CALIFORNIA STATE UNIVERSITY, NORTHRIDGE
Michael D. Eisner College of Education
Department of Secondary Education

SED 514 *Computers in ~~the~~ Instruction*

COURSE SYLLABUS

Spring 2025

Instructor:
Office and Office Hours:
Email:
Course Website: https://sites.google.com/site/csun514herr/

The Michael D. Eisner College of Education

Conceptual Framework

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

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

Course Description

Introduction to website development and the instructional uses of the internet, word processing, graphics, desktop publishing, educational software, collaborative cloud-based technologies, teacher support tools, mobile technologies, assistive technologies, learning management systems, video production, e-assessment, spreadsheets, and other technology tools. Use of such applications to access and evaluate information, analyze and solve problems, and communicate and collaborate with other professionals. Strategies and skills to enable teachers to prepare their students to be lifelong learners in an information-based society. Meets the technology-education requirement for the Preliminary Credential.

Course Objectives

1. Use technology to **learn about students** and **adjust instruction** to meet their needs (TPE 2.6, 3.2)
2. Employ best practices on how to use computer-based technology in teaching and apply this knowledge to the design of lessons. (TPE 1.3, 1.4, 3.3, 7.1)
3. Use computer applications and tools to create relevant, **engaging** and effective instruction. (TPE 1.4, 1.5, 1.7, 3.4, 3.8)
4. Demonstrate issues related to the **educational use of computers**, including: copyright, moral, legal, safety, acceptable use policies, and ethical. (TPE 3.7)
5. Use **learning management systems**, personally developed websites, and digital communication effectively to engage learners. (TPE 1.2, 2.2, 2.3, 4.6)
6. Use selection criteria to **evaluate educational technologies** for use with secondary students. (TPE 3.6, 4.8)
7. Effectively **employ software** to support diverse students, including English Language Learners, to achieve content standards and curricular goals while developing academic language (TPE 3.1, 3.5, 7.6)
8. Use technology to monitor learning and provide **formative and summative assessments** (TPE 1.8, 3.3, 5.1, 5.4)

Student Learning Outcomes

Single Subject Credential candidates will demonstrate proficiency in California's Teacher Performance Expectations (TPEs), which serve as the SLOs for the program:

TPE 1) Engaging and supporting all students in learning
TPE 2) Creating and maintaining effective environments for student learning
TPE 3) Understanding and organizing subject matter for student learning
TPE 4) Planning instruction and designing learning experiences for all students
TPE 5) Assessing student learning
TPE 6) Developing as a professional educator
TPE 7) Providing effective literacy instruction for all students

Schedule (see assignment descriptions below)

Week	Topics	Activities	edTPA Tasks supported
1	Introduction	Technology in Schools	
2	Website Development	Assignment 1—Websites	1
3	Telecommunications	Assignment 2—Communication	
4	Knowing your students	Assignment 3—Knowing Your Students	1
5	Technical Understanding	Assignment 4—Technical Understanding	
6	Academic Language	Assignment 5—Academic Language	2
7	Desktop Publishing	Assignment 6—Desktop Publishing	1
8	Educational Apps	Assignment 7—Educational Apps	2
9	Administration, LMS	Assignment 8—Administration, LMS	3
10	Educational Video	Assignment 9—Educational Video	2
11	Presentations	Assignment 10—Presentations	2
12	Computer Supported Collaborative Learning	Assignment 11—Computer Supported Collaborative Learning (CSCL)	2
13	Databases	Assignment 12—Databases & Spreadsheets	
14	Artificial Intelligence	Assignment 13—Artificial Intelligence	
15	Technology lesson plan	Assignment 14—Technology Lesson plan	1

Grading

Assignment	Description (Standard addressed)	Max Points
	Reading/video responses (no standard)	**5x5**
	Class Technology Inventory (no standard)	**10**
1	Assignment 1—Websites	**20**
2	Assignment 2—Communication	**20**
3	Assignment 3—Knowing Your Students	**20**
4	Assignment 4—Technical Understanding	**20**
5	Assignment 5—Academic Language	**20**
6	Assignment 6—Desktop Publishing	**20**
7	Assignment 7—Educational Apps	**20**
8	Assignment 8—Administration, LMS	**20**
9	Assignment 9— Educational Video	**20**
10	Assignment 10— Presentations	**20**
11	Assignment 11—Computer Supported Collaborative Learning (CSCL)	**20**
12	Assignment 12—Databases & Spreadsheets	**20**

13	Assignment 13—Artificial Intelligence	**20**
14	Assignment 14 - Technology Lesson plan	**40**
	Participation	**15**
	Total Points	**350**

Participation in Class

- Participate in all class sessions. Register your attendance at each class session.
- Make contributions to class discussions and online discussions
- Participate in all synchronous and asynchronous class sessions.

Reading/Video Homework (respond to discussion prompt 5 points each)

- Teachers and Machines (Cuban 1980) Introduction
- The New Media Literacy Handbook (Brunner and Talley 1999) excerpt
- Poor Students Face Digital Divide in How Teachers Learn to Use Tech (Benjamin Herold June 12, 2017)
- TED Talk Why Technology Can't Fix Education | Mary Jo Madda
- Knowledge Building (https://www.kbsingapore.org/introducing-kb/)

Assignment —Classroom Technology Inventory

Students use their student teaching site or visit a classroom and fill out the inventory form

Assignment 1—Websites (TPEs 1.2 I, 2.2I, 2.6I)

(1) Home Page

- **Photographs**: Include a professional photograph of yourself on your home page. The introductory text should wrap around your photo.
- **Introduction -** Provide a one page, interesting introduction to yourself. Your home page should include at least the following information:
  - **Background**: Write one or more paragraphs in which you explain your personal, educational, and professional background. Include links to the high schools, colleges, and universities you have attended. Identify degrees earned and the fields of study in which they were obtained.
  - **Teaching**: Explain how you became interested in education as a career, and describe the classes and levels you plan to teach. Provide links to schools at which you have taught or student taught.
  - **Interests and Hobbies:** Describe your interests and hobbies, with links if appropriate.
- Provide a link to your home page where all of the above information is found.

(2) Photographs / Photo Albums

- **Photo Album - 514 Website Graphics** - Create a photo album for all graphics that are to be embedded in your website. Upload all assignment graphics to this album and references these in your website. Provide a link to this album
- **Photo Album - Field of study** - Include photographs related to your field of study correctly labeled and posted on a photo website.
- **Photo Album - Personal photos** - Include a photo album of photos you have taken with your own camera.

(3) Chroma-keying
- **3 Chroma-keyed Photos** - Include 3 or more photos that illustrate the concept of chroma-keying. Use Pixlr to make the banner.

(4) Banner
- Include a photographic banner at the top of each page of your website. Your banner should include a chroma-keyed photo of you with a background appropriate to what you are teaching. Sample banners.
- Watch this video on making banners

(5) ADA Guidelines for Webpages
- Watch a video on making webpages accessible
- Why is it important to add alt text on images? What color combinations should be avoided?
- Captioning using

(6) Assignment pages
- **Assignment pages** - Create a new web page for each assignment. Copy the text from the assignment pages in this site into each of your assignment pages. This text should remain **black**. All of your own contributions should be in **purple**. It is important to have this color contrast so that your editor and the instructor can quickly differentiate the prompts from your responses.
- **Sidebar** - Include links to all assignments in your sidebar.

(7) Editorial work
- **Editor** - Identify the individual who will serve as your editor. Provide a link to their page
- **Your editorial comments** - Comment on all of your partner's assignments in **black text**. Provide a link to your editorial comments page.
- **Responses to your editor's comments** - Respond to each of your editor's comment using **purple text**. Provide a link to your responses page.

Assignment 2—Communication (TPEs 1.8I, 2.4I, 7.6 I)

1) Contribute to the Class Wikis
- Contribute to the class notes wiki. Each entry should be about a paragraph in lengths and explain something relevant to the content of the class lecture. Identify your contribution by name and link to your wiki contributions.

(2) Sharing files
- Contribute photos and/or files to a collaborative folder . Provide links to the folders to which you have contributed.
- Use the scan & post technique to collect student work into a collaborative folder.

(3) Communicating with groups of colleagues

Teachers must often communicate with groups of individuals (e.g. department, student club, administration,

etc.) via email. Using an email address book, you may establish groups for quick addressing and mailing. Each individual can be in be in one or more groups.

- Using your email program's address book, construct two or more groups from the master directory. Provide a screen shot showing the composition of your email groups

(4) Communicating with students via e-groups asynchronously

Electronic discussion groups offer great opportunities for extended asynchronous dialog between students and teachers. A teacher may start a discussion thread and require students to post their thoughts, as well as comments on the postings of others. Electronic discussion groups should always be moderated by the teacher.

- Contribute a real question to the moodle.csun.edu assignment forum (discussion group), and a real answer to someone else's question and provide a screen capture of your contributions. Provide a link or screen capture showing your work.
  https://drive.google.com/drive/folders/0B29tNJz2Qhh4T3duWk9tc3IyMU0
- Discuss the potential benefits and concerns of electronic discussion groups in the secondary school environment.

(5) Communicating Synchronously - chat

"Chat rooms" and e-learning systems allow multiple users to communicate at the same time. This can provide teachers with data to make formative assessments. For example, a teacher can pose a question and give students time to form their responses. When given the signal, students enter their comments and instantly the teacher can receive their replies and assess their understanding.

- Log on to the class chat room or e-learning system and respond to questions posed by the instructor. Include a screen capture of an academic question/answer video or text chat session.
- Discuss how an academic chat room or e-learning system can be used to achieve full participation in an interactive class discussion.

(6) Video Conferencing

- Hold a synchronous web-based video-meeting. Include screen-shots illustrating your participation in the instructor's video conference.
- Participate in a Zoom recording. Provide a link to this Zoom recording.

- Create and save a live broadcast (Google Hangouts / Hangouts on Air)
  To access Hangouts On Air, go to Plus.google.com. Then select hangouts, and then select hangouts on air. Look for the youtube link in the lower right of screen. In your website, insert a Youtube video with that URL.

(7) Blogging - Feedback on your progress

A blog (weblog) is a personal or group website that facilitates regular entries of commentary, graphics or video. Entries are commonly displayed in reverse-chronological order. "Blog" can also be used as a verb, meaning to maintain or add content to a blog.

- Contribute to an **instructional blog** (e.g. sites of educational interest in Los Angeles) and make at least one edited, **meaningful** entries. Provide a link to your blog(s) from your website as well as a screen shot of your contribution.
- Create your own blog and make three more more meaningful entries.

(8) Apps for gathering student input for formative assessment

- Submit evidence that you are can successfully gather data with the following
  - Poll Everywhere - text message polling
  - Socrative -student response system that empowers teachers to collect data. Import and modify an existing quiz and submit evidence that you have given the quiz to others.

What is formative assessment? Describe how you can use mobile devices in the classroom for the purpose of formative assessment.

Assignment 3—Knowing Your Students (TPEs 3.3I)

1) Learning about your students - Photographic - electronic student records

Most secondary school teachers must learn the names of 150-200 students at the beginning of each academic year. This formidable task is made much easier using a photographic seating chart.

- Make a Collaborative Drawing - Seating Chart for one of the classes you teach or for this class at CSUN. (sample padlet, 2)

(2) Student Information surveys - Survey tools

Use a Google form or similar survey tool to construct an online first day of school student questionnaire to get to know your students. Share 3 of your questions with the 514 class (results). Conduct your own "First Day of School Survey" and obtain at least three entries from others. Your survey should include a variety of question types (e.g. multiple choice, checklist, scale, paragraph, etc.) as well as graphics. (collaborative survey)

- Embed the survey form
- Provide a link to the survey results (Make certain it is set for public viewing)
- Provide a link to the survey summary (Make certain it is set for public viewing).

(3) Making computers accessible to students

Given the importance of computers in business and society, it is important that we provide students who have special needs access via specialized software and hardware. .

- Experiment with the universal access features associated with your computer's operating system and/or third-party hardware and software solutions for those with special needs. Describe three hardware and/or software solutions (Mac, Windows) and explain how they may help students with **specific** special needs. Include images.

(4) Knowing your School

Teachers should have a good understanding of their school, students, and the communities they represent. Much statistical data can be gained using online resources.

- Develop a written profile of a school where you are teaching or plan to teach. Your profile should include the following:
  - **School distinctives** : School history, distinctives and goals. This information can be derived from the school website.
  - **Community in which school is located**: Describe your campus and its community using satellite photos and maps. Using the photos, describe the nature of the community (commercial, apartments, single family homes, industry, etc.)
  - **Socioeconomic status**: Include maps showing the socioeconomic status (SES) of the communities (city-data | school performance map)contributing students to your school. Discuss two or more prominent SES characteristics of the school population.
  - **School performance**: Include test scores and the Academic Performance Index of your school. Discuss the academic climate of your school, including test scores, API, change in scores, dropout rate, English learners, students requiring special education, etc.

(5) College Advisement

Secondary teachers often have the opportunity to advise students on decisions pertaining to college. In many environments, teachers are the only individuals students know who have been to college.

- Describe a real or hypothetical student (interests, family SES, personality) who is interested in pursuing a

career in a field related to what you teach. Recommend a major and 4-year college and explain the rationale for your recommendation using information found on college websites. Provide active links to the colleges, and quote relevant information.

- Provide a paragraph of advice to the parents of this student regarding financing college. Consider their financial and family situation.
  College-Scholarships.com
  Financial Aid
  FastWeb.com
  CollegeSavings.org
  SavingForCollege.com

Assignment 4—Technical Understanding

(1) History of computer technology - Collaborative Presentation

Work as a class to construct a collaborative online presentation of the history of computer technology. Each student will take two responsibility for two or more slides as assigned in class. Insert the appropriate photos and explain the significance of each contribution to make a presentation such as this.

- Add topics/elements/items to the collaborative presentation
- List the topics you have worked on and provide links to the specific slides you have worked on.
- Illustrate use of Q&A session when the new collaborative presentation has been made.

(2) Computer knowledge

Teachers should be conversant with computer terminology and concepts that pertain to the use of technology in their classrooms.

- Create questions on the topics/elements/items you added to the slideshow
- Contribute these questions to a collaborative quiz.

(3) Computer profile

The market for personal computers is very competitive, and manufacturers are continually working to develop better and more powerful systems. Unfortunately, you can-not determine how powerful a computer is by looking at the outside. It is necessary to look at the system profile to determine the type of processor, memory, hard drive capacity, etc. Compare the system profile of the computer used in class with your computer at home on the following properties. You may want to refer to eHow or your OS Help menu to determine how to find this information on your computer.

- Compare & contrast the computer you use in the laboratory with the computer you use at home or work with respect to the following properties. Summarize your findings.
  Processor: (a) name of processor; (b) number of processors; (c) processor speed
  Memory: (a) how much RAM; (b) speed of the RAM (how many MHz)
  Storage devices: (a) how many hard drives; (b) capacity of hard drives; (c) number and type of optical drives; type of hard drives (Firewire, USB, etc.)
  Operating system: (a) OS; (b) service pack or version
  Monitor(s): (a) resolution; (b) video card

(4) Navigating the Internet

- **Traceroute** - Use a web-based traceroute program to trace the route between your computer and an official website of another country. Select a country from the list, and locate a website in that country has the official suffix.
  Include a screen shot showing a map and the text of the specific route taken when contacting the website. Compare your findings with those of others in the class.

Are websites always located in the country in which they are registered?
What does this show about the nature of Internet-based business and commerce?

- **Connection speed** - Compare the connection in the CSUN laboratory with your connection at home or school. What are the IP addresses of the computers you are working with? What kind of connections are your working with (dial-up, DSL, cable, 100-Base TX (twisted-pair LAN), 100-Base FX (fiber LAN), etc.)? Compare are your connection speeds.
- **AUP** - Most schools have developed Acceptable Use Policies (AUP) and have installed filters to keep student focused on education. Include text (scan or download is easiest) of your school's AUP and a description of the filters in place. If a school AUP is not available, provide a sample AUP, cite its source, and provide a link. If your are not working in a school, summarize how filters work.

Assignment 5—Academic Language (TPEs 3.5P, 7.1 I, 7.7 P)

(1) Academic Language

Student teachers must complete the Performance Assessment for California Teachers (PACT) to receive credit for student teaching earn and their California Teaching Credentials. Review the Teaching Handbook in your discipline, looking specifically for the concept of "Academic Language". You may wish to review academic language resources for the sciences.

- Define "academic language" for your discipline. List and explain the features of academic language students should master to succeed in the classes you teach.

(2) Editing

Research indicates that students edit and revise more when writing on a computer than when writing by hand.

- Use the footnote feature to identify all of the mistakes you can find in this document without the aid of a grammar checker, and repeat with the aid of a spelling and grammar checker.
- What kinds of errors are generally not detected by the software? Give examples. (see Ode to a Spell Checker) Would you encourage your students to use a grammar/style checker? If so, explain how it might be best employed. If not, explain why not.

(3) Analysis of your textbook

Readability is a measure of the comprehensibility or understandability of written text. There are many methods and formulas for determining readability and the related reading age. Teachers should be aware of the readability level of their text as well as the reading level of their students.

- Scan three or more paragraphs from your textbook into a word processor file using OCR software. Perform a document check and readability estimate on the text and include the results in your portfolio. Note: if you scan a document as a pdf on a phone, and upload it to Google Drive, it will employ OCR and you corresponding Google Doc will have editable text.
  You may scan with a mobile app (e.g. CAM Scanner). If the App does not allow you to copy and paste the text, you may take a screen shot on your phone and send it via email to yourself and read resulting file with online OCR.
- According to the computer-generated readability estimates, does this text appear to be appropriate for your students? Explain. (Note: In some programs, document analysis appears at the end of a grammar check).
  You can do readability checks in Microsoft Word or online (Measure readability)

(4) Equations

Many teachers have the need to incorporate equations into handouts, tests and notes. Equation editors allow you to make equations and then export them as graphics to word processors.

- Use an equation editor to create two or more complex equations from your discipline. If your discipline does not use many equations, you may select from the following list. You may use Equation Editor within Microsoft Word or Latex online equation editor.

(5) Word Relationships

English dictionaries contain more than 250,000 words, while Spanish dictionaries contain approximately 100,000 words, and most other languages have far fewer. English has an extensive vocabulary and many synonyms. This can cause difficulties for English learners. An electronic thesaurus may be used to help students understand the complex relationship within the English lexicon.

- Using a thesaurus, paraphrase the preamble of the Constitution. Include at least ten logical substitutions for the original words. You may use the built-in thesaurus (Tools/Language/Thesaurus) in Word or internet resources such as Merriam Webster's Dictionary & Thesaurus, or Roget's Thesaurus

Preamble: We the People of the United States, in Order to form a more perfect Union, establish Justice, insure domestic Tranquility, provide for the common defense, promote the general Welfare, and secure the Blessings of Liberty to ourselves and our Posterity, do ordain and establish this Constitution for the United States of America.

- Using an example, illustrate how the thesaurus can be used to teach word relationships in the English language.

(6) Mastering Content Vocabulary

Although modern English has the largest and most complex lexicon of any language in history, the meanings of many words can be determined if one knows the common prefixes, suffixes and root words. Knowledge of such morphemes is particularly useful for English learners who face the formidable challenge of mastering English vocabulary, with all of its many nuances. According to Richard E. Hodges of the University of Puget Sound ("Improving Spelling and Vocabulary in the Secondary School; 1982, p 30) ,"If you were to examine the 20,000 most used English words, you would find that about 5,000 of them contain prefixes and that 82 percent (about 4,100) of those words use one of only fourteen different prefixes out of all the available prefixes in the language." Thus, if students master these prefixes, they will know clues to the meanings of thousands of words."

ab- (away from)	un- (do the opposite of)
be- (on all sides, overly)	ad- (to, toward)
de- (reversal, undoing, downward)	com-, con-, co- (with, together)
dis-, dif- (not, reversal)	en-, em- (in, into, to cover or contain)
ex- (out of, former)	in- (into, not)
pre- (before)	pro- (in favor of, before)
re- (again, restore)	sub- (under, beneath)

- Identify five words that are commonly used in your subject. Identify one or more prefixes, suffixes or roots from each. Use an online dictionary to identify 5 or more other words in the English language that use these morphemes as per the example. When searching, you will need to use standard wildcards: *=multiple characters; ?=single character.

Word	Root	Meaning	Five or more related words that share this root
dictionary	**dict-**	tell, pronounce	**dict**ator (one whose word is law) **dict**ion (enunciation) e**dict** (a formal pronouncement or command.) **dict**um (an authoritative, often formal pronouncement), **dict**ate (to say or read aloud to be recorded or written by another)

- One way to interest students in the significance of words is to have them study the meaning of their own names. Identify the meaning of five common first names of students in your class.
- Contribute to the class glossary (select 514 tab)

(7) Communicating with English Learners and their families

Southern California is home to a very diverse population (see diversity of Los Angeles County), many of whom are immigrants from non-English speaking countries. Translation programs can help break down some of the language barriers between teachers, their students, and the families of these students.

- Use translation resources to translate a simple document from your class into one or more languages spoken by students in your class. Include the English version AND the translated version. Show this to someone who is fluent in English and the language into which you have translated it, and explain any potential problems.
- Translate a foreign language text-rich website into English. Discuss the values and limitations of such translation resources. Provide a live-link to the translation.

English has acquired words from many languages as seen in this story. It is helpful to show students these foreign words and cognates so they can better understand the historical relationship between English and other languages and look for cognates when learning new terms. Contribute to cognate glossary (select 514 tab)

Assignment 6—Desktop Publishing (TPEs 6.3I)

1) Practice Document - MS Word
Sample Files for In-Class Activities
Text: *Include meaningful text*
Styles*: Use styles to identify different heading levels within document.*
Table of Contents & Index*: Insert a table of contents and index. You need to refresh these if you add more information. later.*
Hyperlinks: *Establish hyperlinks to relevant resources.*
Sections & Columns*: Incorporate double columns of text in specific sections while keeping single columns in other sections*
Text Boxes: *Post your text using linked text boxes so text flows from one box to another.*
Position graphics*: Insert graphics into text boxes and insert textural captions. Your document(s) should have 6 or more embedded graphics.*
Drawing*: Include drawing elements such as callouts or dividing lines.*
Cite text*: Always cite sources using footnotes or endnotes. The sample text is purposely pla~~i~~gi*a*r~~a~~ized from 3 or more sources. Can you determine where it was derived from?*
Bullets & numbers*: Bullet or number relevant information*
Headers & Footers*: Use footers for pagination, and headers for running titles.*
Tables & Graphs*: Import tables and graphs generated in a spreadsheet such as Excel*
- Attach your sample document as a **pdf**.

(2) Documents related to your teaching - MS Word
Teachers frequently need to develop newsletters, handouts, flyers, study guides and notes that incorporate graphics and text.
- Develop one or more documents relevant to your teaching that incorporate **all** of the features listed in the practice document above. Your documents should be related to what you teach, professional in appearance. (Note: Appearance is very important in this activity - here is an example from a high school class), useful to you or your students or school, and illustrate all of the features described above and shown in class. Attach your sample document as **pdf**.

(3) Desktop Publishing in a Google Site
- Create one or more pages in your site that includes...
  - Various heading levels - to make accessible for the visually impaired equipped with webpage readers
  - Tables
  - Subpage listing
  - Table of Contents
  - Photos
  - Drawings
  - Spreadsheets

Charts
Videos
Presentations
Maps, etc.

Assignment 7—Educational Apps (TPEs 1.3I, 1.5I, 1.7P, 4.8I, 4.8P)

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(1) In Class Review of Educational Software

The following titles are samples of educational software (programs, apps) that will be used in class discussion

Mobile Apps for teaching

Essential Skeleton
Doceri - Hand-drawn lessons
Explain Everything - Screen-casting whiteboard
Kahoot - quiz
MolView - molecular models
Plickers - scan audience cards - multiple choice
Poll Everywhere - text message polling
Socrative -student response system that empowers teachers to collect data

Construction Software
Geogebra (files)
Pixlr
Desmos

Animations & Tutorials
Explore Learning (e.g. tides)
PhET (e.g. bending light)

Atlases & Databases
Google Earth (files)
Sky

Knowledge Engines
Wolfram Alpha

Tools
Quizlet (ecology)
Puzzlemaker

Video Analysis
Probeware

Games
iPad / Tablet Apps

- Include screen captures of activities performed in class, illustrating the educational value of each program discussed.
- Attach any files created in class and provide descriptions of each

(2) Software Review

- Review five or more educational software titles. You are free to chose any program or app that is of value either for instructional, administrative, or professional purposes.
  - You must have hands-on experience with the software.
  - Write a paragraph describing each program and its usefulness in education.
  - Include a screen capture from the software.

(3) Software Presentation

During the final class session you will present the best software from your software review in small groups.

Each presentation will be limited to 15 minutes.
Your presentations should stress how this software can be used effectively to enhance learning and should provide your peers with a "hands-on experiences" lesson if at all possible. Include the title and description of the software you will review here.

Assignment 8—Administration, LMS (TPEs 2.3P, 4.6P, 5.1I, 5.1P, 5.4A, 5.5 A ~~6.3I~~)

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(1) Evaluating Internet Resources

Most of what is posted on the Internet has never been subjected to the rigors of peer review common with many traditional publications. Students must learn to evaluate the reliability of information of the websites they visit.

- Provide links to three websites (see examples) that provide information about a single topic related to your curriculum.
- Compare the reliability of the sites using appropriate evaluation criteria.

(2) Mobile apps for record keeping - document with screen captures from phone

Include screen shots of 4 or more of the following illustrating you know how to use the app.

- Edmodo -share content, distribute quizzes, assignments, and manage communication
- Explain Everything - Screen-casting whiteboard
- NearPod - interactive presentation and assessment tool
- Padlet (collaborative bulletin boards) sample | 2
- Socrative -student response system that empowers teachers to collect data
- Class Dojo - record keeping
- Doceri - Hand-drawn lessons

(3) Plagiarism

The ease of information access can accelerate the learning process, but it can also be counter-productive by facilitating plagiarism.

- Discuss the importance of intellectual honesty with your students and illustrate how you can easily identify work plagiarized from sites on the Internet.
- Use the online plagiarism detection service tunitin.com to check a suspect document. If you don't have one, make a document with information copied out of 4 or more websites. Open Moodle and submit to Turn-it-in in the plagiarism assignment.

(4) Assessment

Teachers must regularly assess student progress. Many textbook publishers make test construction easier by providing test generators, software which allows the teacher to quickly compose tests and keys from question databases. Test generators allow the teacher to input questions, and often provide databases of questions the teacher can select from.

- Collaborative generate a test in class using a resource such as Google Forms. Provide a link to the quiz as well as a screen capture of the score someone received after taking the quiz. Grade the quiz using Flubaroo or similar resource.

(5) Professional Growth

Teachers should model "life-long learning" by attending workshops, reading journals, and participating in professional organizations.

- Describe a professional conference (related to your field) you may benefit from attending. Describe the purpose and scope of the professional organization sponsoring the conference and provide a synopsis of the conference and one or more selected workshops or presentations you would like to attend. Include a link to the professional organization and to the specific conference.

(6) Employment

Most schools and districts advertise job openings on the Internet. Teachers should use such resources not only to

find employment for themselves, but also to attract others to their schools and thus build strong departments.

- Find a job announcement for a teaching position for which you are qualified. Include a screen capture of the advertisement. Describe the school and community using information found on the Internet. Cite your resources.
- Put your resume online, either using LinkedIn or one of the professional job sites. You can copy the template found at the bottom of this page.

(7) Learning Management Systems

- Google Classroom - Use Incognito / Private Browsing window - Login with my.csun.edu account.
- include the following documentation
  - collaborative document
  - quiz / questionnaire

assignment (with grade)

Assignment 9— Educational Video (TPE 1.7 A, 3.4I)

(1) Using Web-Based Video Resources in Teaching

- Create an educational playlist of relevant videos. Provide a screen capture of your playlist and a link to the active playlist(s).
- Many educational videos are on commercial sites that are blocked by schools because they may also provide access to inappropriate content. Fortunately, you can download files and upload them to your own private online file storage system. Download a video (sample science videos) and embed it in your portfolio, or provide an active link to it. If you provide a link, also include screen captures of key sections of the video or animation. Cite the source and describe how and why you will use it in instruction. Include links to three educational videos that are housed in your private online storage system (DropBox, Box.com, Google Drive, etc.). Cite references appropriately. (Youtube Hacks)
  - Atomic theory

(2) Digital Video Editing - Practice movie

- Develop a practice movie using the files provide. Put this video on a streaming video server and embed in your website. Your movie should include:
  Imagery: stills (animated with Ken Burns effect) **and** video.
  subtitles (for instructional purposes)
  audio: background music, voice-over narration, and transitions

(3) Digital Video Editing - Personal Instructional movie

- Produce a brief instructional movie using your own footage. Put this video on a streaming video server and embed in your website. Your movie should include:
  Imagery: stills (animated with Ken Burns effect) **and** video.
  subtitles (for instructional purposes)
  audio: background music, voice-over narration, and transitions

Assignment 10— Presentations

(TPEs (~~1.3I~~, 3.6IP, 3.7I, 3.7P, 3.8I, 3.8P)

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1) Presentations

Presentation software provides teachers the opportunity to display text and graphics in a slide show fashion. PowerPoint and Keynote are two of the most popular presentation tools. Teachers and professors make extensive use of presentations, but many are concerned about the potentially negative effects such presentations can have on instruction.

- **Abuses of PowerPoint presentations** - After reading the articles on the educational use and abuse of presentation software, summarize how presentations should be constructed and delivered to maximize learning and minimize abuse.
- **Adapted ppt** - Locate and ~~and~~ download one or more PowerPoint presentations relevant to your teaching needs. Include the URL of the location from which you obtained them and summarize the PowerPoint and where in your curriculum you will use it. Make adaptations to the file and attach it. (a) Provide an electronic copy of your presentation (ppt format) at the bottom of the assignment page. You may need to enable attachments in page settings. (b) Convert the presentation to a Google presentation and embed it into your website.

New ppt - Make a PowerPoint presentation to teach a lesson in your subject area, keeping in mind the principles you have outlined above and the guidelines provided (see tutorial). Your presentation should include numerous graphics and be at least 10 slides in length. (a) Provide an electronic copy of your presentation (ppt format) at the bottom of the assignment page. You may need to enable attachments in page settings. (b) Convert the presentation to a Google presentation and embed it into your website.

(2) Collaborative Presentations

- Contribute to a collaborative online presentation. Embed this presentation in your website.

  Organizational Hierarchy in Science
  Powers of Ten - Orders of Magnitude in the Universe (Scale in the Universe)
  Where in the World
  Computer History

(3) Large Canvas Presentations; Collaborative Concept Mapping

- Create a large-canvas Presentation OR a collaborative concept Map

  Prezi for Education

Mind Meister - Collaborative concept mapping

Assignment 11— Computer Supported Collaborative Learning (CSCL)

(TPEs 1.4A, 3.1~~I~~P, 3.2I, 3.6 P,~~ 3.8A~~, 5.5 P)

(1) Why Analyze Data Whole-Class Data?

Collaborative web-based document technology provides the opportunity to instantly collect and analyze large sets of data from multiple lab groups and class sections with speed and accuracy. Curricular resources can be developed that employ this emerging technology to create a classroom environment that mirrors the collaborative environment of a professional research community. Students gain a better understanding of various aspects of the nature of science when they view their findings in the context of a larger set of data collected by their peers. By engaging in activities in which they analyze whole-class data using wikis and collaborative web-based documents, students gain an understanding that the research enterprise requires collaboration, independent verification, and peer review. To gain a conceptual understanding of the power of collaborative analysis of pooled data, please read the following two articles and watch the video. Although the examples are from science, they concepts can apply to any discipline. When you click on any Video link, you will be taken to a different website. After viewing the website, please click the back button in your browser to return to the course.

VIDEO - Collaborative Analysis of Pooled Data - Analyzing Hurricane Data (20:58).

READINGS

Rivas, Mike and Norman Herr (2010) The use of collaborative web-based documents and websites to build scientific research communities in science classrooms. Proceedings of the 8th Annual Hawaii International Conference on Education, January 7-10, Honolulu, Hawaii (pp. 851-858).

e 'Alessio, Matthew, and Loraine Lundquist (2013). Computer Supported Collaborative Rocketry: Teaching students to distinguish good and bad data like an expert physicist. The Physics Teacher, in press.

- Complete the Hurricane Activity and submit data using the appropriate links. Analyze the data that has been collected from everyone. Note: You will need to use the back button or browser history to return to this page following the activity.

(2) Sample Collaborative Investigations

VIDEO - Collaborative Analysis of Pooled Data - What Causes Something to Float? (11:42)
VIDEO - Collaborative Analysis of Pooled Data - Investigating the Cell Cycle (11:58)
VIDEO - Collaborative Analysis of Pooled Data - Composition of Biological Molecules (13:11)
VIDEO - Resources for Making a CSCL Lesson (16:27)

- Complete the Cell Cycle Investigation (choose any tissue sample) and the Memory Investigation. Analyze the data that has been collected from everyone and make a summary of group data. Note: You will need to use the back button or browser history to return to this page following the activity.

(3) Copying & Adapting CSCS Lessons

VIDEO - Copying Websites from existing CSCL Lessons (11:40)
VIDEO - Copying Documents - Introduction (5:45)
VIDEO - Copying Spreadsheets from existing CSCL Lessons (12:58)
VIDEO - Copying Forms from existing CSCL Lessons (10:57)
VIDEO - Copying Photo Albums from existing CSCL Lessons (12:06)

- Post links to your adapted spreadsheets, documents, drawings, presentations. You are free to copy and adapt any of these activities for use in your own classrooms. In class we will focus on
    - Diet & Atherosclerosis
    - Heart rate and exercise

Assignment 12—Databases & Spreadsheets (TPEs 5.4I, 5.4P)

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(1) Introduction to Databases

- **VIDEO -** part 1- Introduction (14 minutes)
- **VIDEO -** part 2 - Using a database to address a problem in nutrition (osteoporosis) (16 minutes)
- **VIDEO -** part 3 - Analysis with a database (atherosclerosis)* (15 minutes)

A database is a collection of information organized so that a computer program can quickly retrieve desired pieces of data. A field is a single piece of information; a record is one complete set of fields; and a table is a collection of records.

- Use the database program to answer the following questions related to atherosclerosis and diet.

(2) Managing School Data

- **VIDEO** - Merging Databases with Word Processing Documents (15 minutes)

Schools and colleges are dependent upon databases to maintain student records, finances, registration, teacher information, schedules, and many other things. Teachers input data into such systems through grade book programs and other teacher/administrator software. Teachers should also be able to use programs like Microsoft Excel to organize data and merge files.

- Download the schools database file.feature in Word. This will serve as a data file (also known as secondary file) when merging with a primary document to make form letters, mailing letters, or catalog entries. Include only representative samples from your merges.
  - Map of Secondary Schools in LA & Ventura~~y~~ County - Grouped by Type (MS, HS) - See listing of schools below map. click on pins to see the names and addresses of schools.
  - Database of LA and Ventura County High Schools
  - Database of LA and Ventura County Middle Schools
  - Public and Private schools near CSUN
  - California school directory

(4) Using web-based databases

VIDEO - Developing lessons using web-based databases (20 minutes)

A growing number of educational databases are available on the Internet. Teachers can use these databases without having to teach the mechanics of a program like Excel.

- Write a lesson plan which requires students to analyze data using a database related to your subject or your interests: Sample online databases
  - GapMinder - Worlds statistics, country comparisons - Databases (xls)
  - Nationmaster - Worlds statistics, country comparisons
  - Wolframalpha - Computational knowledge engine
  - Paleobio - Fossil database
  - MRDS - Mineral Data
  - MyNASAdata- Earth science data from NASA
  - iNaturalist.org - Observations and locations of plants and animal species worldwide
  - Seismic explorer - map earthquakes through time

(5) Creating Spreadsheets

- **VIDEO -** part 2- Developing a Spreadsheet (21 minutes)
- Create a new spreadsheet file or a new worksheet in an existing educational spreadsheet file. Your worksheet should include a variety of calculations based upon cells in your new worksheet and/or associated ones in your modified spreadsheet file. Include a printout of your new spreadsheet in your portfolio.

(6) Graphing Data

- **VIDEO -** part 3- Graphing Data (27 minutes)
- Graph and chart creation and interpretation are part of the academic language of many subjects. Create two or more graphs (charts) from a spreadsheet files related to your discipline. Make sure the graphs are meaningful and are fully and correctly labeled. Include a screen-shot of the graph in your portfolio and explain its significance.
- 20.4 Scatter & Line Graphs*20.5 Column & Bar Graphs20.6 Pie & Area Graphs*

(7) Electronic Spreadsheets in Teaching
Develop two questions that can be answered from a spreadsheet file in your field. Chose another field if there are no relevant files posted. Include screen captures that show the answers to these questions as calculated by the spreadsheet program.

Assignment 13—Artificial Intelligence (TPEs 4.6 I)

(1) Train an artificial Intelligence with https://teachablemachine.withgoogle.com. Describe what you trained it to do and how you trained it.

(2) Use Magic School to create a lesson plan for your course.

(3) Use Khanmigo Tools to add relevance to a lesson idea

(4) Use ChatGPT to identify 10 ways to teach a particular standard

Assignment 14—Technology Lesson Plan (TPEs 3.1A, 3.6A, 3.7A, 3.8A. , 4.8A)

Design a lesson plan for 2-5 class periods where students are using at least three different types of technology. The technology types we have looked at this semester includes: virtual manipulatives (games, simulations, calculators), presentation tools (powerpoint, word processors, movies), visualization tools (concept maps, drawing tools, stop motion animation), and collaboration tools (discussion boards, wikis, documents).

Your lesson plan needs to include the following (choose your favorite lesson plan format but please include all this information:)

- Context – what type of class, where in the curriculum is the lesson situated
- Learning Objectives – what topics/standards are students learning, major concepts, specific ideas or performance objectives.
- Materials and Sequence – describe the technology tools (provide links where appropriate), other materials and how and when they will be used. Provide a breakdown of the approximate time for each major activity. Make sure it is clear what the teacher and the students are doing at different times.
- Assessments - what assessments (formative and summative) will be used to find out if students are achieving the objectives. You don't need complete copies of tests etc., but give some information about each assessment (type, scope, feedback given etc).
- Variations – any variations needed for students of different abilities or needs.
- Reflection – what do you think of this assignment and the use of technology? (This can go before or after the lesson)

You are encouraged to use lesson plans that you have already created (e.g. for another class). Make sure it matches the requirements above. Upload it to the website as with other assignments. If you put all the files into a folder – you can then convert the folder to an archive (right-click)

SED 514 *Computers in the Instructional Program* TPE Index

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