California State University
SAN MARCOS

SCHOOL OF EDUCATION

Engaging diverse communities through leading and learning for social justice.

Course & Section Nos.	EDMS 545, Section 01
Course Title	Elementary Science Education
Class Roster No.	22517
Course Day(s)	Tuesday
Time	9:00 am-3:30 pm
Course Location	Farr Elementary
Semester / Year	**Spring 2018**

Instructor	Susan Ritchie.
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Office	
Office Hours	For offsite courses: Before and after class

SCHOOL OF EDUCATION MISSION & VISION STATEMENT
(Adopted by SOE Governance Community, January 2013)

Vision

To serve the educational needs of local, regional, and global communities, the School of Education advances innovative practice and leadership by generating, embracing, and promoting equitable and creative solutions.

Mission

The mission of the School of Education community is to collaboratively transform education. We:
- Create community through partnerships
- Promote and foster social justice and educational equity
- Advance innovative, student-centered practices
- Inspire reflective teaching and learning
- Conduct purposeful research
- Serve the School, College, University, and Community

BASIC TENETS OF OUR CONCEPTUAL FRAMEWORK

- Student centered education
- Research and theory specific to the program field inform practice
- Connections and links between coursework and application
- Strong engagement between faculty and candidates
- Co-teaching clinical practice
- Culturally responsive pedagogy and socially just outcomes

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COURSE DESCRIPTION

This course focuses on inquiry teaching to include: The 5E Learning Cycle model, science process skills, science themes, scientific attitudes and habits of mind, and methods to involve all children in hands-on lessons. Emphasis is placed on instructional strategies, authentic assessments, exemplary science kits and curricula, as well as on the use of technology in science teaching. Methods of cross-cultural language and academic development are integrated into the course.

Course Prerequisite

Admission to the Multiple Subject Credential Program

Credit Hour Policy Statement

For each hour of classroom time spent in learning in this course, each teacher candidate is expected to spend at least 2 hours of learning outside of the classroom. Examples of outside learning are text readings and reading responses, lesson planning, working on course assignments, and practice teaching with students.

REQUIRED TEXT, MATERIALS, AND ACCOUNTS

Required Course Text:

Friedl, A.E. & Koontz, T.Y. (2005). *Teaching Science to Children: An Inquiry Approach, 6th Ed.* NY: McGraw-Hill. ISBN: 0-07-256395-8

Recommended Texts:

Ansberry, K. & Morgan, E. (2010). *Picture-Perfect Science Lessons, Expanded 2nd Edition: Using Children's Books to Guide Inquiry Grades 3-5*. Arlington, Virginia: NSTA Press. ISBN: 978-1-935155-16-4
Ansberry, K. & Morgan, E. (2013). *Even More Picture-Perfect Science Lessons, K-5: Using Children's Books to Guide Inquiry*. Arlington, Virginia: NSTA Press. ISBN: 978-1-935155-17-1
Ansberry, K. & Morgan, E. (2007). *More Picture-Perfect Science Lessons, K-4: Using Children's Books to Guide Inquiry*. Arlington, Virginia: NSTA Press. ISBN: 978-1-933531-12-0
Ansberry, K. & Morgan, E. (2017). *Picture-Perfect STEM Lessons, K-2: Using Children's Books to Inspire STEM Learning*. Arlington, Virginia: NSTA Press. ISBN: 978-1-68140-328-1
Ansberry, K. & Morgan, E. (2017). *Picture-Perfect STEM Lessons, 3-5: Using Children's Books to Inspire STEM Learning*. Arlington, Virginia: NSTA Press. ISBN: 978-1-68140-331-1

Cougar Course Resources: **

A Framework for K-12 Science Education: Practices, Cross-Cutting Concepts, and Core Ideas. Available at: *http://www.nextgenscience.org/framework-k%E2%80%9312-science-education*
Next Generation Science Standards (Achieve, 2013). Available at: http://www.nextgenscience.org/
Next Generation Science Standards Framework for California (2016). Available at:
https://www.cde.ca.gov/ci/sc/cf/scifwprepubversion.asp
Next Generation Science Standards for California Public Schools, K-12. Available at:
        http://www.cde.ca.gov/pd/ca/sc/ngssstandards.asp

 ** If the hyperlinks do not open a document, copy and paste the URL into a browser.
Other handouts (assignments guidelines and rubrics) and resources will be distributed in class and through the Cougar course site.

COURSE LEARNING OUTCOMES:

After successful completion of this course, students will be able to:

1. Demonstrate proficiency with inquiry skills of observing, measuring, inferring, classifying, predicting, verifying predictions, hypothesizing, isolating variables, interpreting data, and experimenting.
2. Identify and use exemplary materials (technology and technology resources, curriculum, science programs, textbooks, equipment, ancillary materials) appropriate for K-8 school children.
3. Demonstrate knowledge, understanding, and use of the *Framework for K-12 Science Education* and the *Next Generation Science Standards*.
4. Demonstrate an understanding of the physical, earth, and life science concepts included in the *Next Generation Science Standards* by designing science lessons to teach the concepts.
5. Demonstrate an understanding of the Health Education Standards for California Public Schools and their connection/application to science content standards.
6. Plan, teach, and videotape a lesson focusing on a discrepant event in science.
7. Apply the Learning Cycle model of instruction as it relates to teaching science in a contemporary manner.
8. Identify and use simulation tools and demonstrate the use of technology to enhance elementary science teaching and learning.
9. Demonstrate confidence in leading and performing investigations designed to teach science concepts, science process skills, and scientific attitudes.
10. Effectively use authentic methods of assessment to evaluate learning of science concepts and processes.
11. Practice strategies to include all students in science (linguistically and culturally diverse, students with disabilities and other students with special needs).
12. Use reflection as a tool to increase conceptual understanding of science concepts and the ability to improve teaching.

Authorization to Teach English Learners

This credential program has been specifically designed to prepare teachers for the diversity of languages often encountered in California public school classrooms. The authorization to teach English learners is met through the infusion of content and experiences within the credential program, as well as additional coursework.

Candidates successfully completing this program receive a credential with authorization to teach English learners. *(Approved by CCTC in SB 2042 Program Standards, August 02)*

Teacher Performance Expectation (TPE) Competencies

The course objectives, assignments, and assessments have been aligned with the CTC standards for the Multiple Subject Credential. This course is designed to help teachers seeking a California teaching credential to develop the skills, knowledge, and attitudes necessary to assist schools and district in implementing effective programs for all students. The successful candidate will be able to merge theory and practice in order to realize a comprehensive and extensive educational program for all students. You will be required to formally address the following TPEs in this course:

TPE Primary Emphases in EDMS 545B:

-   TPE 1a-Subject Specific Pedagogical Skills for MS Teaching Assignments (Science)
-   TPE 5-Student Engagement

TPE Secondary Emphases in EDMS 545B:

-   TPE 4-Making Content Accessible
-   TPE 7-Teaching English Learners

-   TPE 9-Instructional Planning
-   TPE 14-Educational Technology in Teaching and Learning

Teacher Performance Assessment

Beginning July 1, 2008 all California credential candidates must successfully complete a state-approved Teacher Performance Assessment (TPA), as part of the credential program of preparation. During the 2015-

16 academic year the CSUSM credential programs will use either the CalTPA (California Teacher Performance Assessment) or the edTPA (Educative Teacher Performance Assessment).

Check with your program coordinator to determine which assessment is used for your credential program.

CalTPA

To assist with your successful completion of the CalTPA, a series of informational seminars are offered over the course of the program. TPA related questions and logistical concerns are to be addressed during the seminars. Your attendance to TPA seminars will greatly contribute to your success on the assessment. The CalTPA Candidate Handbook, TPA seminar schedule, and other TPA support materials may be found on the SOE website:
http://www.csusm.edu/education/CalTPA/ProgramMaterialsTPA.html

edTPA

Beginning in fall 2015, for newly entering initial candidates, the CSUSM assessment system is the edTPA. To assist with your successful completion of the edTPA, a capstone class is part of your curriculum. In this class edTPA related questions and logistical concerns are addressed. Additional support materials are available on the edTPA website:
http://www.edtpa.com/PageView.aspx?f=GEN_Candidates.html

Additionally, to support your success in your credential program and with TPA, SOE classes use common pedagogical language, lesson plans (lesson designs), and unit plans (unit designs).

Expected Dispositions for the Education Profession

Education is a profession that has, at its core, certain dispositional attributes that must be acquired and developed. Teaching and working with learners of all ages requires not only specific content knowledge and pedagogical skills, but positive attitudes about multiple dimensions of the profession. The School of Education has identified six dispositions that must be evident in teacher candidates: social justice and equity, collaboration, critical thinking, professional ethics, reflective teaching and learning, and life-long learning. These dispositions have observable actions that will be assessed throughout the preparation program. For each dispositional element, there are three levels of performance - *unacceptable*, *initial target*, and *advanced target*. The description and rubric for the three levels of performance offer measurable behaviors and examples.

The assessment is designed to provide candidates with ongoing feedback for their growth in professional dispositions and includes a self -assessment by the candidate. The dispositions and rubric are presented, explained and assessed in one or more designated courses in each program as well as in clinical practice. Based upon assessment feedback candidates will compose a reflection that becomes part of the candidate's Teaching Performance Expectation portfolio. Candidates are expected to meet the level of *initial target* during the program.

PROGRAM STUDENT LEARNING OUTCOMES (PSLOs)

The Teacher Performance Expectation Competencies, the Teacher Performance Assessment, and the Assessment of Professional Dispositions provide the program student learning outcomes for the Multiple Subject Credential Program.

COURSE SCHEDULE

Date	Topic	Assignment's	Due Prior to Class Session
1/23: Week 1 Session 1 Session 2	Welcome/ Review Assignments NGSS Intro Science Sense-Making Notebooks Phenomenon and Inquiry A Private Universe	Read Syllabus Scan CA Framework Overview, Ch 1 1-16 and 77-84	1/23 in class 1/23 in class
1/30: Week 2 Session 3 Session 4	NGSS 3 Dimensions 5E Lesson Design	NGSS Standards Summary	1/30 on-line & in class
2/6: Week 3 Session 5 Session 6	Inquiry- based Lessons Writing 5E	NGSS Lesson Outline & CA Framework-Grade Level Chapter Reflection 1: Read Picture Perfect Science Ch 4	2/6 on-line & in class 2/6 on-line
2/13: Week 4 Session 7 Session 8	Shifts in Pedagogy Learning Sequences with Conceptual Flows	Notebook Check Reflection 2: Read NRC, Ch 2 Reflection 2: Read Colburn Part I & II	2/13 in class 2/13 on-line
2/20: Week 5 Session 9 Session 10	Grade Level Science Lessons	NGSS Grade Level Lesson Presentations Reflection 3: Read CA Framework, Ch 11 1-20	2/20 on-line & in class 2/20 on-line
2/27: Week 6 Session 11 Session 12	Grade Level Science Lessons	NGSS Grade Level Lesson Presentations Reflection 4: Read CA Framework, Ch 11 21-29 Reflection 4: Helping Students Make Sense of the World, Ch 1 5-18	2/27 in class & on-line 2/27 on-line
3/6: Week 7 Session 13 Session 14	Grade Level Science Lessons	NGSS Grade Level Lesson Presentations Evaluation and Use of Technology Resources Reflection 5: Read NRC, Ch 9 17-36	3/6 in class & on-line 3/6 on-line 3/6 on-line
3/13: Week 8 Session 15 Session 16	Engineering Notebooks	Science Teaching with Students Reflection Notebook Check Reflection 6: Read 5E for ELL Reflection 6: Read Sense-Making Notebooks	3/13 on-line 3/13 in class 3/13 on-line

NOTE: While this syllabus is carefully planned, it may be modified or adjusted at any time in response to the learning needs of the class.

COURSE TOPICS OUTLINE

- The Nature of Science
- Discrepant Events in Science Teaching
- The Learning Cycle Model of Teaching
- Learning Cycle Science Lesson Demonstrations
- Writing Objectives for Student Learning
- Developing Essential Questions for Teaching Science
- Writing Science Concept Definitions
- A Framework for K-12 Science Education
- The *Next Generation Science Standards*
- Teaching Science to English Learners: SDAIE Strategies
- Inclusion and Teaching Science to Students with Special Needs
- Differentiating Instruction and Assessment in Science
- Authentic Assessments in Science
- Infusing Writing Activities in Science Lessons
- Science and Engineering Practices in the Classroom
- Science Process Skills and Scientific Attitudes
- Current Issues in Science Education
- Infusing Technology Tools into Science Planning and Teaching
- Science Projects, Student Research, Science Fairs
- Safety in the Science Class
- Concept Mapping

COURSE REQUIREMENTS AND GRADED COURSE

COMPONENTS <u>Assignments Tied to Course Learning Outcomes</u>

Teaching and learning require engaged and reflective participants. It is essential that you prepare carefully for class, be ready to discuss readings and assignments thoughtfully, and actively participate in all class activities. Each written assignment is expected to have a clear organizational presentation and be free of grammar, punctuation and spelling errors. There will be a reduction in points for the above-mentioned errors. Late assignments are not accepted. Prepare carefully for class, and be ready to discuss readings and assignments thoughtfully. Here is a list of the assignments and requirements, followed by descriptions of each of them:

Assignment	Points	Due Date
Evaluation and Use of Technology Resources	10	3/6
Reading Reflection Responses	18	ongoing
Next Generation Science Standards Summary	15	1/30
Next Generation Science Standards Lesson Outline	15	2/6
Next Generation Science Standards Presentation	15	Varies
Science Teaching and Reflection with Students	15	3/13
Professional Dispositions/Participation/Notebooks	12	ongoing

NOTE: *Each student is responsible for ensuring that assignments are submitted correctly and on time.*

<u>Descriptions of Assignments</u>

1. Active Participation, Collaboration and Notebooks – (12 points)
Teacher education is a professional preparation program and students will be expected to adhere to standards of dependability, professionalism, and academic honesty.
Grading will include a component of "professional demeanor." Students will conduct themselves in ways that are generally expected of those who are entering the education profession, including the following:
- On-time arrival to all class sessions and attendance for the entire class period
- Advance preparation of readings and timely submission of assignments
- A **POSITIVE** attitude always

- Active participation in all class discussions and activities
- Respectful interactions and courteous language with the instructor and other students in all settings
- Carefully considered, culturally aware approaches to solution-finding

Class Discussions and Participation: Students will engage in active learning each class session, and will be expected to actively participate. You may lose points for lack of participation based on the following criteria:
- Do you participate in class discussions productively, sharing your knowledge and understandings?
- Do you interact productively with your peers, taking on a variety of roles (leader, follower, etc.)?
- Do you contribute appropriately to group work—do you "do your share"?
- Are you able to accept others' opinions?
- Are you supportive of others' ideas?
- Do you support your peers during their presentations?
- Can you monitor and adjust your participation to allow for others' ideas as well as your own to be heard?

Notebooks: Students will be expected to use science notebooks in each class session, to make sense of and record their learnings. These notebooks will be checked in week 4 and 8.
- Did you include your prior knowledge?
- Did you record your thinking?
- Did you use models and diagrams of your thinking?
- Did you collect data to help you make sense of your learning?
- Did you show your sense making?

2. Reading Reflection Responses – (Individual) (18 points)
Each week you will reflect on the readings, observations, or our class activities. You submit a reflection *on-line*. The focus will be on how you make sense of the information rather than a summary. The purpose of the reflections is to prepare you for class discussion and to reflect on your own experiences, beliefs, and theories about science education. There will be time for discussion of the readings, so it is imperative that you do the readings each week. The way in which you are asked to reflect should be different from week to week. **These reflections are due on-line.**

3. Evaluation and Use of Technology Resources & Internet Sites (Partner)(10 pts)
With a partner explore Internet resources (web pages, online lessons, simulation games etc. and technology tools and apps (such as for the I-Pad). For each site, you and your partner will turn in one paper that includes a 150-200 word summary of the site which will be shared with the class as a resource.

Part I of this assignment: explore in detail at least three Internet sites that would be valuable for teachers or students for information, simulation etc. List the URL and navigate the site and explain how it could be used in your classroom.

Part II of this assignment: find three good inquiry-based and NGSS lessons. The three lessons for either of your grade levels will include: one from earth science, one from life science and one from physical science. It will include appropriate reference information, how you might adapt the lesson for your class and why you would suggest this lesson to your classmates as an example of a good inquiry-based NGSS lesson.

<div align="center">

NGSS Standards/Framework specific tasks
Next Generation Science Standards (NGSS) Understanding and Application
</div>

Purpose of these assignments: To provide an in-depth introduction to the NGSS as a framework and foundation. This overview will lead to you and your team applying your understanding of these standards and strategies by integrating them in an inquiry-based lesson. This beginning learning process consists of three components/assignments: 4,5 and 6 (see specifics below). All 3 sections will be turned in either individually or as a group.

In 4, you will individually read and respond to NGSS documents as well as view NGSS videos from the various areas of the NGSS (see specifics below).

In 5, you will individually use the information from these documents, other resources (given in class), as well as examples from our text to create an outline of a lesson plan (see specifics below).

> **In 6,** with your members of your grade level team, you will share your lesson plan outline. Each group will select one representative lesson to elaborate and enhance into a 5E plan to present to the entire class as a grade level NGSS lesson.

4. Next Generation Science Standards Research and Summary (Individual)- 15 points

There are 3 components to this part of the assignment to be turned in online and shared in class. Use this link to assist as an overview https://www.nextgenscience.org/get-to-know This assignment should be 2-3 pages.

> Read the following Framework sections and take notes and suggest questions for discussion in class from the NGGS that are representative of a beginning understanding: 1) NGSS Front Matter (Executive Summary); 2) Structure of the NGSS (How to Read it); 3) Conceptual Shifts (How is it different); 4) View these two videos: "Why NGSS" and "NGSS Overview"; 5) Briefly scan the introductions for the following sections: Sections D-J.

> Briefly scan and take notes on all the NGSS standards for your grade level. Use the CA/NGSS link= https://www.cde.ca.gov/ci/sc/cf/scifwprepubversion.asp since this provides some examples and clarifications that might be useful.

> With a focus on your grade level standards, select at least one standard to create a lesson outline as described in 4 below. (Possible lesson ideas can be found in your text)

5. Next Generation Science Standards Grade Level Lesson Outline– (Individual)– 15 points

There are 2 components for this assignment to be turned in online and shared in class with your team. This assignment should be 2-3 pages.

> Read and summarize all the NGSS standards for your grade level. Use the CA/NGSS link= https://www.cde.ca.gov/ci/sc/cf/scifwprepubversion.asp since this provides some examples and clarifications that might be useful.

> Using the standard (s) you chose for your lesson outline in assignment 4. This will be a 1 ½ -2 page outline of the lesson.
> 1) Research possible lesson ideas in our text and from the other resources given in class.
> 2) Write the standard(s) and the context of the lesson you chose;
> 3) Come up with a brief description of the inquiry based NGSS lesson activity that students can do to assist in understanding the standard;
> 4) Explain in what ways you would assess their knowledge;
> 5) How will this lesson incorporate all the 3 Dimensions discussed from the NGSS concepts (cross-cutting concepts; science and engineering practices; disciplinary core ideas);
> 6) How can you integrate some of grade level common core standards in either math or language arts as well as any other ideas suggested in the NGSS.

It's essential to your beginning understanding of NGSS that you do the reading, responses and individual lesson plan BEFORE you meet with your grade level team in class.

6. Next Generation Science Standards Team preparation and presentation – (Group)- 15 points

With your members of your grade level team, you will share your lesson plan outline (from #4). Each group will select one representative lesson to elaborate and enhance into a 5E plan to present to the entire class as a grade level NGSS lesson.

> Get together with your team by grade level. Look at the activities that everyone wrote up for Assignment 4. Choose one that your team feels is the best representation of the application of the standards/frameworks or integrate two that may work together. Elaborate and enrich the original based on input from all members.

> As a team, write up a final 5E lesson plan for the activity stating the standard(s) (with activities, assessment,). This lesson plan should integrate the ideas from the NGSS Standards as well as discussed in 4 above. You will have some class time to work on this in week 3 and 4.

> Presentation: As a teaching team, in 45 minutes or less, 1) present your inquiry based lesson to the class; 2) share a copy of your 5E lesson with the class which should demonstrate what standard(s) and the major themes of the NGSS/ frameworks were used and how some CCSS standards might be integrated into this lesson; 3) address any questions from classmates.

7. Science Student Teaching and Reflection(Individual) – 15 pts.

You will teach an inquiry-based NGSS lesson to your elementary class. (approx. 45 min)

You can use the grade level lesson you teach our class or prepare and teach a lesson of your own choice. This assignment should include a copy of the 5E lesson, references or resources consulted for the lesson and a detailed reflection.

> After you have done your inquiry-based NGSS lesson with students, look at your plan and think about how it went. You may realize that your event needs to be modified (how, why).
>
> Write a description of what happened, with special attention to what the children said and did.
>
> Analyze the children's response: what portions of the event, and to what extent, did the children understand what was happening? Why or why not?
>
> *Be very specific and clear about what the children did, said, and how they responded to the lesson. The reflection should be thorough, thoughtfully written, and detailed to receive full credit.*

Grading Standards

Total percentage of the course for each assignment is indicated in the list of assignments and in the assignment descriptions.

Final grades are calculated on the standard of:

A: 93% - 100%	A-: 90% - 92%	B+: 87% - 89%	B: 83% - 86%
B-: 80% - 82%	C+: 77% - 79%	C: 73% - 76%	C-: 70% - 72%
D: 60% - 69%	F: below 60		

Note: Failure to complete this course with a grade of C+ or higher will prohibit a teacher candidate from continuing the teaching credential program. **There is not a final exam in this course.**

School of Education/Course Attendance Policy

Due to the dynamic and interactive nature of courses in the School of Education, all candidates (course participants) are expected to attend all classes and participate actively. At a minimum, candidates (course participants) must attend more than 80% of class time, or s/he may not receive a passing grade for the course at the discretion of the instructor. Individual instructors may adopt more stringent attendance requirements. Should the candidate (course participants) have extenuating circumstances, s/he should contact the instructor as soon as possible. *(Adopted by the COE Governance Community, December, 1997).*

This course: Teacher education is a professional preparation program. Therefore, candidates missing more than one class session (half day) cannot earn an A or A-. Candidates missing more than two class sessions cannot earn a B or B+. Candidates missing more than three classes cannot earn a C+. Arriving late or leaving early by more than 20 minutes counts as an absence. Notifying the instructor does not constitute an excuse. All assignments must be turned in on due date even in case of an absence.

Policy on Late/Missed Work

 10% deduction for being one day late, 20% deduction two days late, 30% deduction three days late, and so on. After a week, no assignments will be accepted. If extraordinary circumstances occur, please contact the instructor BEFORE the deadline.

Student Collaboration Policy

Candidates will be required to work collaboratively on selected assignments and projects with classroom peers. The expectation for such collaborations is that each candidate will contribute equitably to the process and final product.

GENERAL CONSIDERATIONS

CSUSM Academic Honesty Policy

Students will be expected to adhere to standards of academic honesty and integrity, as outlined in the Student Academic Honesty Policy. All assignments must be original work, clear and error-free. All ideas/material that are borrowed from other sources must have appropriate references to the original sources. Any quoted material should give credit to the source and be punctuated accordingly.

Academic Honesty and Integrity: Students are responsible for honest completion and representation of their work. Your course catalog details the ethical standards and penalties for infractions. There will be zero tolerance for infractions. If you believe there has been an infraction by someone in the class, please bring it to the instructor's attention. The instructor reserves the right to discipline any student for academic dishonesty, in accordance with the general rules and regulations of the university. Disciplinary action may include the lowering of grades and/or the assignment of a failing grade for an exam, assignment, or the class as a whole.

Incidents of Academic Dishonesty will be reported to the Dean of Students. Sanctions at the University level may include suspension or expulsion from the University.

Refer to the full Academic Honesty Policy at:
http://www.csusm.edu/policies/active/documents/Academic_Honesty_Policy.html

Plagiarism

As an educator, it is expected that each candidate (course participant) will do his/her own work, and contribute equally to group projects and processes. Plagiarism or cheating is unacceptable under any circumstances. If you are in doubt about whether your work is paraphrased or plagiarized see the Plagiarism Prevention for Students website http://library.csusm.edu/plagiarism/index.html. If there are questions about academic honesty, please consult the University catalog.

Students with Disabilities Requiring Reasonable Accommodations

Students with disabilities who require reasonable accommodations must seek approval for services by providing appropriate and recent documentation to the Office of Disability Support Services (DSS). This office is in Craven Hall 4300, contact by phone at (760) 750-4905, or TTY (760) 750-4909. Students authorized by DSS to receive reasonable accommodations should meet with their instructor during office hours. Alternatively, to ensure confidentiality, in a more private setting.

Credit Hour Policy Statement

For each hour of classroom time spent in learning in this course, each teacher candidate is expected to spend at least 2 hours of active learning outside of the classroom. Examples of outside active learning are text readings and associated reading responses, lesson planning, interviewing students, authentic teaching practice with students, and working on course assignments outside of class.

All University Writing Requirement
In keeping with the All-University Writing Requirement, all courses must have a writing component of at least 2,500 words (approximately 10 pages), which will be administered in a variety of ways in this course including lesson plans, assessment assignments, course text reading responses, reflections, concept maps; and journal writings on authentic teaching experiences.

Course Format

Hybrid- online and face-to-face format

Necessary Technical Competency Required of Students

Students are required to access and use Cougar Courses for assignment and course resources, uploading assignments, and for using the forum tool. Please use Word.docx for text files in this course. Students will share and collaborate on work using Google Docs. This course infuses interactive technology tools in course learning, so please bring your computers to class as well as for class notes and access to your CSUSM email.

Electronic Communication Protocol:

Electronic correspondence is a part of your professional interactions. If you need to contact the instructor, e-mail is often the easiest way to do so. It is my intention to respond to all received e-mails in a timely manner. Please be reminded that e-mail and on-line discussions are a very specific form of communication, with their own nuances and etiquette. For instance, electronic messages sent in all upper case (or lower case) letters, major typos, or slang, often communicate more than the sender originally intended. With that said, please be mindful of all e-mail and on-line discussion messages you send to your colleagues, to faculty members in the

School of Education, or to persons within the greater educational community. All electronic messages should be crafted with professionalism and care.

Things to consider:

- Would I say in person what this electronic message specifically says?
- How could this message be misconstrued?
- Does this message represent my highest self?
- Am I sending this electronic message to avoid a face-to-face conversation?

In addition, if there is ever a concern with an electronic message sent to you, please talk with the author in person in order to correct any confusion.

Computer Use During Class Sessions

You are welcome to use a laptop computer in class (in fact, it is highly encouraged to bring your laptop to class for various activities and for researching) when working on class assignments, for example. However, you will need to save checking email or other personal computer use for time outside of class. Most students find it disruptive when they are focusing on class activities or listening to presentations and can hear keyboarding in the classroom. Please be considerate of your instructor and peers in this regard. It is greatly appreciated by all!

Cell Phones

Please turn off your cell phone before the start of each class. In addition, there will be no texting during class. It is unprofessional for teachers to use their cell phone during meetings with peers or during professional development activities (our class is considered professional development!). Your consideration will be appreciated by peers.

Person-First Language

Use "person-first" language in all written and oral assignments and discussions (e.g., "student with autism" rather than "autistic student"). Disabilities are not persons and they do not define persons, so do not replace person-nouns with disability-nouns. Further, emphasize the person, not the disability, by putting the person-noun first.

RESOURCES THAT CAN HELP IN YOUR LEARNING OF SCIENCE CONTENT AND METHODS
Other Recommended Resources

Great Explorations in Math & Science (G.E.M.S.) Lawrence Hall of Science. http://www.lhs.berkeley.edu/GEMS/

Activities Integrating Math and Science. Aims Education Foundation.
http://www.aimsedu.org/

Science Exploratorium's: http://www.exploratorium.edu/

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

National Science Teachers Association- NGSS: http://ngss.nsta.org/

K-12 Alliance resources: http://k12alliance.org/extras.php

California Science Teachers Association: https://www.cascience.org/

Digital Chalkboard Collaboration:
https://www.mydigitalchalkboard.org/portal/default/Group/Viewer/GroupView?action=2&gid=5464