

EDTECH 565 – Advanced Educational Game Design

3 Credit Online Course

Instructor Information

Name: Youngkyun Baek

Contact Information: 426-1023

Office Hours: Mon, Wed, Thu 10:00 – 14:00

Availability: By appointment, open to email or Skype etc.

Website: <http://edtech.boisestate.edu/>

Course Description

Digital games are fast becoming an integral part of professional education and training in education, medicine, business, and entertainment. Programming with a focus specifically on learning meets the demands and interests of many students in the educational technology field. In this course, focus is placed on developing digital games as opportunities for learning inside or outside of classroom environments. Emphasis could be focused on games for enhancing computational thinking skills. Students develop an advanced, fully playable and finished game for K-12 or training implementations, based on the knowledge and skills acquired in EDTECH 536 Digital Game Design for K-12 Classrooms.

PREREQ: EDTECH 531, EDTECH 536 or Instructor's consent.

Course Outcomes

Students read course related articles and the textbook to get a basic understanding of game creation in view of teaching and learning. At the end of this course, students will own and manage their games (villages) for teaching and learning in their subject area. In this course, students will:

- Design & Create a game-based environment for computational thinking exercises
- Create a design sheet for your game;
- Create your game in multiplayer mode;
- Implement your developed game for your students;
- Create a video of the game play.

Course Location and Login Information

This is an online course delivered in Moodle (<http://edtech.mrooms.org/>). The Moodle login page explains how to login to Moodle. Contact Moodle Support at moodlesupport@boisestate.edu if you have problems accessing Moodle. If you have forgotten your password, click the link below the login box, "lost password?" and you will be able to reset it.

Course Materials

Books:

- (1) Krauss, J. & Prottsman, K. (2017). Computational Thinking and Coding for Every Student, Corwin, A SAGE Company, Thousand Oaks, CA. **(Required)**
- (2) Richardson, Craig (2015). Learn to program with Minecraft, No Starch Press, Inc. CA. (recommended)
- (3) O'Brien, Stephen (2016). The Advanced Strategy Guide to Minecraft (2nd edition), Que Publishing. (recommended)

- Resources: (1) <http://education.minecraft.net>
(2) http://minecraft.gamepedia.com/Minecraft_Wiki
(3) <http://www.minecraftguides.org/mini-games/>
(4) <http://www.minecraftforum.net>
(5) http://services.minecraftedu.com/wiki/Main_Page

Software: Minecraft Education Edition (education.minecraft.net) or a tool of student's choice, including Minecraft, Scratch, Corona DSK, GameSalad, or Unity, Mac OSX or Windows, Camtasia or equivalents.

Internet Connectivity

You need an up-to-date computer with an Internet connection in this course.

Course Assignments and Final Project

Students are expected to spend 9-12 hours each week. Detailed information about each assignment is posted in Moodle. Check Moodle and your Boise State email regularly each week; announcements and course updates can be posted at any time.

The major assignments in the course are:

- Summaries and reflections on theories (2)
- Analysis of games written in your selected software (1)
- Task analysis of the chosen topic (1)
- Project 1 is to write a design sheet of the final project game (1)
- Programming assignments: basic interface and interactions (2)
- Project 2 is to develop interactions using the selected software (1)
- The final project 3 is to develop an advanced big game in group, integrated with programmed components during the course. The final project should be based on the selected design sheet by group members and created in their selected software. More detailed instruction will be delivered in the class.
- A video clip showing the gameplay of the student users (1)

Week	Assignments: Check Moodle for Details	Points	Due Date
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1	- Introduce Yourself - Assignment 1: Summary on definitions of computational thinking and its sub domains	10 30	Jan 11 Jan 14
2	- Assignment 2: Analysis of a Minecraft world you selected	50	Jan 21
3	- Assignment 3: Designing gaming activities on <u>decomposition and pattern recognition/matching or equivalents</u> of computational thinking in your subject area	70	Jan 28
4	- Assignment 4: Designing gaming activities on <u>abstraction and automation or equivalents</u> of computational thinking in your subject area	70	Feb 4
5	- Assignment 5: Designing gaming activities on <u>spatial reasoning or other equivalent activities</u> of computational thinking in your subject area	70	Feb 11
6	- Assignment 6: Creating a design sheet for your target game (an adventurous village in Minecraft) integrated with learning tasks and computational thinking	70	Feb 18
8	- Assignment 7: Continue to build your world (basic interface)	80	Mar 4
10	- Assignment 8: Continue to build your world (interactions)	80	Mar 18
11	- Assignment 9: Build your server for service to students	100	Apr 8
	Spring Break		
13	- Assignment 10: Submission of your draft	100	Apr 8
14	- Assignment 11: Review of two peers' worlds - Assignment 12: Complete your design sheet by adding lesson plan	60 50	Apr 15 Apr 15
15	- Assignment 13: Post your reactions to peer reviews	50	Apr 22
16	- Assignment 14: Submission of final project - Assignment 15: Submission of game play video - Course evaluation	150 100 10	Apr 29 Apr 29 Apr 29
	Total	1150	

AECT Standards

Course assignments are aligned to the Association for Educational Communications and Technology, http://c.ymcdn.com/sites/aeect.site-ym.com/resource/resmgr/AECT_Documents/AECT_Standards_adopted7_16_2.pdf

Assignments are listed by number (based on the assignments list above) in the following table under the standards they are aligned to.

	Standard 1 Content Knowledge	Standard 2 Content Pedagogy	Standard 3 Learning Environments	Standard 4 Professional Knowledge & Skills	Standard 5 Research
Creating	1	14		4,5,6	
Using	11,12,13,15			8,9,10,11	
Assessing/ Evaluating		7,11	2		
Managing	12	11	2,3	4,5,6,8,9,10,11	
Ethics					
Diversity of Learners					
Collaborative Practice	13		13	6,7,8,9,10,11, 12,13,14,15	
Leadership					
Reflection on Practice			2,3		
Theoretical Foundations	1			15	
Method					

Grade Scale

Final grades are based on the following scale.

Grade	Points Required
A+	97% ~ 100%
A	93% ~ 96%

A-	90% ~ 92%
B+	87% ~ 89%
B	83% ~ 86%
B-	80% ~ 82%
C+	77% ~ 79%
C	73% ~ 76%
C-	70% ~ 72%
D+	67% ~ 66%
D	63% ~ 66%
D-	60% ~ 62%
F	599 and below

Grading Cycle

For each assignment, a rubric will be provided. Based on the rubric, feedback will be given by the week after each assignment's due date.

Technical Difficulties

On occasion, you may experience problems accessing Moodle or class files located within Moodle, Internet service connection problems, and/or other computer related problems. Make the instructor aware if a technical problem prevents you from completing coursework. If a problem occurs on our end, such as Moodle or EDTECH2 server failure, then an automatic due date extension is granted.

Reasonable Accommodations

Students with disabilities needing accommodations to fully participate in this class should contact the Educational Access Center (EAC). All accommodations must be approved through the EAC prior to being implemented. To learn more about the accommodation process, visit the EAC's website at <https://eac.boisestate.edu/new-eac-students/>

Privacy Information

EDTECH courses involves online delivery and for some courses public display of assignments on websites or social media spaces. In the online course, your name, email address, and Moodle profile may be visible to others who have logged into Moodle. You are advised to familiarize yourself with privacy settings on Moodle or social media sites associated with the

course. Privacy settings can sometimes be adjusted to restrict certain types of information. Please contact your instructor if you have questions or concerns.

Academic Honesty

Students are expected to create original work for each assignment. Students must follow the <http://deanofstudents.boisestate.edu/student-code-of-conduct/> as well as <http://www.copyright.gov/> in this course.

In the event of academic dishonesty, a complaint is filed with the Boise State Student Conduct Office with supporting documentation. This complaint remains on file and actions may be taken against the student (e.g., loss or credit, grade reduction, expulsion, etc.).

Note: Instructors may append additional course-specific policies as needed.

Policy for Incompletes

Incompletes are not guaranteed. However, when they are given incompletes adhere to <http://registrar.boisestate.edu/grades/> as follows:

Instructors can enter a grade of I—for incomplete—if both of the following conditions are present:

- Your work has been satisfactory up to the last three weeks of the semester.
- Extenuating circumstances make it impossible for you to complete the course before the end of the semester.

In order to receive an incomplete, you and your instructor must agree to a contract stipulating the work you must do and the time in which it must be completed for you to receive a grade in the class. The terms of this contract are viewable on myBoiseState under your Student Center To Do List. The contract time varies as set by the instructor but may not exceed one year. If no grade other than incomplete has been assigned one year after the original incomplete, the grade of F will automatically be assigned. The grade of F may not be changed without approval of the University Academic Appeals Committee. As long as you have an incomplete in a class, you may not re-enroll in the class during another semester. A grade of incomplete is excluded from GPA calculations until you receive a final grade in the course. You cannot graduate with a grade of I(incomplete) on your record.

Course Schedule

Please note that students are expected to spend 9-12 hours *each* week on *each* EDTECH course during a regular academic session.

The instructor reserves the right to make changes to the schedule as needed.

Week	Start Date	Due Date	Major Activities: Check Moodle for Details
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Module 1				Getting Started			
1	Jan 8	Jan 14	<ul style="list-style-type: none"> • Read the course syllabus • Get an overview of the course • Introduce yourself • Install your software/sign up for Minecraft Education Edition • Download and play Tutorial World from education.minecraft.com • Summarize definitions of computational thinking and its pillars/sub-domains (Assignment 1) 				
2	Jan 15	Jan 21	<ul style="list-style-type: none"> • Play with one Minecraft world from World Library at education.minecraft.net • Analyze game tasks & learning contents and reflect on the world you played with (Assignment 2) • Think about a topic in your subject area for your final Minecraft world 				
Module 2				Task analysis connected with computational thinking			
3	Jan 22	Jan 28	<ul style="list-style-type: none"> • Read chapter 7 and 8 on decomposition and pattern recognition/matching • Design at least four gaming activities on decomposition and pattern recognition/matching in your topic (Assignment 3) 				
4	Jan 29	Feb 4	<ul style="list-style-type: none"> • Read chapter 9 and 10 on abstraction and automation • Design at least four gaming activities on abstraction and automation in your topic (Assignment 4) 				
5	Feb 5	Feb 11	<ul style="list-style-type: none"> • Read chapter 11 on spatial reasoning • Design at least four gaming activities among spatial reasoning, logical thinking and/or problem solving (Assignment 5) 				
Module 3				Designing & building your own world			
6	Feb 12	Feb 18	<ul style="list-style-type: none"> • Create structure and flow of adventure by putting all scenes together in your world • Complete your design sheet for your Minecraft village of an adventure game with learning tasks and computational thinking activities (Assignment 6) 				
7	Feb 19	Feb 25	<ul style="list-style-type: none"> • Review two design sheets of others • Build basic structure in your world 				
8	Feb 26	Mar 4	<ul style="list-style-type: none"> • Reply to your peers' review • Build basic interface (Assignment 7) 				

9	Mar 5	Mar 11	<ul style="list-style-type: none"> Continue to build your world (navigation and interactions)
10	Mar 12	Mar 18	<ul style="list-style-type: none"> Complete interactions in your world (Assignment 8)
11	Mar 19	Mar 25	<ul style="list-style-type: none"> Build your server for service to students (Assignment 9) Complete learning materials integration into the game
12	Mar 26	Apr 1	<ul style="list-style-type: none"> Spring Break
13	Apr 2	Apr 8	<ul style="list-style-type: none"> Submit your draft world (Assignment 10)
14	Apr 9	Apr 15	<ul style="list-style-type: none"> Review your two other groups' worlds (Assignment 11) React to peers' review Complete your design sheet by adding lesson plan (Assignment 12)
Module 4 Finalizing & Implementing your world of adventure			
15	Apr 16	Apr 29	<ul style="list-style-type: none"> Post your reactions to peer reviews (Assignment 13) Polishing and implement your final game with your students
16	Apr 30	May 6	<ul style="list-style-type: none"> Final project: Your complete world (Assignment 14) Submission and creation of video for gameplay (Assignment 15)

Boise State University Academic Calendar

Please refer to the Boise State University Academic Calendar for University dates and deadlines: <http://registrar.boisestate.edu/academic-calendar.shtml>

Graduate Catalog

Graduate Catalogs for present and prior academic years can be found online at: <http://graduatecatalog.boisestate.edu/>

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 at Boise State University is a diverse and international network of scholars, professional educators and candidates who:

- Lead research and innovations in online teaching and learning
- Model, promote, manage, and evaluate digital-age work and learning resources in educational environments
- Inspire creativity and expertise in digital media literacies
- Design and develop imaginative learning environments
- Empower learners to be evolving digital citizens who advocate cultural understanding and global responsibility
- Promote and pattern participatory culture, professional practice, and lifelong learning
- Forge connections between research, policy, and practice in educational technology