses these evaluations for continuous improvement of course content and instruction and as a component of its regular performance review of faculty members, so please take them seriously. Course evaluations are available to students in their MySanDiego accounts via the Active Registration link on the One-Stop Services tab. Your instructor will provide you with instructions on how to access the evaluations once they are activated near the scheduled conclusion of your course.

**Statement on Plagiarism**

The complete plagiarism policy is available for your review at:
http://www.sandiego.edu/associatedstudents/branches/vice_president/academics/honor_council/integrity_policy.php

All members of the University community share the responsibility for maintaining an environment of academic integrity since academic dishonesty is a threat to the University.

Acts of academic dishonesty include: a) unauthorized assistance on an examination; b) falsification or invention of data; c) unauthorized collaboration on an academic exercise; d) plagiarism; e) misappropriation of resource materials; f) any unauthorized access of an instructor’s files or computer account; or g) any other serious violation of academic integrity as established by the instructor.

It is the responsibility of the instructor to determine whether a violation has occurred. An act of academic dishonesty may be either a serious violation, or, if unintentional, an infraction (a non-serious violation of course rules). If the instructor determines that an infraction (as opposed to a serious violation) has occurred, the instructor can impose penalties that may include: a) reduction in grade; b) withdrawal from the course; c) requirement that all or part of the course be retaken; and d) a requirement that additional work be undertaken in connection with the course or exercise. Students may formally challenge the instructor’s determination of infraction (see below).

Instructors shall report all violations, whether, infractions or serious violations, both to the Dean’s office and the student using the Academic Integrity Violation Preliminary Worksheet. The Associate Dean will contact the student and ensure she or he is aware of the Academic Integrity policy. The Associate Dean will appoint a hearing committee only when: 1) the instructor reports that a serious violation occurred, or 2) the instructor reports that an infraction occurred and the student wishes to appeal the determination of infraction.
The hearing committee will include, in addition to the Associate Dean, a faculty member and two students from the School of Leadership and Education Sciences, and a faculty member from outside the School of Leadership and Education Sciences. If the hearing committee determines that a serious violation has occurred it also will determine sanctions to be applied which may include: a) expulsion from the University; b) suspension from the University for up to one year; c) a letter of censure; and d) imposition of a period of probation. If the hearing committee determines an infraction has occurred the penalty imposed by the faculty member will be upheld. If the hearing committee determines that no serious violation or infraction has occurred, it will request the instructor to take action consistent with that determination. If the hearing committee determines that expulsion is the appropriate sanction the student may appeal to the Provost.

**BASIC NEEDS ACKNOWLEDGEMENT**

Any student who faces challenges securing food or reliable housing, which may affect their academic performance in this course, is urged to contact the instructor and/or the Student Affairs Office (UC 232). If you find yourself in this situation, please reach out so that you can gain access to the USD Food Pantry, Torero Closet, or other resources on or off campus.