Salary Point Course for Los Angeles Unified School District (LAUSD) Educators

Course Title: 21st Century Technology in the Classroom
Presenters: Cheryl Lemke, Patrick O'Shea, Grace Smith, Stephanie Throne
Allotted Timeframe: 12 weeks
Length: 45 hours
Dates: Rolling admissions
Prerequisites: Bachelor’s Degree
Credits: 1 Salary Point

Course Description:

Using technology in the classroom is a way to creatively differentiate instruction for all students across all subject areas. Today, most students are technologically savvy, having grown up in the computer age surfing the Internet, using social networks, tweeting, playing electronic games, downloading music to their iPods, and viewing or posting videos on YouTube. This course harnesses and develops those very same skills to use in the classroom. Research shows that students find school more satisfying and have greater academic success when we teach them in ways that are responsive to their interests, readiness levels, and learning profiles. In this course, participants learn to incorporate technology tools and resources that engage students in their own learning. Presenters demonstrate strategies for differentiating instruction based on their students’ learning styles and multiple intelligences. Participants will return to their classrooms ready to facilitate collaboration, communication, and the creation of multimedia projects with their students. Technology, properly utilized, can assist educators in helping their students to become active problem-solvers and critical thinkers who are ready to take ownership of their own learning.

Course Objectives:

After completing this course, educators will know:

- Digital innovations in education
- The implications for education of the democratization of knowledge
- Educators’ evolving responsibilities in the 21st century
- What authentic collaboration looks like
- The foundations of authentic cooperative learning opportunities
- Students’ needs as informed consumers, composers/producers of multimedia, and as visual and multimodal thinkers
- The difference between delivering content and facilitating learning
- How to provide technological context for student-developed content
- How to accommodate millennial learners need to self exploration and creativity
- The definition of distributed learning
- Tools to facilitate distributed learning:
  - Wikis
  - Podcasts
  - Blogs
  - Social networks
  - Virtual realities
  - Augmented realities
- Pre-assessment tools to determine students needs, interests, and readiness
- Formative and summative assessment tools to monitor students’ progress and shape instruction
- Instructional strategies that appeal to different learning styles by accommodating student choice and creating interest centers, flexible groups, and literature circles
- How and why to integrate technology to use to support curriculum objectives
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- How and why to extend curriculum through technology projects
- Web 2.0 technologies
- Interactive online tools to use to instruct students in literary analysis
- Digital presentation software, web tools, music, and art tools to use to teach writing
- Interactive tools for spelling, grammar, and vocabulary
- How to create a holistic and student-centered approach to the study of social studies
- Technology tools to use to differentiate instruction. E.g.:
  - I-Searches
  - Jigsaw group
  - R.A.F.T.T.
  - WebQuests
  - Digital Stories
  - Games and interactive media
  - Choice boards and menus
- Authentic media to use to motivate and intrigue students
- Technology tools that develop research and processing skills
- How to incorporate technology tools to develop critical thinking skills
- How to develop lesson plans and activities that develop mastery of math
- How to extend the classroom through virtual field trips, library tours, and museum tours
- Technology tools that help students create, communicate, and collaborate
- How to use summative to gauge student knowledge against learning objectives for the purpose of grading or scoring
- How to set up learning contracts with students and develop anchoring or extended activities that differentiate instruction and engage students by interests and skills

Learning Outcomes:

After completing this course, educators will be able to apply the following in their classrooms:

- Employ digital innovations in education
- Adapt teaching styles to accommodate the democratization of knowledge
- Embrace new responsibilities as educators
- Create authentic collaborative and cooperative learning opportunities
- Advance students’ critical thinking skills
- Advance students’ creative thinking skills
- Address students’ needs as informed consumers, composers/producers of multimedia, and as visual and multimodal thinkers
- Create classroom structures that compel profound learning
- Pre-assess students to determine interests and passions
- Differentiate instruction and choose appropriate technologies and teaching strategies
- Use students’ interests to accommodate choice, interest centers, flexible groups, and projects
- Incorporate traditional and Web 2.0 technology into lesson planning and student projects
- Employ pre-assessment and formative assessment to develop instruction and provide students with feedback
- Utilize summative assessment for grading student knowledge
- Apply strategies to effectively manage the differentiated classroom
- Use pre-assessment tools to identify student’s needs and develop differentiated instructional strategies to match students’ needs
- Use Web 2.0 technologies to create critical-thinking and problem-solving learning opportunities
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- Develop higher level learning experiences by integrating technology to extend curriculum
- Utilize collaborative technologies such as social media to harness and build upon collective intelligence
- Use the results of pre-assessments to modify instruction based on students’ interests, abilities, and passions
- Develop collaborative activities using technology to develop students’ communication and problem-solving skills.
- Provide differentiated technology choices for students in reading, literature, and writing
- Use online collaborative and interactive tools to teach literary analysis
- Integrate digital presentation software, web tools, music, or art tools to teach writing skills
- Use technology to create a multi-faceted approach to the past, present, and future in the study of social studies
- Integrate technologies that develop observation skills and reinforce the scientific method
- Incorporate video and other authentic media to intrigue and motivate students and differentiate learning
- Align teaching strategies to learning styles and eliminate strategies that perpetuate students’ weaknesses and accrue those that reinforce students’ strengths
- Utilize technology to extend the classroom through virtual field trips, library tours, and museum tours
- Integrate technology assignments to develop students’ creative, communication, and collaboration skills
- Manage and hold students accountable in the differentiated classroom using learning contracts, anchoring activities, or extended differentiated learning activities

Units (20):

1. Technology Integration Matrix
   Participants use the Technology Integration Matrix to assess the level of integration of technology into their curriculum and to set learning goals. The Matrix is a video-based resource designed to support technology integration in classrooms and schools. Participants print out the PDF version of the Matrix and circle the intersection of integration into their curriculum—entry, adoption, adaptation, infusion, or transformation—and characteristics of the learning environment—active, collaborative, constructive, authentic, or goal directed.

2. An Introduction to Innovation in Education
   Presenter Cheryl Lemke introduces innovation in education as especially necessary in the context of 21st century international economies and technological advancements. She introduces the courses objectives: to define 21st century learning; to teach educators to design lessons that incorporate technological innovations, knowledge about how people learn, and specific 21st century skills; and to create appropriate 21st century learning environments. She discusses who our “digital natives” are and then contextualizes the adolescent learner as influenced in his or her learning not only by school but by peers, the home, distributed resources, and so on. 21st century learning, Lemke asserts, happens at the intersection of technology innovations, research on how people learn, and 21st century skills, all of which she details.

3. Democratization of Knowledge
   Presenter Cheryl Lemke reviews where 21st century learning happens and then discusses the participatory nature of the culture in which students are expected to perform (e.g., a culture in which students have access to courses, talks, and networks online, open access to data sets, and participate in social networking for a variety of reasons). She introduces the essential questions raised by this participatory culture: what is the democratization of knowledge? What does it mean for education? And how can educators ensure that students are ready to capitalize on this phenomenon?
4. Collaboration
Presenter Cheryl Lemke begins this unit with elaboration on our participatory culture, how that culture manifests in society, and how it should manifest in the classroom. Collaboration is the 21st century skill most essential in this context, she avers, and she discusses a number of routes both to facilitating collaboration among students and being a collaborator oneself.

5. Critical/Lateral Thinking
Presenter Cheryl Lemke begins this unit with a clear statement of why critical thinking must be actively promoted in the 21st century classroom, both in relation to student achievement within the classroom and beyond the classroom in their presents and futures. She raises these questions: can we teach students to think? What are the most effective strategies to do so? Will it fit into teachers’ already full curricula? And how does one get started?

6. Creative/Vertical Thinking
Presenter Cheryl Lemke introduces this unit with statistics about the decline of creativity in the U.S., supporting her argument that creativity skills need intense reinforcement in today’s classrooms. First, she defines creativity through examples. She reviews and discusses examples of technology-influenced creative projects in the classroom, refuting some myths about what constitutes creativity along the way.

7. Authenticity
Presenter Cheryl Lemke begins this unit with a review of where and how 21st century learning occurs, reviewing the role of technological innovations, current research about how people best learn, and the significance of 21st century skills. She contextualizes her content by discussing the principles of the learning sciences—i.e., learning with understanding, building on prior knowledge, and actively using metacognition—illustrating how each to promote each through technology.

8. Multimodal Learning
Presenter Cheryl Lemke begins with an introduction on how the brain learns and remembers. This provides the context for her assertion that multimodal learning increases students’ learning and retention. She cites the principle that people learn more deeply from words and pictures than from words alone, using classroom examples to illustrate.

9. Getting Started – Innovative Classroom Structures
Presenter Cheryl Lemke reviews the critical premise of her units that 21st century learning should happen at the intersection of technological innovations, research about how people best learn, and 21st century skills. She discusses Web 2.0 learning environments because she believes they engage students’ motivation, curiosity, and interests.

10. Millennial Learners and Technology in the Classroom
Participants are introduced to “distributed learning,” also called “group constructivism.” In a distributed learning classroom, students collaborate in groups to make their learning meaningful to them. This is especially important in the 21st century classroom because students need to develop collaborative skills to prepare them for the collaborative workplace. He describes common characteristics of millennial learners, before explaining how to facilitate distributed learning with those millennial learners through wikis, podcasts, blogging, shared video, social networking, and augmented/virtual reality.
11. Distributed Learning and Technology in the Classroom
   Presenter Patrick O’Shea delves into podcasts in this unit, defining the term and citing resources participants can access for more information about how to use podcasts. He offers a “podomatic” tutorial video and then leads the live workshop in brainstorming about uses for podcasts in distributed learning instruction.

12. Student Generated Learning and Technology in the Classroom
   Presenter Patrick O’Shea begins with grassroots videos in this unit, what defines them, and what resources participants can consult for additional information. The workshop members follow up by brainstorming instructional uses for grassroots video in the classroom.

13. DI + Tech = 21st Century Learning
   Presenters Stephanie Throne and Grace Smith begin this video with an introduction to differentiated instruction as a way of responding to students’ needs according to the readiness, interests, learning style, and affect by modifying content, process, product, and learning environment.

14. Differentiating with Technology by Student Interest
   Presenters Stephanie Throne and Grace Smith begin this video presentation with a review of what constitutes differentiated instruction and the key benefits of using technology to do so. They clarify both what they mean by “student interest,” elaborating both on why it is critically important to differentiate by interest, and on how to pre-assess that interest.

15. Differentiating with Technology in English and Language Arts
   Presenters Stephanie Throne and Grace Smith begin this unit by reviewing what constitutes differentiated instruction and explaining how and why technology can facilitate differentiated instruction in ELA. Throne and Smith introduce four online tools to assess readers’ skills and lead participants to and through reading Internet sites that creatively engage students in the reading process.

16. Differentiating with Technology in Social Studies
   Presenters Stephanie Throne and Grace Smith begin this unit by reviewing what constitutes differentiated instruction and explaining how and why technology can facilitate differentiated instruction in social studies. They explore how to make the process holistic and student-centered and outline Robert Marzano’s key relevant instructional strategies and their effects in the classroom.

17. Differentiating with Technology in Science
   Presenters Stephanie Throne and Grace Smith begin this unit by reviewing what constitutes differentiated instruction and explaining how and why technology can facilitate differentiated instruction in science. They focus on the critical task of pre-assessment before development of instruction in science, introducing and defining relevant terms.

18. Differentiating with Technology in Math
   Presenters Stephanie Throne and Grace Smith begin this unit by reviewing what constitutes differentiated instruction and explaining how and why technology can facilitate differentiated instruction in math. They contextualize their discussion with an introduction to learning styles and why they matter, in this case, in the math classroom, and emphasize four learning styles that students must employ to succeed in math study.
19. Differentiating with Technology in Encore Subjects

Presenters Stephanie Throne and Grace Smith review their basic terms and then introduce their outline for this unit: 1. Points of departure to get started, 2. Communication and collaboration tools, and 3. Tech enhancements for encore learning.

20. Using Technology to Assess and Manage Classroom Learning

Presenters Stephanie Throne and Grace Smith offer a final review of differentiated instruction and its benefits for students. They introduce the curriculum cycle (curriculum, instruction, technology, assessment), define their terms in relation to assessment, clarify the three categories of assessment (pre-, formative, and summative) and their particular purposes, and walk participants through some web sites where participants can access highly-regarded assessment tools and find other relevant activities in all three categories.

Presenter Overview:

Cheryl Lemke is President and CEO of the Metiri Group, a consulting firm dedicated to advancing effective uses of technology in schools that has been conducting research and evaluations into every major education technology movement of the last decade for the United States Department of Education, the National Science Foundation, and numerous state-funded programs. She also serves as the practice leader for Metiri Group Policy Consulting. Prior to launching the firm, she was the executive director of the Milken Exchange on Education Technology for the Milken Family Foundation. Lemke specializes in public policy for K-12 learning technology, working at many levels with governors, legislators, superintendents, business leaders, and teachers. Last year, she facilitated public hearings in Silicon Valley, CA, and Atlanta, GA, for the Web-based Education Congressional Committee. This year, she is working with several states on leadership in technology initiatives, and most recently authored the definitive work on 21st century skills, published by the North Central Regional Educational Laboratory and the CEO Forum. Lemke's 25-year career in the public sector and her work with Metiri Group have included projects related to assessing the impact of technology on learning; gauging the progress of states, districts, and schools in bringing technology to the learning process; conducting surveys and focus groups; convening national experts in discussions on policy issues; and designing and prototyping educational technology frameworks. Lemke has most recently turned her attention to the effective use of Web 2.0.

Patrick M. O’Shea received his M.S. in General Secondary Education and his Ph.D. in Urban Services, both from Old Dominion University. Currently a post-doctoral fellow in instructional technology, Dr. O’Shea is the project director of the Handheld Augmented Reality Project (HARP). He is also an adjunct faculty member at Boise State University, Walden University, and Old Dominion University, teaching courses in augmented reality curriculum design, integrating technology in the classroom, teaching as a profession, action research, and a range of other subjects in education and technology. Among other positions, O’Shea has been a consultant for the Bill & Melinda Gates Foundation and an assessment specialist for Virginia Beach Public Schools; he has built online testing protocols and has extensive experience with practical applications of technology in the educational setting. A prolific presenter and recipient of grants from a number of institutions, he has written for the Journal of Online Learning and Teaching, The Chronicle of Higher Education, The International Journal of Games and Computer Mediated Simulations, The Journal of Interactive Online Learning, The Journal of Experimental Education, and TechTrends.
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Grace E. Smith earned her Ph.D. from Wayne State University in instructional technology and organizational communication and has taught for the Chippewa Valley Schools, Wayne State University, and Northwood University in Michigan. The co-author of such texts as *Differentiating Instruction with Technology in Middle School Classrooms*, *Differentiating Instruction with Technology in K-5 Classrooms*, and the online course, *Differentiating Instruction in the K-12 Classroom Using Simple Technologies*, Smith has co-presented on similar themes at many conferences. Among other leadership positions, she has served as the instructional technology curriculum coordinator and social studies curriculum coordinator for the Grosse Pointe Public School System; as corporate-wide curriculum coordinator for a Fortune-500 company; as a senior human resources consultant; as executive director of a women business owners association; as the director of continuing professional education for a business college; and as a lead systems analyst and senior systems analyst for Wayne State University. Smith was also the director of the Reading and Learning Center and chair of the English department for a high school in Detroit.

Stephanie Throne earned her Ph.D. in Romance Languages and Literatures from the University of Michigan and has been a professor of Spanish and German. The co-author of such texts as *Differentiating Instruction with Technology in Middle School Classrooms*, *Differentiating Instruction with Technology in K-5 Classrooms*, and the online course, *Differentiating Instruction in the K-12 Classroom Using Simple Technologies*, Throne has presented on similar topics at many conferences, workshops and webinars. In addition, Throne teaches/tutors Spanish, math, reading and writing for various instructional and private organizations. For the last ten years, she has served as a faculty consultant for the Educational Testing Service, for which she supervises and trains faculty consultants to score the audio section of Advanced Placement examinations in Spanish and to evaluate examinations. Throne is the co-author of a forthcoming Spanish text for upper elementary and middle school students, and is a frequent editor/proofreader for several publications. Prior to her work as a language professor, Throne served as a trainer and course developer for a large financial services corporation.

Methods of Instruction:

Methods of instruction will include:

- Video lectures (19)
- Short answer quizzes (19)
- PowerPoint presentations (19)
- Transcripts and handouts
- Graded post assessments (19)
- Discussion forum interaction (38 – twice per lesson)
- Final (1)

Texts and/or Other Materials:

- Transcripts, handouts, and PowerPoint presentations
Assignments:

- Goal setting unit (1)
- Short answer quizzes (19)
- Graded post assessment Q&A sessions (19)
- Discussion forum interaction (38 – twice per lesson)
- Final (1)

Final:

For their final projects, participants will develop a complete lesson plan that draws on this course’s concepts. They will need to incorporate technology in the form of wikis, blogs, podcasts, and/or augmented or virtual reality; make the project authentic and collaborative (in the presenters’ use of the terms); and provide both a formative and summative assessment tool. Participants may select an appropriate lesson plan and rubric template using the link provided in the eClassroom.

Participants will do the following:

1. Use a lesson plan template to design a project that incorporates technology in the form of wikis, blogs, podcasts, and/or augmented or virtual reality.
2. Indicate how the project is authentic.
3. Explain how students will collaborate.
4. Use rubric templates to design two detailed rubrics, one formative and one summative.
5. Write a final reflection that addresses the following:
   a. How do you anticipate the incorporation of technology will enhance students’ engagement and learning outcomes? What challenges do you foresee?
   b. What benefits for students do you anticipate arising from this project’s authenticity? What issues?
   c. What benefits for students do you anticipate arising from the opportunities to collaborate? What hurdles do you expect to have to overcome?
   d. What information does your formative assessment provide for students that will help them to improve their efforts as they continue to work on the project? What important feedback does it provide?
   e. What problems came up for you in the design of this lesson plan? How might you avoid those problems in a revision?

Passing Requirements (rubric on next page):

- No “unsatisfactory” in either category
- All “basics” must be balanced by a “proficient” or “distinguished”
## Scoring Rubric

<table>
<thead>
<tr>
<th>COMPONENT</th>
<th>Unsatisfactory</th>
<th>Basic</th>
<th>Proficient</th>
<th>Distinguished</th>
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</thead>
<tbody>
<tr>
<td><strong>Q&amp;A</strong></td>
<td>Assessments: 0 - 40% correct</td>
<td>Assessments: 60% correct</td>
<td>Assessments: 80% correct on quizzes</td>
<td>Assessments: 100% correct on quizzes</td>
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<tr>
<td><strong>Short Answer Quizzes</strong></td>
<td>- Participant included no content from the course in his or her responses</td>
<td>- Participant included some content from the course, usually appropriate, in his or her responses</td>
<td>- Participant included appropriate content from the course in his or her responses</td>
<td>- Participant provided rich detail from the content of the course in his or her responses</td>
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<td>- Participant did not address the questions posed</td>
<td>- Participant answered the questions directly, not always fully</td>
<td>- Participant made thoughtful comments in direct response to the questions</td>
<td>- Participant made his or her responses to the questions personally meaningful</td>
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<tr>
<td><strong>Requirements of Assignment:</strong></td>
<td>- The assignment is substantially incomplete</td>
<td>- Many requirements met, but a few pieces are missing, while others are underdeveloped—e.g., missing reflection or rubric or scant reflection and vague rubric</td>
<td>- Participant has fulfilled all the requirements of the assignment.</td>
<td>- All requirements gone beyond the requirements of the Assignment. e.g., inclusion of rubric, reflection, objective(s), etc.—whatever the directions indicate</td>
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<tr>
<td><strong>Form:</strong></td>
<td>- Plentiful grammatical mistakes</td>
<td>- Distracting grammatical errors</td>
<td>- Participant has written a solid essay or lesson plan, including appropriate detail and in an interesting style.</td>
<td>- No grammatical errors</td>
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<td></td>
<td>- Confusing content</td>
<td>- Confusing content</td>
<td>- Eloquent expression</td>
<td>- Eloquent expression</td>
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<td></td>
<td>- Missing documentation of sources</td>
<td>- Inconsistent or missing documentation of sources</td>
<td>- Proper citation of sources</td>
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<tr>
<td><strong>Final Project</strong></td>
<td>- No main idea and/or main idea is irrelevant to the assignment</td>
<td>- The main idea is not clear in the opening paragraph</td>
<td>- Essay is organized around a thesis or main idea,</td>
<td>- Essay is organized around a thesis or main idea,</td>
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<td>- No apparent paragraph organization</td>
<td>- Relevance to main idea of supporting paragraphs is not always clear</td>
<td>- Paragraphs are organized around ideas relevant to the main idea</td>
<td>- Paragraphs are organized around ideas relevant to the main idea</td>
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<td>- No supporting evidence for supporting ideas</td>
<td>- Supporting ideas are only minimally illustrated by examples or quotes</td>
<td>- Supporting ideas are evident, and usually include illustrating examples and/or quotes</td>
<td>- Supporting points are illustrated with examples and/or quotes</td>
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<td>- No evidence in the lesson plan—in objectives, activities, or assessments—that the learner comprehends the course content</td>
<td>- The lesson plan does not show enough evidence that the learner understands the course content. Objectives and/or activities and/or assessments only vaguely apply to the course content</td>
<td>- The lesson plan shows evidence of understanding of the course content in its objectives, activities, and/or assessments</td>
<td>- Lesson plan shows evidence of a deep understanding of course content and participant uses that understanding to create opportunities for students to authentically show what they have learned.</td>
</tr>
</tbody>
</table>

**Due dates of major assignments, projects, and examinations:**
Online, self-running programs can be started and completed at participants’ own leisure within 3 months of the registration date.

**All steps listed in each unit must be completed to receive credit for the course. No partial credit will be given.**