



Integrating Digital Games in K-12 Classrooms

Semester: Fall 2011, August 22 – December 11

Credits: 3 Credit Online Course

Instructor: Young Baek

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Course Meeting Times

Lectures: 16 Weeks / 3 hours per week

Course Description:

In this course, students explore various genres of digital game play, to search for ways to adopt them into K-12 classrooms. This course includes an in-depth examination of research on digital gaming and the design of instructional games for use in the classroom using 2D and 3D tools.

Digital games play an important role in daily life, especially to the younger generation described as “digital natives”. This generation is born in a digitally rich environment, where games are part of daily life. Thus, digital games in the classroom are not difficult to find.

Course Objectives:

In this course, you will:

- Recognize the characteristics of digital games;
- Familiarize yourself with digital games in various genres;
- Design 2D and 3D games for learning;
- Integrate digital games into your classroom teaching;
- Explore research papers and case studies relating to digital games in K-12 classrooms.

Textbooks/Software for this course

Scratch@mit manuals <http://info.scratch.mit.edu/support>

Microsoft Kodu Game Lab – Classroom Kit / Kodu Manual <http://fuse.microsoft.com/project/kodu.aspx>

Whitton, N. (2009). *Learning with Digital Games: A Practical Guide to Engaging Students in Higher Education*. London: Routledge.

Scratch sensor board/Picoboard \$45, recommended, not required.

Course Schedule

The syllabus and schedule may be adapted depending on the needs of the class.

➤ Week 01

Topic: Introduction: Recognizing the Characteristics of Digital Games

1. Define digital games for learning.



2. Understand ten defining characteristics of games.
3. Discuss learning activities associated with games.
4. Understand the relationship between the characteristics of games and effective learning.
5. Familiarize yourself with web based games.

➤ **Week 02**

Topic: Understanding the pedagogy of digital games in classrooms

1. Explore a pedagogic rationale for the use of digital games for learning in K-12 classrooms.
2. Explore motivation and engagement in relation to the use of games in classrooms.
3. Explore learning theories in relation to use of games classrooms, for example; experiential learning, collaborative learning, problem based learning, and active learning.
4. Familiarize yourself with web based games.

➤ **Week 03**

Topic: Identifying types of digital games for learning

1. Identify the different types of digital games.
2. Identify the types of learning that can be facilitated with games.
3. Understand two emerging areas of games for learning.
4. Familiarize yourself with social network games.

➤ **Week 04**

Topic: Quest Based Learning

1. Understand quests and quest based learning.
2. Explore examples of quest based learning.
3. Understand the structure, components and flow of quest based learning
4. Familiarize yourself with quest based social network games.

➤ **Week 05**

Topic: Designing and Developing a digital game for learning

1. Understand and list pedagogic design considerations.
2. Develop a game concept specification.
3. Understand the benefits and drawbacks of creating games for learning.
4. Design a functional specification for a game.

➤ **Week 06**

Topic: Designing games with Scratch (1)

1. Gain an overview of the Scratch environment.
2. Understand how Scratch can be used in classroom environments.
3. Recognize, understand, and apply statements, expressions, conditions, and loops in Scratch.
4. Design a simple animation with Scratch.

➤ **Week 07**

Topic: Designing games with Scratch (2)

1. Recognize, understand, and apply variables, events, and threads in Scratch.
2. Utilize Scratch Sensor board to create simple media assets.
3. Design a simple game.
4. Design a Scratch Project.

➤ **Week 08**

Topic: Designing games with Kodu 3D Game Lab (1)

1. Gain an overview of Kodu 3D Game Lab is.



2. Understand Kodu 3D Bots and Objects.
3. Create a simple two bot game.
4. Analyze how various schools use Kudo Game Lab in their learning programs.
5. Draw a design template for a Kodu 3D game.

➤ **Week 9**

Topic: Designing games with Kodu 3D Game Lab (2)

1. Understand design patterns and recipes
2. Create game space designs, world design and game space patterns.
3. Refine Kodu programming skills.

➤ **Week 10**

Topic: Designing games with Kodu 3D Game Lab (3)

1. Understand programming concepts: create tables, pages and pages.
2. Understand and use game play patterns: pages and timer.
3. Apply game information design patterns: alarm and dialog.
4. Develop an iterative design process.
5. Design a Kodu project.

➤ **Week 11**

Topic: What are the issues of integrating digital games into the classroom

1. Understand models for the integration of digital games in the classroom.
2. Discuss ways to integrate digital games in the classroom.
3. Conduct a contextual analysis in order to adapt games for the classroom learning.
4. Suggest an appropriate integration strategy.

➤ **Week 12**

Topic: Using existing commercial digital games in K-12 Classrooms

1. Understand the characteristics of commercial off-the-shelf (COTS) games.
2. Understand the effects of COTS games on students' achievements.
3. Analyze the application of MMO (Massively Multiplayer Online) games in K-12 classrooms.
4. Discuss case studies of COTS games in K-12 classrooms.

➤ **Week 13**

Topic: Research in digital games in K-12 classrooms

1. Summarize and critique research on the effectiveness of digital games in K-12 classrooms.
2. Conduct research in order to analyze learning contexts in educational game design.
3. Research the application of games in the classrooms and discuss the applicability and practicability of integrating games into curriculum.
4. Review different research perspectives of digital games in K-12 classrooms.

➤ **Week 14**

Topic: Assessing and evaluating impact of digital games onK-12 learning

1. Assess the impact of digital games onK-12 learning.
2. Analyze issues relating to the assessment of digital games onK-12 learning.
3. Evaluate digital games for learning.
4. Create a user testing plan for instructors.
5. Evaluate the usability of games.

➤ **Week 15**

Topic: Case Studies of digital games in K-12 classrooms



1. Explore digital games in K-12 classroom case studies.
2. Create a report on K-12 digital game case studies.

➤ **Week 16**

Topic: Discussion

1. Share and discuss your final projects.

Major Assignments:

1. A game design plan.
2. A Scratch game (Project One).
3. A Kodu 3D game (Project Two).
4. A plan for integrating the game into the K-12 curriculum (Final project).
5. A game impact assessment plan and summary.
6. A game evaluation plan and form.

Grading Policy and Grading Scale:

- Assigned Game play – 100 points
- Project One: Create a Scratch game -80 points
- Project Two: Create a Kodu game - 100 points
- Final Project: Create a plan for integrating games into classroom teaching - 250 points
 - Create a rubric- 50 points
 - Game design- 50 points
 - Lesson plan - 150 points
- A game design plan - 50 points
- A game impact assessment plan summary - 50 points
- A game evaluation plan and form - 50 points
- Final Project Reflection: 20 points

Total: 700 points	
A ⁺	97% ~ 100% (679 ~ 700)
A	93% ~ 96% (651 ~ 678)
A ⁻	90% ~ 92% (630 ~ 650)
B ⁺	87% ~ 89% (609 ~ 629)
B	83% ~ 86% (581 ~ 608)
B ⁻	80% ~ 82% (560 ~ 580)
C ⁺	77% ~ 79% (539 ~ 559)
C	73% ~ 76% (511 ~ 538)
C ⁻	70% ~ 72% (490 ~ 510)
D ⁺	67% ~ 69% (469 ~ 489)
D	63% ~ 66% (441 ~ 468)
D ⁻	60% ~ 62% (420 ~ 440)
E	419 and below



Course Policies

Communication - I will respond to emails and/or phone calls usually within 24 hours on weekdays, but this may be longer on a weekend or with advance notice to students.

Posting of Assignments- Major assignments will be posted at least one week in advance of the assignment due date.

Assignment Submissions - Details about assignments will be posted to Moodle in the lesson plan, which will be available for download the week before. Information about projects, submission guidelines and rubrics will be updated throughout the course, and in response to feedback. Assignments will normally due for submission on Saturday night at midnight.

Feedback/grades- Students must be informed of their progress toward the final course grade at regular intervals. Assignments will be reviewed and evaluated by the instructor within one week after the posted assignment due date.

Late assignments- All assignments should be submitted at the designated time, unless pre-arranged with the instructor. The instructor is not responsible for any text or software that is not obtained in enough time to complete the assignments.

Technical Difficulties- on occasion, you may experience problems with accessing Moodle or class materials located within Moodle, with your Internet service, and/or other computer related problems. Do make the instructor aware if a technical problem prevents you from completing coursework.

BroncoMail - <http://helpdesk.boisestate.edu/email/broncomail/>

Moodle Assistance - <http://edtech.mrooms.org>

Academic Honesty -All students are required to abide by Boise State University's Student Code of Conduct on academic dishonesty. Assignments completed must be your original work and cannot be used in other courses in the EdTech program.

Reasonable Accommodations - Any student who feels s/he may need accommodations based on the impact of a disability should contact the instructor privately to discuss specific needs. It is advisable to contact the Disability Resource Center at 208-426-1583 located in the Administration Building, room 114 to meet with a specialist and coordinate reasonable accommodations for any documented disability.

Boise State's FERPA policy - The Family Educational Rights and Privacy Act (FERPA) affords students certain rights with respect to their education records.

<http://registrar.boisestate.edu/catalogs/ugrdcurrent/frontpages/chapter2/confidentiality.shtml>

Conceptual Framework

College of Education - The Professional Educator

Boise State University strives to develop knowledgeable educators who integrate complex roles and dispositions in the service of diverse communities of learners. Believing that all children, adolescents, and adults can learn, educators dedicate themselves to supporting that learning. Using effective approaches that promote high levels of student achievement, educators create environments that prepare learners to be citizens who contribute to a complex world. Educators serve learners as reflective practitioners, scholars and artists, problem solvers, and partners.

Department of Educational Technology Mission



□ The Department of Educational Technology supports the study and practice of facilitating and improving learning of a diverse population by creating, using, managing, and evaluating appropriate technological processes and resources. Believing technology is a tool that enhances and expands the educational environment, we promote the use of current and emergent technologies for teaching and learning in a dynamic global society. Educational technologists are leaders and innovators, serving in institutions of higher education, public or private school settings, federal, state, or local educational agencies, and educational organizations in the private sector.

AECT Standards

AECT Standards-Standards listed with assessments tied to standards. Check with the Adjunct Coordinator who will assist in aligning standards and assessments to course content.