

RYDAL

Learning Sciences & Design

PROJECTS

PUBLICATIONS

TEACHING

ABOUT/CONTACT

EDUCATIONAL TECHNOLOGY, CS 4660/6460

Location: Georgia Institute of Technology, Instructional Center Room 205

Time: Tuesday & Thursday 3-4:15 pm

Instructor: Dr. Ben Rydal Shapiro

Office Hours: Wednesday 2-3 pm and by appointment, TSRB 220

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Teaching Assistant(s): Karthik Bhat (ksbhat@gatech.edu) and Edwin Zhao (edwin.zhao@gatech.edu)

OVERVIEW & LEARNING GOALS

In this course you will be introduced to contemporary educational theories and their implications for the design of educational technology across a variety of scales and settings (*e.g., schools, universities, museums, massive open online courses, online communities*). You will also explore equitable and expansive learning design practices through a team design project. In class discussion, design challenges, assignments, and interactive lectures form the basis of this course.

Primary learning goals focus on developing your ability to:

1. Understand the basic assumptions, concepts, and principles of different educational theories
2. Determine the implications of each theory for the design of educational technology

3. Critically assess and design education technology in order to compare and contrast theories and their usefulness across different settings

TEXTS

All texts and readings will be made available online or on Canvas

PROJECT

The course project will run the duration of the semester with three primary design reviews that require deliverables. You will work in teams of 4-6 members (assigned in class) and will choose a project based on interest and the availability of an authentic design context. A list of relevant project areas will be discussed in class, but you are encouraged to propose projects of your own as well as projects that focus on the Georgia Tech campus/community and/or leverage digital mapping technologies.

ASSIGNMENTS & GRADING

*** All assignments are described and will be submitted on Canvas**

Class Attendance & Participation - 25% (includes team project peer assessment and Canvas discussion posts)

Individual Assignments - 30%

- Assignment 1: Educational technology analysis (10%)
- Assignment 2: Concept analysis (10%)
- Assignment 3: Personal learning geography analysis (10%)

Team Project - 45%

- Design review I: Project proposal & literature review (10%)
- Design review II: Team concept analysis & prototypes (10%)
- Design review III: Final Presentation/submission of your design & implementation

(25%)

Class Attendance. Class attendance is required. If you need to miss class for a legitimate reason, please speak/email with the instructor and TA, preferably before class.

Class Participation. This is about more than attendance but about contributing to learning in class through asking questions, giving suggestions to your classmates and generally being part of the discussion. In class participation also involves both your careful preparation for class of readings and tasks, and your genuine support of peers in the learning process. You should come to class prepared to discuss and raise questions about the readings on the day they are listed in the weekly schedule (below). Participation also entails your weekly contributions to the online discussion forum on Canvas as well as your contributions to your team throughout your design project (we will discuss this in class).

Reference Format. Unless otherwise specified in the assignment, written work must follow APA format described [here](#). Basic guidelines include that all written work should be double-spaced in Times New Roman, and have 12-point font. Citations should be used for ideas, statements, comments, etc. that are not common knowledge or your own original thought.

Late Policy. Students need to submit all of their materials on or before the deadline to qualify for 100% credit. 24 hours delay will result in 25% penalty; 48 hours late submissions will incur 50% penalty. Materials submitted past 48 hours will not be accepted, and will be entered a zero grade.

Honor Code. This class abides by the [Georgia Tech Honor Code](#). All assigned work is expected to be individual, except where explicitly written otherwise. You are encouraged to discuss the assignments with your classmates; however, what you hand in should be your own work.

SCHEDULE

| Date | Topics | Readings | Assignments Due |
|------|-----------------------------------|--|-----------------|
| 1/8 | Introductions & course overview | | |
| 1/10 | Personal learning design activity | <ul style="list-style-type: none"> Complete background survey available on Canvas home page | |
| 1/15 | Framing teaching | <ul style="list-style-type: none"> Teaching and its predicaments, Chapter 5 up to pg. 119 (D. Cohen) * This reading is available in the "files" tab on Canvas Post to Canvas discussion forum | |
| 1/17 | Framing learning | <ul style="list-style-type: none"> <u>How people learn Chapter 1</u> Read only 1st paragraph: <u>Teaching, as Learning, in Practice</u> (J. Lave) | |
| 1/22 | Learner Centered Design | <ul style="list-style-type: none"> Learner centered design for computing education, chapters 1 + 2 (Guzdial) * This reading is available in the "files" tab on Canvas <u>I won't learn from you</u> (H. Kohl) | |

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|--------------|---|--|
| 1/ 2 4 | Educational design approaches | <ul style="list-style-type: none"> • Watch: <u>Creativity & Puny Ideas that Work (D. Owens)</u> • Post to Canvas discussion forum |
| 1/ 2 9 | Team assignments | <ul style="list-style-type: none"> • Complete assignment 1 • Post to Canvas discussion forum (project ideas) |
| 1/ 31 | Team assignments | <ul style="list-style-type: none"> • Post to Canvas discussion forum (project ideas) |
| 2/ 5 | Making/the Maker Movement | <ul style="list-style-type: none"> • Watch: <u>We are all makers</u> (Dale Dougherty) • Skim & compare to the video: <u>Making Through the Lens of Culture and Power</u> (Vossoughi et al.) |
| 2/ 7 | Constructionism in & out of schools | <ul style="list-style-type: none"> • <u>Mindstorms Introduction</u> (Papert) • Watch: <u>Sugata Mitra: Build a School in the Cloud</u> • Optional (not required): <u>Hackers, Computers & Cooperation: A critical history of logo and constructionist learning</u> (Ames) |

Assignment 1

2/
12 Constructionism
& music

- Pianos not stereos (Resnick, Bruckman & Martin)
- Post to Canvas discussion forum

2/
14 Digital mapping I

- Post to Canvas Discussion forum (on mapping)
- **Pick one & review:** Social Explorer, Siftr, Storymaps

2/
19 Project
Discussion

- Bring 2-3 **peer reviewed articles** to class relevant to your project area (e.g., search and find articles from places like Review of Educational Research, ACM CHI, IDC, ACM Digital Library)
- Bring 3 educational technologies relevant/comparable to your project area

**Assignm
ent 2**

2/
21 Digital Mapping II
(Re-Shape)

- Watch Mobile City Science
- **Skim (read introduction carefully):** Counter mapping the Neighborhood on Bicycles (Taylor & Hall)

2/ **Design Review I**

2

6

- Prepare for design review 1

Design Review I

2/

Site visit to

2

design context

8

- Canvas Discussion Post

3/

Framing teaching

5

& learning at

scale

- **Watch:** [Fighting for Technology Equity](#) (J. Reich)
- **Watch:** [A Teaching Assistant Named Jill Watson](#) (A. Goel)
- **Skim:** [Learning @ Scale Conference](#) and [Artificial Intelligence in Education Conference](#)

3/

Online Learning

7

- Enroll & analyze 1 video from [Modern Poetry](#)
- Enroll & analyze 1 video (NOT an introduction or conclusion video) from any programming course on [Udacity](#)
- Post to canvas discussion forum

3/

Project

12

ideating/prototypi

ng

- Complete assignment 3

Assignm ent 3

- 3/ Interest driven &
14 connected
learning
- Read pgs 1-32 of connected learning report (Ito et al.)
 - Post to canvas discussion forum

3/18-3/22 Spring break

- 3/ Project
2 Prototyping
6
- Post to Canvas discussion forum
 - As a team, email professor with 1 paragraph update on your project prototype

- 3/ **Design Review II**
2
8
- Prepare for design review

**Design
Review II**

- 4/ PBL: A BME
2 Perspective
- TBD

- 4/ Education data
4 science
- Situating education data science special issue call
 - **Pick one:** the Data Science Education Dilemma OR the Quantified Self Movement & Educational Technology OR bring a better article from your own experiences and email it to your Professor

- | | | |
|----------|------------------------------------|---|
| 4/ 9 | Games & Education | <ul style="list-style-type: none"> • Bring the most meaningful game you have learned with in your life to class • Read one: <u>Video Games & Education</u> (Squire) OR <u>Glitch Game Testers</u> (DiSalvo) OR <u>Games & Learning: A Systemic Review & Meta-Analysis</u> (Clark) |
| 4/ 11 | Learning & design in museums | <ul style="list-style-type: none"> • Canvas discussion post • <u>Digital Exhibit Labels in Museums</u> (Roberts et al.) • <u>Personal Curation in a Museum</u> (Shapiro & Hall) |
| 4/ 16 | Project check in/implementation | <ul style="list-style-type: none"> • Work on project implementation, in class we will discuss projects and (hopefully) host professionals to provide feedback on select projects |

4/18 **Design Review III**

4/23 **Design Review III & Summing Up**

** Topics and readings are subject to change. Please always check the online schedule.*

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