

## Syllabus: CSTE 5319. Critical Analysis of Instructional Software

Spring 2018

Department of Computer Science

Sam Houston State University

### General Information

- Course title: Critical Analysis of Instructional Software
- Instructor: Donggil Song, Ph.D.
- Office: AB1, 212J
- Phone: 936-294-2696
- Email: song@shsu.edu

### Office Hours

- Available online most times during this semester.
- Virtual office hours: Monday and Thursday: 9am – 12pm.
- Email is the best way to communicate.

### Course Description

This course is designed to identify the instructional/learning value of applications/software with respect to its effectiveness for use in educational settings. Drawing from an understanding of instructional theories/principles and from research into effective practice, students will be able to analyze educational application/software based on the theoretical foundation. This is a 100% online course. There will be no face-to-face meetings required.

### Course Objectives

Based on the Individual Development & Educational Assessment (IDEA), at the end of this course the ideal student should be able to present the following essential and important objectives:

- Developing skill in expressing oneself orally or **in writing**
- Learning to **analyze and critically evaluate** ideas, arguments, and points of view

Specifically, at the end of this course students should be able to:

- Identify the theoretical foundation in the educational technology field
- Apply a systematic approach to the analysis of educational applications/software

### Textbook

No textbook is required for this course.

### Topic Readings

Topic 1. Instructional Theory

- Reigeluth, C. M. (1999). What is instructional-design theory and how is it changing? In C. M. Reigeluth (Ed.), *Instructional-design theories and models: A new paradigm of instructional theory*, Volume II (pp. 5-29). Mahwah, NJ: Lawrence Erlbaum Associates, Publishers.

Topic 2. Open Learning Environments

- Hannafin, M., Land, S., & Oliver, K. (1999). Open learning environments: Foundations, methods, and models. In C. M. Reigeluth (Ed.), *Instructional-design theories and models: A new paradigm of instructional theory*, Volume II (pp. 115-140). Mahwah, NJ: Lawrence Erlbaum Associates, Publishers.

#### Topic 3. Informal Learning

- Song, D., & Lee, J. (2014). Has Web 2.0 revitalized informal learning?: The relationship between the levels of Web 2.0 and informal learning websites. *Journal of Computer Assisted Learning*, 30(6), 511-533.

#### Topic 4. Systemic Design of Instruction

- Dick, W., Carey, L., & Carey, J. O. (2009). Introduction to instructional design. In W. Dick, L. Carey, & J. O. Carey. *The systematic design of instruction* (7th ed., pp. 2-14). New York, NY: Addison-Wesley Educational Publishers Inc.

#### Topic 5. Cognitive Load Theory

- van Merriënboer, J. J., & Ayres, P. (2005). Research on cognitive load theory and its design implications for e-learning. *Educational Technology Research and Development*, 53(3), 5-13.

#### Topic 6. Technology and Interaction

- Song, D., Oh, E., & Glazewski, K. (2017). Student-generated questioning activity in second language courses using a customized personal response system: A case study. *Educational Technology Research and Development*, 65(6), 1425-1449. doi:10.1007/s11423-017-9520-7

#### Topic 7. First Principles

- Merrill, M. D. (2002). First principles of instruction. *Educational Technology Research and Development*, 50(3), 43-59.

#### Topic 8. Mobile Learning

- Sharples, M., Taylor, J., & Vavoula, G. (2007) A theory of learning for the mobile age. In R. Andrews & C. Haythornthwaite (Eds.), *The Sage handbook of elearning research* (pp. 221-247). London: Sage.

#### Topic 9. Instructional Design Process

- Morrison, G. R., Ross, S. M., Kemp, J. E., & Kalman, H. (2007). Introduction to the instructional design process. In G. R. Morrison, S. M. Ross, J. E. Kemp, & H. Kalman (Eds.), *Designing effective instruction: Applications of instructional design* (5th. ed., pp. 1-26). New York, NY: John Wiley & Sons.

#### Topic 10. Psychological Foundation

- Driscoll, M. P. (2017). Psychological foundation of instructional design. In R. A. Reiser, & J. V. Dempsey (Eds.), *Trends and issues in instructional design and technology* (4th ed., pp. 52-60). Upper Saddle River, NJ: Pearson Education.

### Supplementary References

- Christensen, T. K., & Osguthorpe, R. T. (2004). How do instructional-design practitioners make instructional-strategy decisions?. *Performance Improvement Quarterly*, 17(3), 45-65.
- Merrill, M. D., Barclay, M., & Schaak, A. V. (2008). Prescriptive principles for instructional design. In M. Spector, D. Merrill, J. V. Merriënboer, & M. Driscoll (Eds.), *Handbook of research on educational communications and technology* (3rd ed., pp. 523-556). New York: Lawrence Erlbaum Associates.

- Reigeluth, C. M., & An, Y. J. (2006). Functional contextualism: An ideal framework for theory in instructional design and technology. *Educational Technology Research and Development*, 54(1), 49-53.
- Reigeluth, C. M., & Carr-Chellman, A. A. (2009). Understanding instructional theory. In C. M. Reigeluth & A. A. Carr-Chellman (Eds.), *Instructional-design theories and models: Building a common knowledge base* (Vol. III, pp. 3-26). New York: Routledge.
- Song, D. (2016). Expertise reversal effect and sequencing of learning tasks in online English as a second language learning environment. *Interactive Learning Environments*, 24(3), 423-437.
- Song, D. (2014). A framework for mobile learning app design: DCALE. In C. Miller & A. Doering (Eds.), *The new landscape of mobile learning: Redesigning education in an app-based world* (pp. 120-137). New York, NY: Routledge.
- Song, D., & Bonk, C. (2016). Motivational factors in self-directed informal learning from online learning resources. *Cogent Education*, 3(1), 1-11. doi:10.1080/2331186X.2016.1205838
- Spector, J. M. (2008). Theoretical foundations. In J. M. Spector, M. D. Merrill, J. van Merriënboer, & M. P. Driscoll (Eds.), *Handbook of research on educational communications and technology* (pp. 21–28). New York: Routledge Taylor & Francis.
- Sweller, J., Van Merriënboer, J. J., & Paas, F. G. (1998). Cognitive architecture and instructional design. *Educational Psychology Review*, 10(3), 251-296.

### Tasks and Grading (Total 500 points)\*

- Task 0. Weekly Self-regulated Learning Activity (4 points X 15 weeks = 60 points)
- Task 1 – 10. Academic Response (20 points X 10 modules = 200 points)
- Task 11. Analysis Report 1 (80 points)
- Task 12. Rubric Building (Group task) (80 points)
- Task 13. Analysis Report 2 (80 points)

\*All tasks are individual tasks except Task 12 (Group task).

\*If the required tasks are completed after the due date, the penalty points will be applied to each late assignment as follows: (1) 10% penalty between 0 – 24 hours; (2) 20% penalty between 24 – 48 hours; (3) 100% penalty after 48 hours; and (4) For the fourth time and any further delayed to turn in the late assignment, no grade will be issued.

\*There will be no extra credit project offered to make up any missing points.

### Grading Criteria

- A: 450 – 500
- B: 400 – 449
- C: 350 – 399
- F: Below 349

### Course Schedule

Week	Dates	Topic	Task*
1	1/17 – 1/23	Preview, Background Posting, Plagiarism	

2	1/24 – 1/30	Topic 1	Task 1
3	1/31 – 2/6	Topic 2	Task 2
4	2/7 – 2/13	Topic 3	Task 3
5	2/14 – 2/20	Topic 4, Group Formation	Task 4
6	2/21 – 2/27	Topic 5	Task 5
7	2/28 – 3/6	Analysis Report 1	Task 11
8	3/7 – 3/20	Topic 6 (3/12 – 3/16: Spring Break)	Task 6
9	3/21 – 3/27	Topic 7	Task 7
10	3/28 – 4/3	Topic 8	Task 8
11	4/4 – 4/10	Topic 9	Task 9
12	4/11 – 4/17	Topic 10	Task 10
13	4/18 – 4/24	Rubric Building	Task 12
14	4/25 – 5/1	Review	
15	5/2 – 5/8	Analysis Report 2	Task 13

\*Note: Every week has Task 0 (Weekly Self-regulated Learning Activity).

### Community Engagement

In this course, you will not only learn knowledge and skills, but also actively use them to make a difference in our community to improve the quality of life. This experience, it is hoped, will help you see yourself as a positive force in this world and deepen your understanding of your role as a citizen.

### Tests

This course is a project-based course and does not require tests or final exams.

### Course Alignment with ISTE Standards for Coaches\*

Category	Description	Course Task
2. Teaching, learning, and assessment	<b>c.</b> Coach teachers in and model engagement of students in local and global interdisciplinary units in which technology helps students assume professional roles, research real-world problems, collaborate with others, and produce products that are meaningful and useful to a wide audience.	Rubric Building
	<b>d.</b> Coach teachers in and model design and implementation of technology-enhanced learning experiences emphasizing creativity, higher-order thinking skills and processes, and	Analysis Report 1, 2

	mental habits of mind (e.g., critical thinking, metacognition, and self-regulation).	
	<b>f.</b> Coach teachers in and model incorporation of research-based best practices in instructional design when planning technology-enhanced learning experiences.	Academic Response
3. Digital age learning environments	<b>d.</b> Select, evaluate, and facilitate the use of adaptive and assistive technologies to support student learning.	Analysis Report 1, 2
6. Content knowledge and professional growth	<b>a.</b> Engage in continual learning to deepen content and pedagogical knowledge in technology integration and current and emerging technologies necessary to effectively implement the NETS·S and NETS·T.	Academic Response
	<b>c.</b> Regularly evaluate and reflect on their professional practice and dispositions to improve and strengthen their ability to effectively model and facilitate technology-enhanced learning experiences.	Analysis Report 1, 2; Rubric Building

\*from <http://www.iste.org/standards/for-coaches>

### Academic Dishonesty

All students are expected to engage in all academic pursuits in a manner that is above reproach. Students are expected to maintain complete honesty and integrity in the academic experiences both in and out of the classroom. Any student found guilty of dishonesty in any phase of academic work will be subject to disciplinary action. The University and its official representatives may initiate disciplinary proceedings against a student accused of any form of academic dishonesty including, but not limited to, cheating on an examination or other academic work which is to be submitted, plagiarism, collusion and the abuse of resource materials.

The students are not allowed to turn in or modify any projects or files from other classes to earn academic credits toward to this course, unless the students obtain a written permission from the professor.

### Students with Disabilities Policy

It is the policy of Sam Houston State University that individuals otherwise qualified shall not be excluded, solely by reason of their disability, from participation in any academic program of the university. Further, they shall not be denied the benefits of these programs nor shall they be subjected to discrimination. Students with disabilities that might affect their academic performance should register with the Office of Services for Students with Disabilities located in the Lee Drain Annex (telephone 936-294-3512, TDD 936-294-3786, and e-mail [disability@shsu.edu](mailto:disability@shsu.edu)). They should then make arrangements with their individual instructors so that appropriate strategies can be considered and helpful procedures can be developed to ensure that participation and achievement opportunities are not impaired.

SHSU adheres to all applicable federal, state, and local laws, regulations, and guidelines with respect to providing reasonable accommodations for students with disabilities. If you have a disability that may affect adversely your work in this class, then I encourage you to register with the SHSU Services for Students with Disabilities and to talk with me about how I can best help you. All disclosures of disabilities will be kept strictly confidential. NOTE: No accommodation can be made until you register with the Services for Students with Disabilities. For a complete

listing of the university policy, see: <http://www.shsu.edu/dept/academic-affairs/documents/aps/students/811006.pdf>

### **Religious Observance**

University policy allows for student to observe religious holy days without penalty. If you intend to miss class or project due dates as a result of the observance of a religious holy day or as a result of the necessary traveling time required for religious observance, such an absence will not be penalized. As a courtesy, it would be appreciated if you notify the instructor in advance in writing, of the dates and times of class sessions that are to be missed.

### **Drop Dates**

Academic calendar: <http://www.shsu.edu/dept/registrar/calendars/academic-calendar.html>

### **Academic Probation and Suspension (from the Graduate Catalog 2017-2018)**

In order to achieve and remain in academic good standing at Sam Houston State University, a graduate student must maintain an overall grade point average of at least 3.0 on all graduate coursework attempted. A 3.0 overall grade point average is the absolute minimum required for graduation. A graduate student who falls below a 3.0 overall grade point average at the close of any semester during which one or more semester credit hours are attempted will be placed on probation. If an enrolled student on probation fails to achieve a minimum 3.0 overall grade point average at the close of the next semester or summer school following the starting of the probation, the student will be terminated. A committee of the department or college graduate faculty will review the graduate status for any student earning two grades of “C” in any combination of graduate courses. The committee will consider the advisability of the student’s continued enrollment in the graduate program. A student who earns three grades of “C” or one grade of “F” will be terminated from graduate studies. A student who earns a third grade of “C” or a grade of “F” during the semester or summer of the anticipated graduation will be terminated from graduate studies and will not be eligible to graduate. The appropriate academic dean may place on probation, retain on probation, or terminate any student deficient in grade points without regard to the regulations previously stated. Any appeal for a review of the termination of graduate status should be directed in writing through the graduate advisor of the program, to the chair of the department, to the academic dean of the college, and finally to the Dean of Graduate Studies for final approval or denial. If a student wishes to pursue a different program after being terminated from the original program, the student must complete the admissions process and be accepted into the new program. A student must be in Academic Good Standing in order to change to a new program or receive a release from the academic program, academic dean of the college, and Dean of Graduate Studies. Once accepted to the new program, the previous program must release the termination block in the Registrar's Office before the student can register in the new program.