Mobile learning

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**Educational Technology 0858-612**

**Course description.** Most of the world connects to the Internet from mobile phones, most of the time. Android tablets and iPads are filtering into schools — and the hands of children. Augmented reality and location based software offer new opportunities for context aware learning. Students carry significant computing power in their pockets. This course considers how mobile computing forces us to reconsider the time and place of learning.

**Keywords:** mlearning, mobile learning, android, ipad, tablet computing, AR, augmented reality

 1951, Dick Tracy’s wearable computer

## Goals & objectives

Students taking this course will develop an understanding of the ways that mobile technologies can be used for teaching and learning. They will also consider the impact of mobile computing on the field of education as a whole.

Students will:

* understand basic underlying mobile technologies, and their educational implications
  + network types and capacity
  + hardware speed, capabilities, and energy requirements
  + screen and display technologies
  + software development platform, including Web, SMS, and local “Apps”
  + GIS and location services, and how they can be used to augment learning
  + augmented reality technologies
* understand the specific strengths and constraints of mobile interactivity & design
* implement best-practices of teaching with wireless mobile technology
* reflect on how mobile computing challenges the traditional time and places of learning

## Course expectations

Mobile Learning is a blended course: we will have some in-person class meetings on Thursdays, and we will conduct other sessions entirely online.

* **post once, comment twice**, this will be the main online interaction for the course
  + every week you are required to post a **~500 word** [reading response](#reading-responses), by the **end of day on Sunday (e.g. midnight)**
  + for your reading response
    - refer closely to the reading
    - you *must* use the tags #reading response #sessionXX where XX refers to the class session/week
  + comments due by **end of day on Wednesday (e.g. midnight)**

## Weekly topics

*Readings, prompts for posts, and other assignments are available on the course website’s post for the week.*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| week | date | topic | reading | assignment due |
| 1 | 11/3/13 | Going mobile | Weiser, Traxler | (Reading Response #1) |
| 2 | 11/10/13 | Situated cognition & embodiment | Brown, Wenger, Naismith (2009, Billings | mobile blog (Response #2) |
| 3 | 11/17/13 | Constructionism and 1:1 computing | Papert, Penuel, OLPC, Negroponte | Where I’m From poem (Response #3) |
| 4 | 11/24/13 | Supporting the classroom | Pasnik, Wishart, Chaiprasurt | tech report (Response #4) |
| 5 | 12/1/13 | Mobile tech/political dissent | Castells, Mirzoeff, Morozov, Doctorow | mobile video interview (Response #5) |
| 6 | 12/8/13 | Mobile games for learning | Facer, Squire (2010) | podcast (Response #6) |
| 7 | 12/15/13 | Tablets & ereaders | Hillesund, Hu | (Response #7) |
| 8 | 1/5/14 | Apps4Ed | Mayer, Ritter | app Review (Response #8) |
| 9 | 1/12/14 | Mobile interfaces & design/ | Nielsen, van der Merwe, Apple Inc. | Final Project (Response #9) |
|  |  | Final Projects |  |  |

|  |  |  |  |
| --- | --- | --- | --- |
| Session | Date | Topic | Format |
| 1 | Aug 29 | Going Mobile | classroom |
| 2 | Sep 05 | Mobile First | online |
| 3 | Sep 12 | Tech reports | classroom |
| 4 | Sep 19 | Mobile computing and society | online |
| 5 | Sep 26 | Mobile cognition | classroom |
| 6 | Oct 03 | Situated cognition & embodiment | online |
| 7 | Oct 10 | 1:1 Computing | classroom |
| 8 | Oct 17 | Reading screens | online |
| 9 | Oct 24 | Workshop: App Inventor | classroom |
| 10 | Oct 31 | Augmented Reality | online |
| 11 | Nov 07 | Workshop: ARIS | classroom |
| 12 | Nov 14 | Internet of Things (IoT) | online |
| 13 | Nov 21 | Mobile Instr Design (Triangle Fire) | classroom |
| - | Nov 28 | Thanksgiving | *no class* |
| 14 | Dec 05 | Final project drafts | online |
| 15 | Dec 12 | Final project presentation | classroom |

## Assignments & grading

|  |  |  |
| --- | --- | --- |
| Assignment | Pct | Due |
| Reading responses | 20% | ongoing |
| Session leader | 20% | ongoing |
| Tech report | 20% | Sep 12 |
| App Review | 20% | Oct 24 |
| Draft Final Project | - | Dec 5 |
| Final Project | 20% | Dec 12 |

### Reading Responses

For most online weeks you will be asked to post a *reading response* on Moodle. This is the main online interaction for the online portion of this course. Your reading response should be approximately 500 words, but occasionally may call for more or less.

A good reading response:

1. specifically refers to the readings and other activities due that week: you will usually want to quote the texts and refer to specific passages,
2. your post will start a new thread in our discussion forum, it should have its own unique (and clever) title,
3. is not a *summary*, you should have a point of view and express your own synthesis, understanding, and opinion about the topic under discussion,
4. sometimes this will relate to courses you are taking now, your work, or your personal life,
5. sometimes this will relate to other things you have read or studied (this is okay, just give us a little bit of reference and a way to find more information),
6. is not a formal, academic post (you don’t need APA style references), but you should include links, titles, authors names, etc for outside readings/videos/works,
7. *is* intended for this course and your classmates so it should be **professional** in substance and tone, and
8. **is posted before the end of day on Tuesday (e.g. midnight), the week it’s due**

The general workflow for these online weeks follows:

1. (Thurs-Sun) Do course readings (including podcast)
2. (Sun-Tues) Write & post a reading response
3. (Tues - Thurs) Read all of the responses and post comments/discuss

In addition to your own response, you should check the discussion board daily. You are required to comment on at least two of your peer’s responses each week and you should respond to people who engage with you.

### Where I’m from

Using your mobile device, create a *multimedia poem*, “Where I’m from”, describing where you are from. The poem will consist of your written text and at least 5 images that you record with your phone (or tablet).

### Tech Report

Working in groups, students will present a “Tech Report” on an aspect of mobile technology. Groups will prepare 7-8 slides for a slidecast which they will post on their blog (teammates will link to/cross-post it). They will also post an annotated list of resources (e.g. websites, press, and scholarly articles) related to their topic. Annotations should only be a few sentences.

Example topics:

* wireless networks (wimax, mesh networks, p2p networks, 5G/6G)
* near field communications (NFC)
* device hardware (chips screens, etc)
* mobile payments (Google Wallet, Apple Pay, etc)
* GIS/GPS & location
* beacons, RFID, etc
* iOS and Android Platforms
* mobile media (video, audio, animations, web/html/css, etc.)
* speech recognition, text-to-speech, voice interfaces
* facial recognition & computer vision
* AR technologies (Goggles, biometrics, development platforms, etc)
* IoT (microboards, dev platforms, uses, sensors, etc)
* mobile computing and assistive technology
* wireless/mobile security

### Podcasts

Podcasts show up in much of the recent literature on mobile learning as an easy way for teachers to communicate to their students and families and as a way for learners to express their ideas. During this semester, you will create a podcast — an audio recording that you will upload to your Tumblr. The podcast is due for session 8. If you choose to work as part of a team on these topics (which is encouraged but not required), you can submit a group podcast (where everyone in the group speaks). Group podcasts will receive the same grade, one grade for the group. Alternatively, you can work individually. Whether you work individually or as part of a team, upload individual podcasts. When you upload your individual podcast, identify your team members so we know who they are and that you have produced the same content.

Your podcast must be between 8-10 minutes in length. You can record it on a mobile device but are not required to. I usually use a laptop computer, USB headset, and [Audacity](http://audacity.sourceforge.net/) for my audio recordings. The target audience for this podcast is members of our class. You should assume a base level of subject matter understanding of both mobile technology and mobile learning. Do not assume more than a general understanding of your topic (e.g. if your topic is specialized). It is strongly advised that you write a script and practice before creating your final recording.

Save your recording as an mp3 and upload it to your tumblr as an audio post.

This podcast assignment is worth 10 points total, allotted according to the following scale:

* Content (4 points): Is the content *important*? Is the listener likely to learn *new information* from this recording?
* Appeal (2 points): Is the podcast enjoyable and engaging? Would you like to listen to another recording by the same host/group? Consider how things like pace, humor, voice inflection, etc. contribute to the appeal of your podcast.
* Organization (2 points): Is the podcast easy to follow? Does it build in tension and details? Are there important questions left unanswered? Is irrelevant information included? Does the host properly introduce and summarize the topic?
* Clarity (2 points): Make sure that recording is loud enough to hear easily, that you speak clearly, etc. Practice enough that you avoid “um” and “like”, either edit out slacktime (dead air) or re-record your podcast so that it is tight.

*You will lose 2 points for not uploading your podcasts on time (e.g. Sunday at midnight).* You will receive zero points for this assignment if it’s more than 1 day late (e.g. Monday at midnight).

### mLearning Topic Report

For this project you will write a report about how mobile technologies are used in a specific domain of learning. Broadly, your report should focus on a subject area (e.g. mathematics, language learning, teacher professional development) or target group/setting (e.g. students with disabilities, higher education, museum education). Your report will include a written portion and then a visual presentation video where you demonstrate and discuss apps/mobile software related to your topic.

The written report should:

* describe the domain your researching, including an understanding of best pedagogical practices in general (without tech or mobile tech)
* include a literature review of relevant research in mobile learning (if you can’t find at least 3 good academic articles, you should choose a different topic)
* the lit review provides both a summary and a synthesis of the research

1. Introduction
2. Description
   * how it works
   * the intended audience
   * who publishes it
   * supporting screenshots or video
   * any other relevant information
3. Review the design
   * does it follow good design principles?
   * are there any obvious limitations?
   * does it support Universal Design, accessibility, and Universal Design for Learning (UDL)?
4. Discuss the educational value
   * how is it/could it be used for learning?
   * what would someone learn from using this app?
   * what implicit/explicit theories of learning does it embody?
     + refer to concepts from the readings: communities of practice, situated cognition, constructionism, cognitive apprenticeship, etc.
   * how does it compare to other mlearning technologies you are familiar with? again, refer to the readings and your own self-selected research
5. Conclusion

Use the tag [#app-review](http://tumblr.com/tagged/app-review)

### Final project

*Choose one type of project as your final project. Projects can be completed individually or in teams.*

**Mobile learning unit**

You will design a mobile learning unit. Specify your target audience and setting (museum, K-12, corporate training, online/informal). Explain the technology you will use in terms of learning goals and pedagogy; explaining why mobile technologies are a good match for your instructional design.

*Deliverables:*

1. Unit description
2. Learning goals
3. Lesson plans (3-5 different lessons). Lesson plans should include:
   1. materials needed for the lesson
   2. technology requirements
   3. procedures (i.e. if there’s a teacher, what does the teacher do? if it’s self-paced, what do the students do?)
   4. assessment/evaluation: how does the learner know that he or she has mastered the material?
4. Materials: any materials needed to complete the lesson

**App for learning design document**

Identify learning goals and design an app to help teach them. Consider how/when the app will be used and what technologies it will need (and if they are feasible). You will turn in a complete design for the app that includes:

1. Overview
2. “User stories” (short, 2-3 sentence narrative descriptions) illustrating how your app would be used
3. Mock-ups/sketches of user interface screens
4. Diagrams showing different information flows
5. Technology report indicating the necessary technologies and considerations for implementing your app
6. A test report, from at least one test session, where you ask potential users (a.k.a. friends or family) to try out your app – even if they are just trying out pen and paper prototypes, you can still get useful feedback
7. (optional) Any digital prototypes, artwork/design, etc.

**Mobile learning literature review**

A scholarly literature review offers a complete picture of the current published research on a topic. A *good* literature review is not just a summary of work done; it has its own thesis and synthesizes the existing body of research to formulate new hypotheses, point out discrepancies, and shed more light on the field of study, etc.

If you choose to write a literature review, you should expect to write a 15-25 page paper in APA format. In this field, you will probably need to analyze 15-20 different academic papers and reports to create your review. While the topic of the review is up to you, you should choose a narrow focus (e.g. touch interfaces with children) rather than a general focus (e.g. mobile learning as a field).

**Original research**

Rather than reviewing the existing literature (above), you may choose to conduct your own research. To do this for your Final project, you will conceive of, and execute, your own research study. You will turn in a report as your final project. For your report, you should follow the standard research paper format: introduction, astatement of hypothesis, review of previous work, methods, results/analysis, and conclusions.

You can research a topic of your choice, but to give you a sense consider these possible research topics/titles:

* Comprehension of physics concepts after adolescent learners play Angry Birds
* Mobile phone use in study collaboration among U.S. undergraduate students
* An ethnographic case study of middle school students using e-textbooks

**(unofficial) fieldwork**

If you would like to work with students using mobile devices, please discuss your project idea with the instructor. There may be some schools in Brooklyn and/or Long Island we can work with, either during the school day or after school. You could possibly teach a lesson and write up a report (or create a video portfolio) or do a series of observations, etc.

**Reflective journal**

Finally, you can write a reflective journal regarding your personal experiences with mobile learning during this course. Due to the fact that mobile learning can occur informally, this journal can include both your formal reflections about this course or any other ones you may be taking that include a mobile learning component as well as any informal, out-of-school learning that may occur. This should be a regular weekly journal. Each week should include 250-500 words of writing for that week (e.g. it may be one long reflection or a couple of shorter ones for that week). The final journal should have a least 10 entries for this ten week course (e.g. at least one entry per week). It should be approximately 2,500 to 5,000 words in length (e.g. 10-20 double-spaced pages).

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