GEORGE MASON UNIVERSITY

COLLEGE OF EDUCATION AND HUMAN DEVELOPMENT

INSTRUCTIONAL TECHNOLOGY

EDIT 752

Design and Implementation of Technology-Based Learning Environments

Spring 2013

Wednesdays 4:30 – 7:10 pm

Fairfax Campus – Thompson Hall L0003

PROFESSOR(S):

Name: Dr. Brenda Bannan

Office phone: 703-993-2067

Office location: Thompson Hall L043

Office hours: by appointment

Email address: bbannan@gmu.edu

COURSE DESCRIPTION

1. **Prerequisites –** EDIT 732 or permission of instructor

2. **Course description from the University Catalog:** Students design and produce multimedia/hypermedia applications based on current theory and research in instructional design and cognitive science. Examines user needs, information models, structure, and media selection and uses to inform design and production of final project.

NATURE OF COURSE DELIVERY

This course will provide students with face-to-face and online learning opportunities to apply principles of instructional design, design research, user research, usability and evaluation and revision techniques to a real world learning technology design project. Students will work intensively in a

team-based setting to collaboratively and thoroughly design/re-design, produce, collect, evaluate, and analyze data related to the design and/or implementation of a real-world technology solution prototype geared toward a specific instructional or performance problem. The outcome of the course will be a viable and implemented user research plan that allows for several rounds of applied data collection, analysis and revision of a technology-based prototype project.

STUDENT OUTCOMES

This course is designed to enable students to:

1. understand the process of instructional design and development as applied to a real-world project;
2. apply instructional design, learning theories and interdisciplinary design principles to technology prototype development;
3. apply product development, evaluation, research and design research methodologies to instructional design and development
4. collect and analyze user data related to iterative instructional design and development
5. reflect on individual growth as an instructional designer in blog
6. contribute positively to the team's mission and goals and support of individual members and team members' professional growth and development
7. document individual's contributions to team's mission and goals
8. contribute to project management and accomplishment of goals
9. write research-project management plan
10. conduct usability or similar evaluation of technology-based prototype
11. conduct several research and/or evaluation methodologies (interviews, focus groups, log, day-in-the-life files, etc.)
12. analyze data from several evaluation or research cycles and apply to iterative design, development and revision of technology-based prototype
13. professionally present technology-based prototype

PROFESSIONAL STANDARDS:

This course adheres to the following Instructional Technology Program Goals and Standards for Programs in Educational Communications and Instructional Technologies established by the Association of Educational Communication and Technologies (AECT) under the National Council for the Accreditation of Teacher Education (NCATE).

1.1.2.a Demonstrate in-depth synthesis and evaluation of the theoretical constructs and research methodologies related to instructional design as applied in multiple contexts.

1.1.3.b Utilize the research, theoretical, and practitioner foundations of the field in the development of instructional materials.

1.1.4.a Conduct basic and applied research related to technology integration and implementation.

1.1.5.c Articulate the relationship within the discipline among theory, research, and practice as well as the interrelationships among people, processes, and devices.

1.3.a Identify multiple instructional strategy models and demonstrate appropriate contextualized application within practice and field experiences.

REQUIRED TEXTS:

1. Kuniavsky, M. (2003) Observing the User Experience: A Practitioner's Guide to User Research. Second Edition. San Francisco: Morgan Kaufmann Publishers
2. Nielsen, J. & Budiu, R. (2013). Mobile Usability. Berkeley, CA: New Riders.

COURSE REQUIREMENTS, PERFORMANCE-BASED ASSESSMENT, AND EVALUATION CRITERIA

A.Requirements

1. Design+Research Blog - Students will process class readings to include the text and their perspective on a related, supplemental resource or article that reflect current literature and research related to user-centered design, mobile usability, design research, and evaluation. Each student will post one major contribution of thoughts and reflections of the integration of the relevant weekly reading assignment (based on weekly readings at sign up) and at least one other related article/resource on topics related to design research, user research or usability. These contributions will be sent to the instructor via email for review and posting. Students will also be required to submit at least two minor commentaries on others students' major contributions. The major contribution for each student will consist of that student taking the lead on a related topic to our study and thoughtfully contributing and provoking interest among the class on:

- A major contribution of a topic related to thoughtful integration of current readings with associated article/resource (but not repetitive of it)

- Examples of notable design, design research, user research trends, usability testing and implementation

- Review and brief discussion of relevant articles, research, websites and personal contacts (if applicable), etc related to other students' contributions.

2. User Research-Project Management Plan – Each team member will contribute to the drafting and finalization of a user-research project management plan for the semester that includes further

development of the prototype, selection of user research methods that will be implemented in at least two formative evaluation cycles and overall, related, logistical planning and procedures that will enhance the prototype design through data-driven design-evaluation cycles. Each student will work with his or her team to successfully break down tasks as well as construct, negotiate and implement a project management plan across the semester that will be carried out by all team members who each will assume lead on one deliverable (see number 3 below) that will be posted to the course online system early in the semester.

3. Project Management by Lead Group Member – Collectively and individually, students will contribute on a rotating basis to the management of the project prototype. This may include assuming responsibilities for a specific task or deliverables determined agreed to by the group. Group members who are not lead are expected to contribute to the prototype designating their contribution, but the lead rotating group member's job is to assist the group in establishing schedules, writing, creating meeting agendas, setting up client meetings, gathering and analyzing data, design documents or any other overall contribution to the logistics of a positive project user research outcome. At the end of the semester, students will be expected to report their project management lead deliverable and how they contributed to each deliverable.

4. Production of Prototype - Collectively and individually, students will continue to contribute to producing quality instructional design for the established project prototype based on data-driven design decision-making. All changes of the prototype will be reported and demonstrated on the course online system with designation of lead group member and contributions of other group members.

5. Data Collection and Analysis – Collectively, each student will contribute to conducting user research and appropriate revisions to the prototype. The deliverables will include: the implementation of two rounds of data collection and analysis that may include any of the following methods: competitive research, focus groups, object-based techniques, field observations, diary studies, usability tests, surveys, qualitative data analysis, etc. There will be two separate rounds of data collection and separate analyses implemented with resulting, identified logical and carried out revisions to the prototype. Each round will be summarized in a report or briefing submitted on the course system with designation of lead group member and contributions of other group members.

6. User Research Presentation - Each group will present their user research, their data collection, analyses and prototype revisions from rounds 1 and 2 for the class and clients, if available. Each report will consist of an overview of two rounds of evaluation, results, analysis and associated revisions (screen shots) to prototype and highlight the group's process/accomplishments and progress in user research throughout the semester.

B. Performance-Based Assessments - This course includes multiple performance-based assessments: project management, production of prototype, user research data collection and analysis, user research presentation to classmates and client.

C. Criteria for evaluation - Assessment of each performance assessment is guided by the rubric below. Given the nature of the assignments and the authentic projects involved in this course, the assessment process in this course will be based upon group process model in evaluating individual performance. For each deliverable/assignment groups will provide detail on the roles and responsibilities that the individual has assumed on each of the assignments. Students should indicate which assignment that they were the lead on and detail the contributions they have made to each of the assignments in their individual portfolios. In addition, students will evaluate their own and group members' overall contributions to the design and development of the instructional module at the mid-point and end of the semester. This evaluation form will be completed using the rubric below to provide additional data on the performance on the identified criteria, however, the instructor will determine the grades.

The following rubric will be used to evaluate individual performance as part of the project group. Students use this framework to assess their own and their peers' performance. The instructor(s) also evaluate students based on this rubric.

	Exceeds Expectations (E = Exceeds Expectations) A level work	Meets Expectations (M = Meets Expectations) B level work	Below Expectations (B = Below Expectations) C level work
Course Readings/Blog contributions	Significant evidence and outstanding contributions to course that demonstrates that student read, synthesized and applied concepts from readings as well as integrated outside resources on user research and design research.	Evidence that student read, synthesized and applied concepts from readings as well as integrated outside resources on user research and design research.	Little or no evidence that student read, synthesized and applied concepts from readings or outside resources on user research and design research.
User Research-Project Management Plan	Significant contribution to the team generated, user research-project management plan. Making all efforts to follow plan, discuss any changes if necessary with all members, and successfully work with and negotiate with team members implementing plan across the semester.	Thoughtful contribution to the team generated, user research-project management plan. Making efforts to follow plan, discuss any changes if necessary with all members, and successfully work with and negotiate with team members implementing plan across the semester.	Little or no contribution to the team generated, user research-project management plan. Little evidence of individual effort to follow plan, discuss any changes if necessary with all members, and successfully work with and negotiate with team members implementing plan across the semester.
Project Management Lead Group Member and Contributions to Group Project Process (self, peer, instructor)	Demonstrated, organized and effective management of one necessary deliverable or task relevant to user research documented on online system. Full participation in group meetings and communication, showed exceptional effort on individual tasks, exceeded individual contribution and was instrumental in leading group forward, respectfully acknowledged and integrated all members' skills in project	Demonstrated management of one necessary deliverable or task, relevant to user research documented on online system. Participated in group meetings and communication efforts, delivered on individual responsibilities, made valuable individual contributions to group process, contributed to progression of project.	Little or no demonstrated management of one necessary deliverable or task relevant to user research documented on online system. Noted absences at group meetings or communication, late or missing items under individual responsibility, hindered progress of project, did not adhere to group norms and did not treat members ideas and

	development process		opinions with respect.
Production of Prototype	Significant progression of production of prototype evident with significant revisions that result from data-driven user research. Group member lead and participants documented contributions on online course system.	Progression of production of prototype evident with revisions that result from data-driven user research. Group member lead and participants documented contributions on online course system.	Little or no progression of production of prototype evident with revisions that result from data-driven user research. Group member lead and participants documented contributions on online course system..
Data Collection and Analyses	Each group member significantly contributed to both rounds of data collection, analysis and preparation for revision of prototype. Group lead arranged for contacts but provided evidence on wiki that all members contribute to data collection and analysis as well as writing report.	Each group member contributed to both rounds of data collection, analysis and preparation for revision of prototype. Group lead arranged for contacts but provided evidence on wiki that all members contribute to data collection and analysis as well as writing report..	A group member demonstrates little or no contribution to both rounds of data collection, analysis and preparation for revision of prototype. Group lead does not arrange for contacts and does not provide evidence on wiki that all members contribute to data collection and analysis as well as writing report..
User Research Presentation	Highly professional, well-coordinated presentation of user research rounds and resulting prototype revisions.	Professional, coordinated presentation of user research rounds and resulting prototype revisions.	Non-professional, not well-coordinated presentation of user research rounds and resulting prototype revisions.

D. Grading Scale

Requirements	Percentage
Course Readings-Blog	10%
User Research-Project Management Plan	10%
Project management effort	10%

Production of Prototype	20%
Data Collection and Analysis Rounds	40%
User Research Presentation	10%

GMU POLICIES AND RESOURCES FOR STUDENTS
a. Students must adhere to the guidelines of the George Mason University Honor Code [See **http://oai.gmu.edu/honorcode/**].

b. Students must follow the university policy for Responsible Use of Computing [See **http://universitypolicy.gmu.edu/1301gen.html**].

c. Students are responsible for the content of university communications sent to their George Mason University email account and are required to activate their account and check it regularly. All communication from the university, college, school, and program will be sent to students solely through their Mason email account.

d. The George Mason University Counseling and Psychological Services (CAPS) staff consists of professional counseling and clinical psychologists, social workers, and counselors who offer a wide range of services (e.g., individual and group counseling, workshops and outreach programs) to enhance students' personal experience and academic performance [See **http://caps.gmu.edu/**].

e. Students with disabilities who seek accommodations in a course must be registered with the George Mason University Office of Disability Services (ODS) and inform teir instructor, in writing, at the beginning of the semester [See **http://ods.gmu.edu/**].

f. Students must follow the university policy stating that all sound emitting devices shall be turned off during class unless otherwise authorized by the instructor.

g. The George Mason University Writing Center staff provides a variety of resources and services (e.g., tutoring, workshops, writing guides, handbooks) intended to support students as they work to construct and share knowledge through writing [See **http://writingcenter.gmu.edu/**].

PROFESSIONAL DISPOSITIONS
Students are expected to exhibit professional behaviors and dispositions at all times.

CORE VALUES COMMITMENT
The College of Education & Human Development is committed to collaboration, ethical leadership, innovation, research-based practice, and social justice. Students are expected to adhere to these principles. **http://cehd.gmu.edu/values**

For additional information on the College of Education and Human Development, Graduate School of Education, please visit our website [See http://gse.gmu.edu/]

PROPOSED CLASS SCHEDULE

WEEK	IN CLASS ACTIVITIES	OUT OF CLASS ACTIVITIES
1 Jan 23 (F to F)	Overview of Syllabus: Schedule and Requirements Sign up for week of blog question/discussion lead Research Questions and Methods Overview Meet as groups, identify issues and questions, draft production prototype goals	- Read Goodman, Kuniavsky, et al. Chapter 1-3 - Read Nielsen & Biudu, Chapters 1 & 2 - As a group, re-examine prototype, feedback from last semester and draft revision/production goals for prototype for the next month - begin to think about and plan for connecting with target audience members related to user research cycles - begin to implement any changes to prototype based on feedback from last semester and prepare prototype for initial user research cycle - experiment with Blackboard Collaborate for team meetings
2 Jan 30 (online)	User/Design Research Overview Mobile User Research Approach and Strategy Briefly comment on Design Research blog on thoughts and impressions of user research after doing readings.	- Read Read Goodman, Kuniavsky, et al. Chapter 4 - Read Nielsen & Biudu, Chapters 3 - begin to implement any changes to prototype based on feedback from last semester and prepare prototype for initial user research cycle -- Begin thinking about user research/project management plan - REVIEW examples of user research/project management plans from last year - Post initial draft of potential user research goals

		and questions in group area - Determine accessible target audience and begin to recruit audience members
3 Feb 6 (online)	Research Planning User Research Goals and Questions Designing for the Small Screen	- Read Read Goodman, Kuniavsky, et al. Chapters 5-6 - Read Nielsen & Biudu, Chapters 4 - Revise initial user research goals and research questions - Associate each goal/questions with potential user research method - Continue work on enhancing and fleshing out prototype based on last semester feedback to prepare for user research testing - Determine accessible target audience and begin to recruit audience members, discuss ideas and progress during next class
4 Feb 13 (F to F)	Overview discussion of iterative development and potential applied user research methods User Research/Project Management Plan Competitive Research Recruiting and Interviewing Writing for Mobile Work on production effort /research-project management	- Read Read Goodman, Kuniavsky, et al. Chapters 7-8 - Read Nielsen & Biudu, Chapters 5 - Continue work on revisions to production prototype - Work on user research-project management plan - Intersect initial project management plan with user research goals, questions, and methods - Identify and recruit target audience members

5 Feb 20 (online)	Object-based Techniques Dialogic Research and Generative Techniques Tablets and E-Readers Confirm selected user research methods to inform prototype development-revision	- Read Goodman, Kuniavsky, et al. Chapter 9 - Read Nielsen & Biudu, Chapter 6 - Work on user research/project management plan - Continue work on prototype to get in shape for further formative evaluation testing - Confirm recruitment of target audience members and prepare materials for user research sessions
6 Feb 27 (F to F)	Field Visits: Observation Research Review Usability Testing resources and refine broad plan Kirkpatrick, other formative evaluation frameworks	- Read Goodman, Kuniavsky, et al. Chapter 10 - pilot test materials for user research sessions
7 Mar 6 (online)	**User Research-Project Management Plan DUE** Diary Studies Round 1: Data Collection	- Read Goodman, Kuniavsky, et al. Chapter 12 - Implement User Research Plan - Begin data collection and analysis - Report results and related prototype revisions on online system - Cycle of development/revision of prototype based on analyzed results begins
8 Mar 13	***SPRING BREAK***	***SPRING BREAK***

9 Mar 20 (online)	**SELF AND PEER EVALUATIONS DUE** Usability Tests Surveys Round 1: Data Collection and Analysis Analysis	- Read Goodman, Kuniavsky, et al. Chapter 13 - Data Analysis -Development-Revision of prototype based on results
10 Mar 27 (F to F)	Global and Cross-Cultural Research Round 1: Finalize and Flesh out Report	- Read Goodman, Kuniavsky, et al. Chapter 14 - Round 1: Data Analysis and Revisions to Prototype - Prepare for Round 2: Data Collection - Recruit and implement data collection
11 April 3 (online)	**Reported Results on Round 1 and Associated Revisions DUE on Wiki** Published information and consultants Round 2: Data Collection begins	- Round 2: Collect Data - Read Goodman, Kuniavsky, et al. Chapter 15-16
12 April 10 (F to F)	Round 2: Data Analysis Lightweight Qualitative Data Analysis Usage Data/Feedback Kirkpatrick's Levels Group work time for data analysis Report out on Round 1 Results	- Read Goodman, Kuniavsky, et al. Chapter 17-18 - Round 2: Data Analysis and Revisions to Prototype

13 Apr 17 (online) AERA	Insights as Deliverables/Reporting Round 2: Data Collection and Analysis Begin Work on user research presentation	- Round 2: Data Analysis and Identified Revisions to Prototype
14A Apr 24 (F to F)	Round 2: Data Collection and Analysis Groupwork in Data Analysis and Identified Revisions of Prototoype Prepare for final presentation of user research	- Round 2: Data Analysis and Implemented Revisions to Prototype - Work on Reporting Results from Round 2 - Work on Final Presentation
15 May 1 (online)	**Reported Results on Round 2 and Associated Revisions DUE online** Prepare for final presentation of user research	- Work on Final Presentation
16 May 8 (F to F)	**SELF AND PEER EVALUATIONS DUE** **FINAL Presentation DUE**	**Congratulations!**