

## **CI 489: DELTA Capstone Project**

Curriculum and Instruction

Credits: 3 (undergraduate); 4 (graduate)

Location: TBA

Spring 2016

Dr. Emma Mercier

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Class: Tuesday, 4-7pm

Office hours: Wednesday 2-4pm

### **Course Description**

#### *Course format*

The course will focus on participatory design models for the development and research of educational materials through a studio-based, materials development project. The course integrates three emerging ideas into a studio experience. Students will pool their skill sets to work with a teacher to design and develop learning activities, field test and revise a curriculum sequence.

Students will work in groups, partnered with a teacher or educator in an informal environment (e.g. museum) to design and test a piece of technology and associated curriculum. The course is designed with more reading in the early weeks, and less reading and more class time devoted to project development activities towards the end of the semester.

#### *Course objectives*

The course is designed as the capstone project course for the DELTA undergraduate concentration, although students in other majors or graduate students may enroll with the instructor's consent. The course provides an opportunity to bring together the ideas learned from across the DELTA courses and implement them in a final project. The course builds on three major ideas emerging from recent research on digital environments for learning, teaching and agency. The first idea is that the use of domain-specific tools can make the difference in learning conceptual material. For example, in mathematics, tools can transform normally obscure ideas and concepts with multiple, vivid and linked representations and ways to engage in inquiry. The second idea is that even the best software is unlikely to engage learning or be used widely and/or effectively unless it is compatible with and linked to curriculum materials (such as teacher guides, student problems and activities, and assessments). The third idea emerging from recent research is that achieving an effective level of technology integration is virtually impossible without the direct involvement of developers *and* teachers with the design, development and research processes. A central part of the course will be attention to the collaborative process, with class activities, and regular journal assignments to foster this attention.

#### *Course information and Pre-requisites*

This course is required for students enrolled in the DELTA undergraduate concentration as part of the Learning and Education Studies Major. Other students, including graduate students, may register with the consent of the instructor. Pre-requisite: CI481 or consent of instructor.

## Course Requirements and Assessment Overview

### For undergraduate students

Final grades will be made up of:

Attendance and Class participation: 10%

Homework assignments: 10%

Collaboration evaluation: 10%

Journal submission (4): 10%

Final project and documentation: 60%

### For graduate students

Graduate students must complete the same activities as undergraduate students. In addition, a 10-page paper that situates the final project in learning theory literature is required. This paper must justify the decisions that were made for your project, in relation to the research literature in the appropriate field (e.g. if your project focuses on a math activity, literature should be drawn from research in math education and technology).

Final grades will be made up of:

Attendance and Class participation: 10%

Homework assignments: 10%

Collaboration evaluation: 10%

Journal submission (4): 10%

Final project and documentation: 45%

Final paper: 15%

## Grades and Grading Scale

Students may elect a course grade or satisfactory/unsatisfactory. Letter grades will be the default option. Plus and minus grades will be assigned for the semester grades. Grades will be assigned as follows:

A+	97-100 %	C+	77-79.9%
A	93-96.9%	C	73-76.9%
A-	90-92.9%	C-	70-72.9%
B+	87-89.9%	D+	67-69.9%
B	83-86.9%	D	63-66.9%
B-	80-82.9%	D-	60-62.9%
		F	Less than 60%

## Course Readings and Books

DiGiano, C., Goldman, S. & Chorost, M. (2009) *Educating Learning Technology Designers: guiding and inspiring creators of innovative educational tools*. Routledge.

Wiggins, G. and McTighe, J. (2005) *Understanding by Design (2<sup>nd</sup> Edition)*. ASCD

A range of readings will be posted on the course Moodle site.

## **Course Policies**

### *Attendance and late assignments*

Attendance is very important during this course. If you are going to be absent for a particular class, please let me know as soon as possible. A maximum of two unexplained absences are allowed during the semester.

Four journal submissions are required during the course. As these allow you to reflect on your project and collaboration process, they are essential and allow me to identify any issue arising in your groups or with your project early in the process. These should be submitted by the deadline. Any extension for this or other activities should be requested as soon as possible.

### *Statement of Academic Integrity*

The Code of Policies and Regulations Applying to All Students will be applied in all instances of academic misconduct committed by students. This applies to all exams, presentations, assignments and materials distributed or used in this course.

[http://admin.illinois.edu/policy/code/article1\\_part4\\_1-401.html](http://admin.illinois.edu/policy/code/article1_part4_1-401.html)

### *Equal Opportunity and Access Statement*

Your success as a student is of utmost importance to me. If you have a disability or any other special circumstance that may have some impact on your work in this class, and for which you may require special accommodations, please contact me within the first two weeks in the semester so that accommodations can be made in a timely manner.

<http://www.disability.illinois.edu/>

## Class Schedule

### Week 1: Introduction

Introduction to the course.

Ice-breakers

Technology review activity (work in pairs; present in class during week 2)

Interests and ideas assignment (due Sunday night; review others before class)

### Week 2: Technology in Learning Environments

#### Reading due in class:

Bruner, J. (1960) Aids to Teaching. Chapter 6 in J. Bruner. *The Process of Education*. Cambridge, MA: Harvard University Press

Goldman, S.V. (2001). Technology in the Mathematics Classroom: Guidelines from the Field. *ERIC Update*, 22(2), pp. 1-6.

#### Assignment due in class:

Technology review activity (present in pairs during class)

Interests and ideas assignment (submitted to blog Sunday night; review others before class)

### Week 3: Collaboration and the participatory design process

#### Reading:

Goldman, S., Mercier, E. M., & Booker, A. (2009). Partnering with K-12 Educators in Collaborative Design of Learning Technology. In M. C. C. DiGano, S. Goldman (Ed.), *Educating Learning Technology Designers: guiding and inspiring creators of innovative educational tools*. New York: Routledge.

Mercier, E. M., Goldman, S., & Booker, A. (2009). Focusing on Process: Evidence and ideas to promote learning through the collaborative design process. In C. DiGano, S. Goldman, & M. Chorost (Eds.), *Educating Learning Technology Designers* (pp. 36–61). New York, NY, USA: Routledge.

### Week 4: Design Knowledge and Designing Learning Activities; conducting interviews

Groups will be formed and teachers assigned during this class.

#### Reading:

Hoadley, C. & Cox, C. (2009) What is design knowledge and how do we teach it. In DiGiano, C., Goldman, S. & Chorost, M. (eds) *Educating Learning Technology Designers: guiding and inspiring creators of innovative educational tools*. New York: Routledge

Cohen, L., Manion, L. & Morrison, K. (2011) *Research Methods in Education*. Chapter 21 (Interviews). Taylor & Francis.

Wiggins, G. and McTighe, J. (2005) *Understanding by Design*. Chapters 1, 4 and 5

## **Week 5: Meaningful learning activities; Conducting observations**

### **Reading:**

Barron, B. & Darling-Hammond, L. (2008) How can we teach for meaningful learning? In Darling-Hammond et al. *Powerful Learning: What we know about teaching for understanding*. San Francisco: Jossey-Bass

Cohen, L., Manion, L. & Morrison, K. (2011) *Research Methods in Education*. Chapter 23 (Observations). Taylor & Francis.

### **Assignment due in class:**

Report on meeting and interview with teacher  
Journal number 1: Early group impressions (see prompts)

## **Week 6: Designing Meaningful Learning Activities**

### **Reading:**

Wiggins, G. and McTighe, J. (2005) *Understanding by Design*. Chapters 9 & 11.

### **Assignment due in class:**

Report on classroom/learning space observation

## **Week 7: Assessment 1**

### **Reading:**

Coffey, J.E. (2003) "Involving Students in Assessment." In J. M. Atkin & J. E. Coffey (Eds.) *Everyday Assessment in the Science Classroom*. National Science Teachers Association, NSTA Press: Arlington, VA.

Shepard, L. (2000). The role of assessment in a learning culture. *Educational Researcher*, 29(7), 4–14

### **Assignment due in class:**

Present 3 potential ideas for your project

Journal number 2: Reflections on group process and project process (see prompts)

## **Week 8: Assessment 2**

### **Reading:**

Means, B. (2006) Prospects for transforming schools with technology-integrated assessment. In R.K. Sawyer (Ed) *The Cambridge Handbook of the Learning Sciences*. New York: Cambridge University Press

### **Assignment due in class:**

Present your project idea and plan for completion

## **Week 9: Designing for learning communities**

### **Reading:**

Slotta, J. (2010). Evolving the classrooms of the future: The interplay of pedagogy, technology and community. In K. Makitalo-Siegl, J. Zottmann, F. Kaplan, & F. Fischer (Eds.), *Classroom of the Future: Orchestrating collaborative spaces* (pp. 215–242). Sense Publishers.

### **Assignment due in class:**

Bring paper-based prototypes to pilot test with classmates

## ***SPRING BREAK***

## **Week 10: Designing the learning experience**

### **Reading:**

Gruen, D., (2000). *Beyond Scenarios: The Role of Storytelling in CSCW Design*. CUE Technical Report #00-02. IBM Watson Research Center.

McCloud, S. (1994) *Blood in the gutter*. In S. McCloud. *Understanding Comics: The invisible art*. New York: Harper-Collins

### **Assignment due in class:**

Present results from pilot studies with other users

## **Week 11: Presentation of draft project**

### **Reading:**

(No reading)

### **Assignment due in class:**

Present working prototype and curriculum activities.  
Complete storyboard for final activity

Journal number 3: Reflections on group process and project process (see prompts)

### **Week 12: Evaluation of your project**

How will you evaluate your field-test; what should be in the grading rubric for your project?

#### **Reading:**

Estrella, G. & DiGiano, C. (2009) Featured Student projects. In DiGiano, C., Goldman, S. & Chorost, M. (eds) *Educating Learning Technology Designers: guiding and inspiring creators of innovative educational tools*. New York: Routledge

#### **Assignment due in class:**

Project update & final planning document  
First draft of evaluation document for field-test

### **Week 13: Field-test preparation**

#### **Reading:**

Becker, H. Problems of inference and proof in participant observation. (1969) In G.J. McCall & J.L. Simmons (Eds) *Issues in Participant Observation: A text and reader*. Addison-Wesley Publishing Company: Reading, MA.

#### **Assignment due in class:**

Project update; practice field-test in class (the project should be almost in its final form today)  
Final draft of evaluation document for field-test.

### **Week 14: Reflections on field-test**

#### **Reading:**

(No reading)

#### **Assignment due in class:**

Report on your field test  
Update to class grading rubric

### **Week 15: Final Project Presentations**

Partner teachers and a wider audience will be invited to this presentation

#### **Assignment due in class:**

Present your final project during class (must include reference to future changes based on field test)

Journal number 4: Final reflection on collaborative process  
Collaboration evaluation document.