



SCHOOL OF EDUCATION AND
COUNSELING PSYCHOLOGY

Department of Education

MATTC Program

EDUC 264 (3 units)

Elementary Methods in Science, Health, & PE

Spring 2018

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Mission and Goals of the Department of Education

Rooted in the Jesuit tradition at Santa Clara University, the mission of the Department of Education is to prepare professionals of competence, conscience, and compassion who will promote the common good as they transform lives, schools, and communities. Our core values of reflective practice, scholarship, diversity, ethical conduct, social justice, and collaboration guide both theory and practice.

Faculty, staff, and students in the Department of Education:

1. Make student learning our central focus
2. Engage continuously in reflective and scholarly practice
3. Value diversity
4. Become leaders who model ethical conduct and a commitment to social justice
5. Seek collaboration with others in reaching these goals

MS/SS Teaching Credential Program Learning Goals (PLGs)

The PLGs represent our commitment to individuals who earn their MS/SS credential at Santa Clara University. The MS/SS faculty focus on ensuring each student will begin their teaching careers ready to:

1. Maximize learning for every student.
2. Teach for student understanding.
3. Make evidence-based instructional decisions informed by student assessment data.
4. Improve your practice through critical reflection and collaboration.
5. Create productive, supportive learning environments.
6. Apply ethical principles to your professional decision-making

The PLGs guide our program. Therefore, all MS/SS teaching credential program course objectives are cross-referenced with the PLGs. (A fully elaborated version of the MS/SS PLGs can be found in the Teacher Candidate Handbook, Pre-Service Pathway.)

Course Description

This course is designed to assist multiple subject credential candidates in developing the skills necessary to design and carry out science, health, and physical education instruction, which includes demonstrations and laboratory experiences for students in elementary and middle school programs. We will build on current research and best practices in order to foster science/health/PE learning in K-8 students. The processes of creating content, developing curriculum, and applying standards to generate meaningful lessons are emphasized, with an additional area of emphasis being placed on assessment and collaboration. Scientific inquiry, project-based instruction (PBI), Common Core integration, and Next Generation Science Standards (NGSS) will be emphasized along with best practices in the STEM/Health/PE model.

Course Objectives

This course will develop students' knowledge of or skills with...		<i>Standard/Goals Addressed</i>		
		<i>DG #</i>	<i>PLG #</i>	<i>TPE #</i>
1	Become more familiar with the scope and sequences of elementary science, health, and physical education in terms of content and processes based on state and national standards, focusing on a balanced approach that addresses all aspects of scientific/health/PE conceptual development at the elementary level.	1	1,2	3.1,3.4,4.3
2	Continue to develop the skills and disposition necessary to make instructional decisions (e.g., task selection and adaptation, opportunities for collaborative learning and scientific inquiry, differentiation) that promote a positive climate for learning and meet the instructional needs of diverse learners (e.g., English Learners, students with special needs).	1,2	1,2,5	1.3,1.8,3.1, 3.2,3.4,4.7, 5.2,6.1,6.5
3	Gather data about student progress toward content standards by using instructional strategies that assess student learning throughout the learning process.	1	1,2,3	3.2,3.4,5.2
4	Learn how to prepare, teach, and analytically reflect on elementary school science investigation lessons in which your students ask questions, make predictions, gather evidence, develop explanations, and communicate their ideas upon lessons in your respective content areas, which are built around models of how people learn.	1	1,2,3,4,5	1.8,3.1,3.2, 4.7,5.2,6.1, 6.5
5	Access, evaluate, and incorporate into your teaching practice a variety of resources from the National Science Teachers Association (NSTA) and other supplementary sources.	1,2	1,2,3,4	3.1,3.2,3.4, 6.1

*DG=Department Goals; PLG=Program Learning Goal; TPE=Teaching Performance Expectation Standard

Recommended Course Materials

- Zemba-Saul, C., McNeill, K.L., & Hershberger, K. (2013). *What's your evidence? Engaging K-5 students in constructing explanations in science*. Boston, MA: Pearson Education.
- Abruscato, J., & DeRosa, D.A. (2010). *Teaching children science: A discovery approach*. (7th ed.). Boston, MA: Pearson Education.
- Bybee, R.W. (2015). *The BSCS 5E instructional model: Creating teachable moments*. Arlington, VA: NSTA Press.
- Bybee, R.W. (2013). *Translating the NGSS for classroom instruction*. Arlington, VA: NSTA Press.
- Michaels, S., Shouse, A., & Schweingruber, H. (2007). *Ready, set, science! Putting research to work in K-8 science classrooms*. Washington, DC: National Academies Press.
- Krajcik, J.S., & Czerniak, C.M. (2014). *Teaching science in elementary and middle school: A project-based approach* (4th ed.). New York, NY: Routledge.
- Larmer, J., Ross, D., Mergendoller, J.R., & Buck Institute for Education (2009). *PBL starter kit: To-the-point advice, tools, and tips for your first project*. Novato, CA: Buck Institute for Education.
- National Research Council (NRC). (2012). *A framework for K-12 science education: Practices, crosscutting concepts, and core ideas*. Washington, DC: National Academies Press.
NOTE: You can download this publication for free at:
<http://www.nap.edu/catalog/13165/a-framework-for-k-12-science-education-practices-crosscutting-concepts>
- National Academies of Sciences, Engineering, and Medicine (2015). *Science teachers' learning: Enhancing opportunities, creating supportive contexts*. Committee on Strengthening Science Education through a Teacher Learning Continuum. Board on Science Education and Teacher Advisory Council, Division of Behavioral and Social Science and Education. Washington, DC: National Academies Press.
NOTE: You can download this publication for free at:
<http://www.nap.edu/catalog/21836/science-teachers-learning-enhancing-opportunities-creating-supportive-contexts>
- The Common Core State Standards for English Language Arts & Literacy in History/Social Studies, Science, & Technical Subjects: <http://www.corestandards.org/read-the-standards/>

Course Requirements/Assignments

While there is no required textbook for this course, you are expected to have access to our course website on Camino in order to obtain specific readings, weekly PowerPoint slides, and other resources.

Download and/or access electronically:

- Current California Science Standards (K-12) (1998)--<http://www.cde.ca.gov/be/st/ss/documents/sciencetnd.pdf>
- National Science Teachers Association-- <http://www.nsta.org/>
- Next Generation Science Standards—
<http://www.nextgenscience.org/next-generation-science-standards>
- Next Generation Science Standards (NGSS) for California Public Schools--
<http://www.cde.ca.gov/pd/ca/sc/ngssstandards.asp>
- NGSS Information for California Science Teachers—<http://www.cascience.org/ngss>
- English Language Development (ELD) Standards for California Public Schools--
<http://www.cde.ca.gov/sp/el/er/eldstandards.asp>
- Current California Content Standards for Health Education(K-12) (2008)--
<http://www.cde.ca.gov/be/st/ss/documents/healthstandmar08.pdf>

- Current California Content Standards for Physical Education (K-12) (2005)--
<http://www.cde.ca.gov/be/st/ss/documents/pestandards.pdf>

Note: Supplemental readings may be added during the quarter in response to students’ interests and/or needs; these readings will either be made available on our Course Website or distributed in class.

Course Requirements/Assignments

Course Requirements/Assignments		Percentage of Course Grade	TPE Assessed
1	Readings and Resources Tasks (i.e., weekly readings, discussion posts, Master Teacher Interview, Science Talk, Science Well-Remembered Event, Science Field Trip)	25	1.3,3.1,3.2, 3.4, 4.3,4.7,6.1, 6.5
2	P.E. Lesson Design/Reflection	15	1.8,3.1,3.2, 3.4,4.7,6.1, 6.5
4	Science Lesson Planning Project	25	1.4,3.1,3.2,3.4, 4.7,6.5
5	Science Notebook	20	3.1,6.1
6	Health Education Inquiry	15	1.3,3.1,3.2, 4.7,6.1,6.5

Course Requirement 1: Readings and Resource Tasks

Teacher candidates need to be prepared for each class session by critically reading all of the required weekly readings, completing all assigned tasks, and (when required) bringing a hard copy of your completed tasks to class. Readings and Resources tasks may include reviewing documents posted on Camino, participating in small and whole group discussions, practicing skills learned in class, strengthening the skills required for assignments, contributing to a science resources class database, and so on. Since many of these assignments will form the basis of in-class activities, they must be completed **before** class. In addition, students will have the opportunity to practice skills such as leading a science talk with their students and planning a science field trip. Other assignments in this category include the following:

- **Science Well-Remembered Event:** This is a three-part narrative that includes a description of a specific science event; an account of why the science event was memorable; and a section discussing what impact this science event might have on your understanding of what it means to be a teacher.
- **Master Teacher (MT) Interview:** The purpose of this assignment is to explore the learning environment for science that your mentor teacher has created in your classroom. Questions to explore include how is science visible, how has the teacher established a culture of intellectual respect; if the physical layout allows all students to participate equitably in science; how your MT thinks about and works on science teaching; how your MT feels about teaching students inquiry-based science; what your MT’s ideas are about his/her students’ perceptions of science; what materials for learning science are available in your MT’s classroom and/or school; and if your MT feels well prepared to teach science.

Course Requirement 2: P.E. Lesson Design/Reflection

This assignment provides students with the opportunity to revise and reflect upon a P.E. lesson taught in the fall to the students in their classroom placements. Students will peer edit the redesigned lesson plans before completing the

final assignment. Students who did not teach a P.E. lesson in the fall will create a lesson that utilizes the SCU lesson plan template. Students will have the opportunity to peer edit their lesson plan before turning in a finalized plan.

Course Requirement 3: Science Lesson Planning Project (*Signature Assignment*)

This assignment provides the opportunity to practice the skills teachers need every day in their work as a classroom science teacher. To complete this assignment, students will work through the process of conceptualizing and planning a K-8 science instructional experience that is aligned to the current *Next Generation Science Standards (NGSS)* models of three-dimensional science teaching (i.e., integrating disciplinary core science ideas, crosscutting concepts, and scientific practices). Tasks will include determining where the proposed lesson falls within the science curriculum for the chosen/assigned grade level; identifying appropriate adaptations to be made in this lesson to meet the needs of English Language Learners and students with identified and unidentified special needs; and determining appropriate authentic assessment measures for students’ progress toward the academic learning goal(s). In order to facilitate the process of designing an authentic, student-centered, and three-dimensional instructional experience, you will use a lesson planning template specific for science instruction. You will present an overview of your instructional plan to your classmates on our final class meeting.

Science Lesson Plan Rubric

	Far Below Expectations 0 - 2.5 pts	Approaching Expectations 3 pts	Meets Expectations 3.5 pts	Exceeds Expectations 4 pts
Student Academic Learning Objectives	Student academic learning objectives are missing, unclear, or unrelated to standards.	Student academic and /or language learning objectives do not provide a clear sense of what students will know and be able to do as a result of the lesson. Few objectives are connected to relevant standards.	Student academic and/or language learning objectives provide a general sense of what students will know and be able to do as a result of the lesson. Most of the objectives are related to relevant standards.	Student academic and/or language learning objectives provide a clear sense of what students will know and be able to do as a result of the lesson. All objectives are closely related to relevant standards.
Student Language Learning Objectives	Student language learning objectives are missing, unclear, or unrelated to standards.			
CCSS/State Content Standards	No standards are mentioned. Lesson is not related to standards.	Relevant standards are alluded to in lesson. Lesson is related to standards.	Relevant standards are referenced and clearly influence lesson.	Key standards are referenced. Lesson is guided by standards.
Materials and Preparation	Materials list and/or preparation instructions are missing or underdeveloped.	Some preparation instructions and/or a partial list of materials are provided. Materials are related to implementation of lesson.	Specific preparation instructions are provided Materials list is clear and complete. Materials enhance lesson.	Detailed preparation instructions are provided. Materials list is clear and complete. Materials greatly enhance lesson.
Anticipatory Set/ Introduction	No anticipatory set or introduction included.	Anticipatory set consists of stating the objectives to the class.	Anticipatory set revisits earlier learning and raises questions answered in lesson.	Anticipatory set engages students’ attention/curiosity and motivates them to participate.

Procedures	Procedures are not clearly described. Procedures are unrelated to objectives.	Procedures are briefly described. Procedures relate peripherally to objectives.	Procedures are clearly described and linked to objectives.	Procedures are described in detail and provide a logical path to meeting objectives.
Strategies/ Adaptations for English Learners	No strategies or adaptations are specified to support ELs.	Plan includes simple or general strategies and adaptations for ELs.	Plan includes strategies/ adaptations that support ELs' language development.	Plan includes adaptations that support development of ELs' language skills and their knowledge of academic content.
Strategies/ Adaptations for Students w/ Special Needs	No strategies or adaptations are planned for students with special needs.	Plan includes reference to adaptations included in student IEPs and 504 plans.	Plan includes adaptations for students with IEPs and 504 plans and for students with other challenges.	Plan includes specific differentiation opportunities for students at all levels.
Strategies/ Adaptations for Students from Under-performing Populations Subgroups	No strategies or adaptations are planned for students from the school's under-performing subgroups.	Plan includes strategies/ adaptations that make the lesson content more accessible to motivated individuals in specified subgroups.	Plan includes strategies/ adaptations that build on the strengths of the particular students in the target subgroups and allow them to experience engagement and success.	Includes strategies/adaptations that use students' prior knowledge to facilitate engagement and help make connections between their lives and the content clear and compelling.
Closure	No closure is included.	Closure is perfunctory; teacher restates lesson objectives to the class.	Closure requires students to restate what they learned and to make connections to objectives.	Closure requires students to synthesize or apply their new knowledge/skill in a meaningful, relevant way.
Assessment of Academic Learning Objectives	No assessment of student mastery of academic learning objectives or assessment is unrelated to objectives and standards.	Assessment is related to objectives and standards, but provides little useful information for evaluating student learning and planning further instruction.	Assessment is related to objectives and standards. Assessment provides useful information for evaluating student learning and planning further instruction for some students.	Assessment is directly related to objectives and standards. Assessment provides useful information for evaluating student learning and planning further instruction for all students.
Assessment of Language Learning Objectives	No assessment of student mastery of language learning objectives or assessment is unrelated to objectives and standards.			

Reflection Questions (6 pts total)	Does not include a reflection of the question or no examples of the point(s) being made are present.	Includes a cursory and very brief reflection of each question and does not provide examples of the point(s) being made.	Includes an adequate reflection of each question and provides relevant examples of the point(s) being made.	Includes a very well-developed reflection of each question and provides relevant examples of the point(s) being made.
Academic Writing	Writing in lesson plan and reflection includes multiple spelling and/or grammatical errors, and is generally unclear.	Writing in lesson plan and reflection has occasional errors in spelling and/or grammar, and has at least one sentence/idea that is lacking in clarity.	Writing is free of spelling and grammatical errors, but has occasional lapses in clarity and/or organization, OR occasional errors in spelling and/or grammar.	Writing in lesson plan and reflection is clear and free of spelling and grammatical errors.

/50 points

Comments:

Course Requirement 4: Science Notebook

One of the hallmarks of a Jesuit education is the practice of reflection. Science notebooks are a useful way students can practice critical reflection and refine their science understanding, while also enhancing reading, writing, and communication skills. Science notebooks contain information about students’ classroom experiences and are encouraged to use them as scientists would—before, during, and after all investigations. They are a place where students formulate and record their questions, make predictions, record data, procedures, results, compose reflections, and communicate findings. This assignment will enable students to experience science notebooks as a student so that you may possibly incorporate them into your science teaching practice.

Course Requirement 5: Health Education Inquiry

Students will work in small groups to investigate a health issue or concern that pertains to K-8 students. The issue must be relevant to the student population they teach. Each group will present their inquiry to the class and reflect upon how this assignment informs their teaching of health education.

Professional Conduct and Performance Policies

If I have reason to feel you are not meeting all the expectations spelled out below, I will contact you privately to discuss the issue, to clarify the expectations as needed, and to offer my support in helping you reach those expectations. If I do not contact you with a concern, you can assume you are satisfying these requirements. However, if you would like specific feedback on your professional conduct during the quarter, you are welcome to contact me at any time and I will be glad to share my assessment with you.

Attendance. Regular attendance at all class meetings is a requirement in this program. Ten points will be deducted from your final grade for the course for each class session you missed. Each of you will be granted one Emergency Release (ER) per course. Your ER excuses you from one class session with (at most) half the grade penalty (loss of 2-5 points instead of 10). To use your ER you must notify me by email or phone BEFORE class. Save your ER for medical issues, family demands, car trouble, etc.

Students will not be penalized for absences due to the observance of religious holidays that fall on our scheduled class day; please give me advance notice of these absences so I can make the necessary accommodations. All other absences are unexcused and will affect your grade.

Because so much of the course content is learned through participation in class activities and other experiences, it is not possible to make up for missing a class session. However, there are ways you can engage with the content, join the conversation, and try to fill the knowledge gaps that are the result of your absence. If you must miss a class session, do the following things:

1. Complete and submit on time all assignments due for the class session.
2. Download and review the PowerPoint presentation and any handouts and discussion notes from class (all posted on Camino).
3. Talk with your classmates to get their sense of the main “takeaways” of the session.

Punctuality. Coming to class (and returning from breaks) on time is another course requirement. Your first late arrival will be excused; your second late arrival will cause 1 point to be deducted from your final course grade; your third late arrival will cause an additional 4 points to be deducted. More than three late arrivals indicate a serious problem; this situation will be dealt with at my discretion.

Note: Points lost due to absences and/or lack of punctuality are deducted from your final grade. A student with excellent grades on assignments and other aspects of professional conduct can earn a lower course grade as a result of excessive absence or chronic lateness.

Attendance and punctuality are the only policies with the immediate potential to impact your course grades. However, your instructors gather data documenting your adherence to the remaining policies listed here through ongoing observation and documentation. These data are a primary factor in our program’s assessment of your mastery of TPE 6- “Developing as a Professional Educator”.

Responsible use of technology. As we read and study in this course, everyone’s learning is enhanced by the quantity and quality of the interactions in the learning environment. Hence, your participation in whole class discussions and small group work are essential for the success of this course. While a class is in session, you should not engage in any activity not directly related to what is taking place in the classroom. Instructors reserve the right to ask you to close your laptop or put away some other form of technology at their discretion; when/if this occurs, please respond quickly and without protest to avoid further disruption of the class’s learning. Instructors also reserve the right to ignore your inappropriate use of technology in class and simply deduct points from your final grade. If you would like more detailed clarification about the expectations regarding appropriate and inappropriate in-class technology use, please feel free to contact me for further information.

Academic integrity. Santa Clara University insists on honesty and integrity from all members of its community; see <https://www.scu.edu/academic-integrity/> for details. Students are expected to do their own work and to cite any sources they use. A student who is guilty of dishonest acts in an examination, paper, or other required work for a course, or who assists others in such acts, will receive a grade of F for the course. In addition, a student guilty of dishonest acts will be immediately dismissed from the University. Students that violate copyright laws, including those covering the copying of software programs, or who knowingly alter official academic records from this or any other institution, are subject to disciplinary action (SECP Graduate Bulletin, 2017-2018 <https://www.scu.edu/media/ecp-media/-/ecp-media-2018/pdfs/Final---SECP-17-18.pdf>).

Communication. Email and our Camino website will be our primary means of communication outside of class. **You must check your SCU email account and Camino messages every day to ensure you maintain a connection with your classmates and me.**

Assessments & Grading Criteria

- All written and oral assignments must reflect graduate-level standards. As a future teacher, you must be able to model communication skills for your students.

- Attendance and participation in all class meetings is required. If you are going to be absent from class, you must email or call me to inform me of your absence. You will still be responsible for all missed content and in-class work.
- Letter grades are assigned on the standard scale based upon a possible total of 100 points.

A	94-100	C+	77-79
A-	90-93	C	74-76
B+	87-89	C-	70-73
B	84-86	D+	67-69
B-	80-83	D	63-66

- Assignments done in pairs, both partners will receive the same grade, unless otherwise stated.
- Final grades will reflect students' contributions (e.g., attendance, class discussions, quality of presentation, ability to lead discussion groups, completion and quality of course assignments), critical thinking and ability/degree to which student integrates theory, research and practice.
- All assignments are expected on their due dates in the room where our class meets. I cannot be responsible for papers submitted at other times or in other formats. Unless we have made special arrangements beforehand, late assignments will be docked 3 points for each day past the due date that they are submitted.

Camino Course Management System

To access course materials and participate in on-line activities, please be sure to review Camino. Reminders, tools, readings and assignment descriptions will be made available through this on-line course management system. Your SCU username and password gets you access to Camino.

Department of Education and University Resources

Academic Action Plan Students who are struggling to meet course expectations will be placed on an Academic Action Plan (AAP). The purpose of the AAP is to document the areas of difficulty, the support to be provided, and the time frame in which the student must improve performance. More information about the AAP is available in the MATTC Handbook.

Disability Accommodations If you have a disability, for which accommodations may be required in this class, please contact Disabilities Resources, Benson 216, <http://www.scu.edu/disabilities> as soon as possible to discuss your needs and register for accommodations with the University. If you have already arranged accommodations through Disabilities Resources, please discuss them with me during my office hours. Students who have medical needs related to pregnancy may also be eligible for accommodations.

While I am happy to assist you, I am unable to provide accommodations until I have received verification from Disabilities Resources. The Disabilities Resources office will work with students and faculty to arrange proctored exams for students whose accommodations include double time for exams and/or assisted technology. (Students with approved accommodations of time-and-a-half should talk with me as soon as possible). Disabilities Resources must be contacted in advance to schedule proctored examinations or to arrange other accommodations. The Disabilities Resources office would be grateful for advance notice of at least two weeks. For more information, you may contact Disabilities Resources at 408-554-4109.

Accommodations for Pregnancy and Parenting In alignment with Title IX of the Education Amendments of 1972, and with the California Education Code, Section 66281.7, Santa Clara University provides reasonable accommodations to students who are pregnant, have recently experienced childbirth, and/or have medically related

needs. Pregnant and parenting students can often arrange accommodations by working directly with their instructors, supervisors, or departments. Alternatively, a pregnant or parenting student experiencing related medical conditions may request accommodations through Disability Resources.

Incomplete Grades Under certain extenuating circumstances, a student may request an Incomplete. See the *School of Education and Counseling Psychology Bulletin* for details. If you have any concerns about your ability to fulfill the course requirements by the due dates, contact me right away to explain your situation.

Writing Support The HUB Writing Center (22 Benson Center) offers a variety of services, such as peer tutoring. For more details, please visit: <http://www.scu.edu/provost/writingcenter/>.

Title IX Santa Clara University upholds a zero-tolerance policy for discrimination, harassment and sexual misconduct. If you (or someone you know) have experienced discrimination or harassment, including sexual assault, domestic/dating violence, or stalking, I encourage you to tell someone promptly. For more information, please consult the University's Gender-Based Discrimination and Sexual Misconduct Policy at <http://bit.ly/2ce1hBb> or contact the University's EEO and Title IX Coordinator, Belinda Guthrie, at 408-554-3043 or by email at bguthrie@scu.edu. Reports may be submitted online through <https://www.scu.edu/osl/report/> or anonymously through Ethicspoint <https://www.scu.edu/hr/quick-links/ethicspoint/>

Reporting Practices While I want you to feel comfortable coming to me with issues you may be struggling with or concerns you may be having, please be aware that there are some reporting requirements that are part of my job at Santa Clara University. For example, if you inform me of an issue of harassment, sexual violence, or discrimination, I will keep the information as private as I can, but I am required to bring it to the attention of the institution's EEO and Title IX Coordinator. If you inform me that you are struggling with an issue that may be resulting in, or caused by, traumatic or unusual stress, I will likely inform the campus Student Care Team (SCU CARE).

If you would like to reach out directly to the Student Care Team for assistance, you can contact them at <https://www.scu.edu/osl/culture-of-care/care-teams/>. If you would like to talk to the Office of EEO and Title IX directly, they can be reached at 408-554-3043 or by email at bguthrie@scu.edu. Reports may be submitted online through <https://www.scu.edu/osl/report/> or anonymously through Ethicspoint: <https://www.scu.edu/hr/quick-links/ethicspoint/> Additionally, you can report incidents or complaints to the Office of Student Life (OSL), Campus Safety Services, and local law enforcement. For confidential support, contact the Counseling and Psychological Services office (CAPS), the YWCA, or a member of the clergy (for example, a priest or minister).

Finally, please be aware that if, for some reason, our interaction involves a disruptive behavior, a concern about your safety or the safety of others, or potential violation of University policy, I will inform the Office of Student Life. The purpose of this is to keep OSL apprised of incidents of concern, and to ensure that students can receive or stay connected to the academic support and student wellness services they need.

EDUCATION 264 COURSE CALENDAR

Subject to change. Changes will be communicated via in-class announcement, Camino, and/or email.

DATE & CLASS SESSION	TOPICS	ASSIGNMENTS DUE (SEE SPECIFIC ASSIGNMENT SHEETS/CAMINO POSTINGS FOR DETAILS)
April 3 Class #1	<ul style="list-style-type: none"> • Course overview • Visions of science teaching • NGSS 101 	
April 10 Class #2	<ul style="list-style-type: none"> • Introduction to 5-E framework of science teaching—Engage, Explore, Explain, Elaborate/Extend, and Evaluate • Supporting scientific talk and writing • Introduce Science Talk assignment • Introduction to Science Notebooks with Life or Physical Science activity 	<ul style="list-style-type: none"> • Review Rosebery & Ballenger (2008)—Creating a Foundation Through Student Conversation • Science Well-Remembered Event
April 17 Class #3	<ul style="list-style-type: none"> • No formal class meeting due to conference presentation at the annual meeting of the American Educational Research Association (AERA) in New York, NY • View NGSS Videos 	<ul style="list-style-type: none"> • Online Discussion—Make postings from NGSS video viewing
April 24 Class #4	<ul style="list-style-type: none"> • Small group discussion of MT interview • CCSS-ELA for Science & Technical Subjects • Lesson planning/reflection for PE • Work time with Science Lesson Planning Project 	<ul style="list-style-type: none"> • Bring documentation for MT interview small group discussion
May 1 Class #5	<ul style="list-style-type: none"> • Engaging with students’ scientific ideas • Planning for explanation-driven science • Science Notebooks—Earth Science activity 	<ul style="list-style-type: none"> • Read Campbell, Schwarz, & Windschitl (2016)—What We Call Misconceptions May Be Necessary Stepping Stones Towards Making Sense of the World
May 8 Class #6	<ul style="list-style-type: none"> • Integrating scientific explanation into classroom instruction • Sense-making with science data • Overview of Health Education • Work time with Science Lesson Planning Project 	<ul style="list-style-type: none"> • Science Talk small group discussions • First Science Notebook check
May 15 Class #7	<ul style="list-style-type: none"> • Continue overview of Health Education • Assessment and 3-D science instruction • Science Notebooks—Physical Science activity 	<ul style="list-style-type: none"> • Health Education Inquiry presentations
May 22 Class #8	<ul style="list-style-type: none"> • Sharing PE lesson plans/reflections • Topic integration within science education • Teaching with science trade books • Diversity perspectives in science/health/physical education 	<ul style="list-style-type: none"> • PE Lesson Plans/Reflections and small group discussions
May 29 Class #9	<ul style="list-style-type: none"> • Share Field Trip resources • Safety during laboratory practices • Using technology to support scientific investigations • Science notebooks—Physical Science activity 	<ul style="list-style-type: none"> • Resources for field trips and small group discussions

June 5 Class #10	<ul style="list-style-type: none">• Share final Science Lesson Plans• Fostering a community of young scientists over time	<ul style="list-style-type: none">• Science Lesson Planning Project presentations• Submit final Science Lesson Planning Projects• Submit Science Notebooks
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