Instructional Technologies Graduate Program
Promoting learning and improved performance in education, business and community

ITEC 830 Design of Learning Environments with Emerging Technologies (3 units)
Spring 2023 Syllabus

Section 830.01: Wednesday 7:00 – 9:45 PM, BH 170; also available fully online

Instructor: Dr. Brian Beatty
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Course URL: http://canvas.sfsu.edu

I. Course Description

ITEC 830 Design of Learning Environments with Emerging Technologies (3 units)

ITEC 830 is an immersive hands-on course that involves practicing and studying the capabilities of emerging technologies and digital systems to aid, assist and improve training and learning. You will be introduced to about 20-30 emerging technologies (primarily software-based) plus ways to integrate them into instruction for a variety of learners. You will be introduced to authoring programs, simulation applications, emerging mobile applications, and more. You will study several emerging technologies of your choice in depth that you will demonstrate how to use to impact learning. You will investigate and evaluate the functions of emerging technologies within traditional and new training and learning environments and consider their use for digital content exploration, communications, engagement, experimentation and instruction in topic-specific concepts. You will explore the issues around safety, privacy, ethics, intellectual rights, and security that arise from the use of emerging technologies in education and training contexts.

Prerequisite: Graduate standing, ITEC 800 and ITEC 801 or consent of the instructor.

Course Format

This course is delivered in the Hybrid-Flexible "HyFlex" format. Students may attend class in person each session or alternatively participate in online activities. *This choice may be made on a session-by-session basis.* (This is the *Flex*ibility part of *HyFlex*.) The attendance and participation policy will be discussed during class the first session. Additional questions should be addressed to the instructor. See the book, *Hybrid-Flexible Course Design: Implementing student-directed hybrid classes*, freely available at https://edtechbooks.org/hyflex for more information on the HyFlex course format.

There are two major elements in this class:

1. Exploration of a variety of learning technologies in functional categories such as: information and conceptual exploration, student engagement, and learning assessment. Your learning of this content will be assessed through active participation in regular class discussions, short writing assignments, and class presentations.
2. Practice applying your developing understanding of the role of technology in supporting learning by creating plans for instruction, instructional materials, and/or conducting independent research focused on the implementation of an emerging technology of your choice to support a learning environment.

II. Student Learning Outcomes

1. Evaluate, explain and demonstrate the instructional features of selected emerging technologies;
2. Develop a pedagogical knowledge for use of emerging technologies to enhance others' learning;
3. Analyze the safety, privacy, ethical, intellectual rights, and security issues raised by today's emerging technologies; and
4. Design a Learning Unit involving one or more emerging technologies which supports the learning environment.

III. Required Readings

Readings selected for each session present the foundation for our discussion and many of our class activities provide clarifying, complementary, and alternative views on how people learn, and how we can help them learn using effective instructional approaches and materials. All supplemental readings are available through the class website (ilearn.sfsu.edu). This is a **"Zero Cost Course Materials (ZCCM)"** class, with no requirement of you to purchase instructional materials for this class. The recommended optional books provide a comprehensive, solid presentation of learning and instructional theory and describe common approaches to effective instruction. You may find these useful in your professional practice.

Recommended Resources (required sections of each posted to ilearn)

- Bates, A. W. (2015). **Teaching in a Digital Age: Guidelines for designing teaching and learning. Creative Commons.** Available online: https://opentextbc.ca/teachinginadigitalage/
- Betts, B. (2013). **Chapter 10. Game-based Learning**, from The Really Useful elearning Instruction Manual, pp. 175-194
- **Journal of Virtual and Personal Learning Environments**: https://www.igi-global.com/journal/international-journal-virtual-personal-learning/1134#open-access-articles
- New Media Consortium. ***2017 Horizon Report for Higher Education***. Available free in six languages; also, Horizon Reports for K-12: https://www.nmc.org/publication/nmc-horizon-report-2017-higher-education-edition/
- Quinn, Clark N. (2013). **Chapter 9. Mobile Learning**, from The Really Useful elearning Instruction Manual, pp. 147-174
- Ottenbreit-Leftwich, A. & Kimmons, R. (2020). **The K-12 Educational Technology Handbook (1st ed.)**. EdTech Books. https://edtechbooks.org/k12handbook
- Siemens, George and Tittenberger, Peter (2009). **Handbook of Emerging Technologies for Learning**. (Free) http://elearnspace.org/Articles/HETL.pdf
- Veletsianos, George (2010) **Emerging Technologies in Distance Education**. AU Press. Available at https://www.aupress.ca/books/120177-emerging-technologies-in-distance-education/ (and posted on iLearn with permission).
- Squire, Kurt (2011) **Video Games and Learning**. Teachers College Press.
- Blogs: (See https://www.schrockguide.net/edtech-blogs.html for a list of recommended edtech blogs)
    - Free Technology for Teachers: http://www.freetech4teachers.com/

- ISTE Blog: Ideas, content and resources for leading-edge educators https://www.iste.org/explore
- Kathy Shrock's blog (2005-present): https://blog.kathyschrock.net/
- Top tools for learning 2020: https://www.toptools4learning.com/

Each week I will provide online access to other important readings; some required, others optional. These are all available digitally so you may download and print your own copy, if you wish. Many are published under a Creative Commons license, allowing you to use them anyway you wish (even revising and redistributing). Readings for each week are posted to the course website (http://ilearn.sfsu.edu).

If you find interesting, relevant readings on your own in trade journals, magazines, newsletters, etc., please bring them into our class discussions, either in class or online.

IV. Course Requirements and Grading

Software and Tools

You'll need to know one method for each of the following technologies:

- Screencasting (to capture screen images and video for teaching)
- Presentations (a presentation tool for demos)
- Authoring/Animation (to build and present interactive material, if you choose to do so)

Class Participation (20%)

This is a seminar course, implying active engagement in discussions and other class activities. Participation includes completing pre-class readings, online exercises, and joining in class discussions – both in-class and online. If you choose to participate asynchronously online in a given week, you should expect to review recorded presentations and participate in one or more online discussions focused on applying concepts derived from the weekly topic. **All students are required to participate in the asynchronous discussions assigned for each week.** The asynchronous discussions are different than the synchronous (in-class) discussions, so both are valuable for your learning. Full class participation grades (20% of the course grade) are awarded for active discussion in the online forums and attendance in the synchronous class session or viewing each session recording; this includes your interactions online during our "asynchronous-only" weeks. (More about that below.)

A note about online participation in discussions: Posting a single comment in a weekly discussion is not enough … online discussion requires an interchange of ideas and multiple written messages. **At a minimum** you are expected to post your own initial response to the discussion prompt in your own thread or as a substantial reply to someone else's post in an existing thread, and then reply to the posts of several (3 or more) peers. Before the end of the discussion, students should also reply to some of the replies you may receive on your initial post. Considering that in-class discussions often involve several hours of interactive dialogue, you should plan on spending at least a full hour in any online topical discussion, though not all at once. A proven successful participation schedule is to post your initial message within a short period of time (2-3 days), reply to several of your peers, and then reply to the replies you've received on later days. The instructor will read all posts, reply to some posts, but will certainly not respond to all!

One further note: All students, including those attending class in-person (when available) and those who join class live in-person or using Zoom (or any other web conferencing software) are still required to participate in the online asynchronous discussion(s) for that week. In most weeks, some scheduled classroom time is provided for participation in online discussions. Synchronous classes are usually only 120 minutes long. The additional 30-45 minutes of "contact time" required for a 3-unit course is met through your active participation in the assigned online discussion forum for that week.

Reflection Posts (10%)

Weekly, all students will post their thoughts about the class and the course content in an ongoing discussion thread in the "Reflections" forum. These posts are intended to help you consider questions important to you and capture your thoughts at selected instances in time throughout the class. Posts will be viewable by others and are open to their comments, though there is no requirement for students to read anyone else's posts. You will receive full credit for this assignment if you contribute meaningful posts (one per week) during the 14 weeks of the term. Specific instructions will be available in class the first session.

Emerging Technology Demonstrations (45%)

You will present three emerging technology demonstrations throughout the term. (See dates in the calendar below. More assignment details provided in the LMS and in class sessions when needed.)

The three areas for demonstration are:

1. Technology Supporting Content: Draft and Presentation due Week 5, Final Paper due Week 6
2. Technology Supporting Engagement: Draft and Presentation due Week 8, Final Paper due Week 9
3. Technology Supporting Assessment (Evaluation of Learning or Experience): Draft and Presentation due Week 11, Final Paper due Week 12

This assignment will involve you investigating new technologies with which you are not overly familiar, learning them well enough to demonstrate them to classmates, and show how they can be used to impact learning. Your demonstration will involve a short (2-3 page) written explanation and 8-10 minute demonstration that teaches: 1) how to operate the technology and 2) how it can be used in instruction. You must explain the features or characteristics that the technology offers for enhancing the potential to learn (for example: a still camera captures the relationships of objects in a moment in time; while a video camera captures motion over time such as to demonstrate speed, and a 360 degree camera…). You will then explain how you matched the content to be learned with those features. You must search out and select three emerging technologies that you do not know or have not yet used, one from each of the technology categories we explore in class: content, engagement and assessment. At least one of the technologies you select must be a mobile technology (operating on a smart phone or tablet).

Emerging Technology Supporting your Learning Environment Project (25%)

You will design a unit for instruction or training that utilizes the benefits of emerging technology. The unit size may be large (a series of related topics) or small (a single topic covered in a lesson). You may use technologies covered in class or a technology you discover or are interested in, such as bio-sensing, or one of the technologies addressed in the Horizon Report or similar resource. Select a topic about

something you know, have researched significantly, or have access to an expert. The goal of your design is to leverage the power of emerging technology to enhance the learning of employees, trainees, or students – beyond what is possible if the technology was not used. For this unit, you will complete a written report explaining the technology, its use in instruction, and an overview of the instruction you've designed. You'll also present a summary of your work to the class in an 8-10 minute presentation live or online in week 14.

You may work in a group of up to three students to complete this project. If you do choose to work in a group, all members must be included in the class presentation.

Major components of the Instructional Project include:

- Written Report, Instructional Media, and Presentation – draft due week 15 (Wednesday May 10) (1500-2500 words or equivalent)
- Constructive feedback on other students' presentations and assigned peer feedback (in the LMS), posted to the project assignment activity by 11:59 pm, Sunday, May 14
- Final version of the written report due by 11:59 pm Wednesday, May 17

All assignments for this project should be turned into the same assignment activity in the LMS: Learning Technology Final Project.

Late Assignments

In order to receive full credit for an assignment, **it must be turned in at the requested time**. Partial credit for late assignments may be given, at the discretion of the instructor. *Typically, late assignments will receive a minimum 10% grade reduction, and* ***will normally not be accepted after one week has passed since the original due date (extensions may be granted for extenuating circumstances).***

Grading:

A- to A	90-100 %
B- to B+	80-89 %
C to C+	75-79 %
No Credit	below 75%

Incomplete Grades

If you do not complete the course requirements by the end of the semester, you may receive a grade of "I" (Incomplete) with prior arrangement with the instructor. Per SF State policy, 75% of all course assignments must be successfully completed prior to the end of the semester in order to qualify for consideration of an Incomplete. All Incomplete grades will have a pre-arranged deadline for completion; no longer than one year from the end of the current university term (Spring, Summer or Fall).

Changes to the Syllabus

This syllabus is subject to change throughout the course due to emergent student/instructor needs, important new learning opportunities, guest speakers, inclement weather, public health emergency, or other unforeseen situations. In the event a change must be made, I will notify you as soon as practically possible, and provide an updated syllabus on the course website.

V. Course Calendar

	Class Date	Topic	Readings and Assignments
1	Feb 1	**Course Introduction** **Syllabus Review** **Emerging Technologies: what are they? What's a "Learning Environment"?**	Readings due before class: Velastianos Ch1, 2017 Horizon Report, 2022 Horizon Report Video: Nice, C. (2018) Assignment due after class: Introductions, Reflection, Discussion Session 1 Discussion: Syllabus Comments, What is an ideal technology-supported learning environment like?
2	Feb 8	**Evaluating Education Technology** **Issues of Ethics, Privacy and Security**	Readings due before class: Lanier, Tech Eval Rubrics, Digital Issues (assorted) Video: DOE Protecting Student Privacy Assignment due after class: Reflection, Discussion Session 2 Discussion: Opportunities and Threats
3	Feb 15	**Technology Supporting Instructional Content – Part 1** **Information sources** ***Asynchronous class only***	Readings due before class: Bower & Torrington Watch before class: McCall, Bierut Assignment due after class: Reflection, Discussion Session 3 Discussion: What technologies help you provide content to learners?
4	Feb 22	**Technology Supporting Instructional Content – Part 2** **"Prosumer" shared spaces: blogs, wikis, and whiteboards** **Review of APA Paper Format**	Readings due before class: Briggs, Balasubramian & Wilson Watch before class: Canvas Videos (3) Assignment due after class: Reflection, Session 4 Discussion: Student as Pro-sumer
5	Mar 1	**Emerging Technology Demonstrations 1: Content** (student presentations)	Readings due before class: None Assignment due before class: Content Technology Project (Draft Paper 1 with presentation) Assignment due after class: Reflection, Peer feedback on Student Paper Drafts and Presentations
6	Mar 8	**Engagement Technologies I** **Exploring reality (local and remote), simulations**	Readings due before class: Various blog posts and websites Watch: What is VR?, Bodekaer TEDTalk, VR videos Assignment due before class: Peer Feedback, Content Technology Project (Final) Assignment due after class: Reflection, Session 6 Discussion: Imagine the Possibilities!
7	Mar 15	**Engagement Technologies II** **Gamification and game-based approaches**	Readings due before class: Squire 2011 Watch: Rober TEDx Talk Assignment due after class: Reflection, Session 7 Discussion: Playing while learning
NA	Mar 22	**Spring Break**	No Class Meeting
8	Mar 29	**Engagement Technologies III** **Building and Coding: Intro to Roblox, Snap! and Scratch** **Makerspace Environments**	Readings due before class: Mak 2014, Serrano Corkin, Ekmekci, & Fischer 2020, Somma 2020, McKay & Glazewski 2017 Watch: Future Proof 2016 Assignment due after class: Reflection, Session 8 Discussion: I'm a builder of my own understanding! [How] can coding/making help me?

	Class Date	Topic	Readings and Assignments
9	Apr 5	**Emerging Technology Demonstration 2: Engagement** (student presentations)	Readings due before class: None Assignment due after class: **Engagement Technology Project (Draft Paper 2 with presentation),** Reflection, Peer Feedback on Student Draft Papers and Presentations
10	Apr 12	**Assessment Technologies I** **Formative Assessment** **Summative Assessment**	Readings due before class: Fisher & Bandy, USG OET, NWEA blog, Common Sense Assignment due before class: Peer Feedback, Engagement Technology Project (Final) Assignment due after class: Reflection, Session 10 Discussion: Technologies for Assessing Many Types of Learning - What have you used well?
11	April 19	**Assessment Technologies II** **Adaptive Learning Systems** **Beyond Cognition: Biometric sensing and attention, emotion, academic progress**	Readings due before class: Cella et al. 2007, Zulfiani et al. 2020, Alyahan et al. 2020 Watch: Area9 Lyceum, McGraw Hill (2) Assignment due after class: Reflection, Discussion Session 11 Discussion: Assessing Student Achievement with other types of technology
12	April 26	**Emerging Technology Demonstration 3: Assessment** (student presentations)	Readings due before class: None Assignment due after class: **Assessment Technology Project (Draft Paper 3 with presentation**), Reflection, Session 12 Discussion: Commenting on Student Presentations
13	May 3	**Personal Learning Environments**	Readings: EDUCAUSE 2009, Rahami et al 2015 Assignment due before class: Peer Feedback, Assessment Technology Project (Final) Watch: Barkley, Downes Assignment due after class: Reflection, Session 13 Discussion: Do Your Students Need PLE's?
14	May 10	**Instructional Project Presentations and Peer Feedback** **Final Project Draft Due**	Readings: None Assignment due before class: Reflection, **Instructional Project (draft report with presentation)** Assignment due after class: **Final Reflection, Instructional Project Peer Feedback due 5/14**
15	May 17	**Final Project Report Due**	**Final Report due by 5/17**

VI. Learning Online

Learning online in this course requires you to be able to complete basic tasks in order to access information and to interact in the online class sessions either synchronously (live, webinar) or asynchronously (discussion forum posts, posting papers).

Before you begin

There are a few things you can do before you begin to ensure success in using the online systems (iLearn learning management system and Zoom web conference system). Take a few minutes to read through this guidance before you connect to your class activities.

Technical Requirements: (see https://canvas.sfsu.edu/canvas for more information about using the Canvas LMS at SF State)

1. **Computer connected to the Internet** (broadband – DSL or faster), running latest web browser – any major application (Chrome, Safari, Firefox, Internet Explorer, etc.) will work.
2. **Speakers and microphone** for listening to recorded audio or interacting in a web conference (online meeting). When participating in a web conference, you should use a headset that combines external speakers (headphones or earbuds) and a microphone rather than relying on the computers built-in speakers and microphone. This will allow for a much better audio experience without "echoing" or other forms of feedback.
    a. Just about any headset will work – they range in price from $5 to over $100. Spending $15-$20 on a reasonable set will improve your experience greatly.
3. **Login credentials**. Your standard SF State student number and password should provide you full access to Canvas and the Zoom web conference system. If you are not a registered SF State student, you should have been given login credentials when you enrolled in the course. Have those ready to use when logging in.

Participating Online Successfully
When you have the opportunity (or the assignment) to participate in learning activities outside of the classroom environment, you should *prepare*, *participate* and *follow-through*.

1. ***Prepare:*** Allow yourself a structured amount of time, either all at once or spaced across specific days, that provides dedicated "learning time." Accessing information, reflecting on readings, completing independent or group activities, and participating in web conferences or asynchronous discussions all take time. If you do not set apart and protect that time from other important "to-do's," you will shortchange your learning process. Don't sell yourself short! Prepare to participate.
2. ***Participate:*** Complete the assigned readings, if any, prior to participating in web conference sessions or asynchronous discussions. When assigned an interactive asynchronous discussion, set aside time to create an original post within the timeframe outlined by your instructor. Set aside additional time to reply to your peers in the discussion. Set aside still more time to reply to peers who may have replied to your original post. To benefit the most from the interactive nature of the discussion you don't need to take a lot of time at once – perhaps 10-15 minutes – but you do need to interact several times over the course of the discussion period.
3. ***Follow-through***: Complete the summary activity, if any is assigned, and use that to prepare for the next learning event. Gather, save, and share resources that you have found useful. Look for ways to extend and apply what you have learned, even if you haven't been given a specific assignment to complete. This is *your* opportunity to learn – take full advantage of it!

VII. Additional Resources

A. Plagiarism
Help with understanding what is and what isn't acceptable use -v think you know this already? Take the test! https://plagiarism.iu.edu/
SFSU Student Code of Conduct discussion of plagiarism: https://conduct.sfsu.edu/plagiarism

B. APA Style for Citations and References

Writing assignments in this class are expected to follow APA style, primarily as a way to practice academic writing format. In some cases, less formal style may be acceptable for writing to a non-academic audience, especially in instructional units or lessons.

A few helpful sites:
1. Purdue University Online Writing Lab (start here): https://owl.purdue.edu/owl/purdue_owl.html
2. APA Style Blog: https://apastyle.apa.org/blog
3. APA Style Guidelines, Explanations and Examples : https://apastyle.apa.org/style-grammar-guidelines/

C. University Student Support Resources

Disability Access
Students with disabilities who need reasonable accommodations are encouraged to contact the instructor. The Disability Programs and Resource Center (DPRC) is available to facilitate the reasonable accommodations process. The DPRC is located in the Student Service Building and can be reached by telephone (voice/TTY 415-338-2472) or by email (dprc@sfsu.edu). Visit the DPRC website to review services offered to students: http://www.sfsu.edu/~dprc/.

Student Disclosures of Sexual Violence
SF State fosters a campus free of sexual violence including sexual harassment, domestic violence, dating violence, stalking, and/or any form of sex or gender discrimination. If you disclose a personal experience as an SF State student, the course instructor is required to notify the [Dean of Students]. To disclose any such violence confidentially, contact:

- **The SAFE Place** - (415) 338-2208; http://www.sfsu.edu/~safe_plc/
- **Counseling and Psychological Services Center** - (415) 338-2208; http://psyservs.sfsu.edu/

For more information on your rights and available resources: http://titleix.sfsu.edu/

Student Basic Needs Initiative (FOOD+SHELTER+SUCCESS)
Basic needs are the conditions and resources necessary to survive and thrive. These conditions support students' ability to be active, engaged learners who reach their full potential at San Francisco State University. These conditions and resources can include, but are not limited to safety, food, housing and access to mental health services. University resources that may be available to help you are online at: https://basicneeds.sfsu.edu

Health & Safety Commitments

Your health and safety are our paramount concern at SF State. We ask every member of our campus community to join a pledge to make and follow plans to keep fellow students, faculty, and staff safe and well. Feeling confident, safe and well will help you focus on your academic success. To participate in this class, all students are asked expected to:

- stay informed on the most up-to-date information related to SF State's COVID-19 response and Campus Comeback plan
- plan ahead for possible class disruptions due to COVID-19 or other unexpected events, such as unhealthy air quality caused by smoke

- take care of yourself and others by staying home when you aren't feeling well or believe you have been exposed to COVID-19, and
- follow all required health and safety guidelines, including verifying your proof of vaccination or exemption status before coming to class; and wearing a multilayered mask over your nose and mouth at all times when indoors on campus; and wash your hands as often as possible (i.e. soap and water, hand sanitizer).

For more information about SF State's response to COVID-19 and how you can keep yourself and others safe and well, visit the Campus Comeback Website.

To plan for how you will maintain your academic success when unexpected events disrupt regular teaching and learning activities, follow the information on the course syllabus and consult the Keep Learning guide at https://instructionalcontinuity.sfsu.edu/

GCOE Statement of Purpose

The GCOE develops transformative and visionary educators, clinicians, and leaders for social justice, to effect change for good across the Bay Area and beyond, and to create an engaged, and productive democracy. Together we do the work necessary to understand and welcome all; to prepare equity-focused, caring, and highly skilled professionals; to identify and dismantle racist, ableist, and oppressive systems; and to build an equitable and accessible present and future.

Link to GCOE Statement of Purpose and Guiding Commitments