Syllabus

User Interface Design & Implementation - CMSC 475
Spring 2021
11:00 am - 11:50 am, MWF
Course website: Lecture via YouTube live, grades via Canvas, communication via Slack,
assignments via Gradescope, in-class activities via Mentimeter
3.00 Credits

Instructor
Dr. David C. Shepherd, Associate Professor, shepherdd@vcu - Primary lecturer
Office Hours: M, 3-4pm, Slack

Course description

This course will be a hands-on introduction to the design and construction of user interfaces. Specifically students will be exposed to:

- *UI Guidelines, such as Eclipse's UI Guidelines, and learn how to apply them when making their own UIs.*
- *Wireframing, using apps like Balsamiq Wireframes, to quickly sketch a proposed UI for getting feedback.*
- *Prototyping, using apps like Proto.io, to quickly create an almost-working UI for getting feedback.*
- *Creating working UIs, using frameworks like C#'s WPF or Android Studio, to quickly create working UIs to conduct informal user studies.*
- *Conducting in person user studies, via screen recordings or video recordings, in order to identify common pain points.*
- *Accessibility (and other) standards, why they are important, and how they impact developers' work.*

ABET Criteria

2. Design, implement, and evaluate a computing-based solution to meet a given set of computing requirements in the context of the program's discipline.

5. Function effectively as a member or leader of a team engaged in activities appropriate to the program's discipline.

3. Communicate effectively in a variety of professional contexts.

Course Objectives

At the end of this course students should be able to create a user interface for a given task that follows UI best practices. This implies that they have the necessary skills to wireframe, prototype, create working code, conduct user studies, etc. Students will be evaluated by the quality of the user interfaces that they are able to produce for this class.

<u>Course Policies and Expectations</u>

Students should attend every class. In most classes we will conduct a learning activity, such as drawing a UI on paper or conducting a user study of a mobile app. SOME of these activities will be graded, and thus, missing class means taking a chance on missing a graded learning activity. For many of these learning activities students will have to install software on their laptop prior to class. Please see the syllabus for the necessary software for upcoming class sessions.

Late assignments are accepted, up to one day late, at a penalty of 50% off.

Email should only be used for emergencies (e.g., missing an exam due to hospitalization). Otherwise, all communication should be directed towards Slack (channel #uxclass2021 in the vcucs workspace). If you have a question it is likely that someone else has the same question, so post it there. Slack will be checked at least twice a week by the instructor.

<u>Materials and Access</u>

Any required materials will be linked to from the syllabus. Grades will be posted on Blackboard. Some assignments will be submitted via GradeScope. Mentimeter will be used in class for activities. Slack (vcucs.slack.com uxClass2021) will be the primary communication.

<u>Assignments and Grading Procedures</u>

In-class activities: 40%
Class project: 40%
Mid-term: 10%
Final: 10%

Activities will happen in class, such as questions asked via Mentimeter or examples of good / bad UI submitted via GradeScope. Some of these activities will be graded, some will not. This will be announced in class, for each class, when the activity is assigned.

The final **project** will be to make a mini golf scorecard app for Android phones. It can be created using *any* technique you prefer; I will only review the UI, not the code. I recommend considering Android Studio. Note that there will be several deliverables during the semester related to this project. However, as an alternative, **the first three groups that can get 1,000 or more**

*downloads from Google Play (without cheating) **will automatically receive an A for the entire course**, assuming that the app also passes a basic UI review (i.e., the UI is not horrible). Any group receiving 1,000 downloads will receive +5% on each students' final grade. Note that students have until the last day of class to demonstrate downloads.*

*The **Mid-term** and **final** will be a take home exam. Students will have 24 hours to complete it.*

Grading scale: 100-90 A, 89-80 B, 79-70 C, 69-60 D, 59-0 F

***Attendance policy**: attendance is not required. However, note that in-class activities account for 40% of your overall grade.*

<u>Academic Integrity</u>

Students should visit http://go.vcu.edu/syllabus and review all syllabus statement information. The full university syllabus statement includes information on safety, registration, the VCU Honor Code, student conduct, withdrawal and more.

<u>Course Schedule or Outline</u>

Date	Lecture	Project deliverables - due beginning of class
Jan 25	*Intro & Overview*	
27	*Wireframes / sketching*	Form groups - due at end of class 1% of project grade
29	***Paper sketch***	
Feb 1	*Nielsen's 10 Heuristics - 1*	
3	*Nielsen's 10 Heuristics - 2*	
5	***Paper flowchart (2-3 states)***	Wireframe of main page of app 5% of project grade
8	*Prototyping*	
10	*User Study Intro*	Critique of another group's wireframe 5%

12	*Paper flowchart (full)*	
15	*Branding guidelines*	Full mockup Due electronically Include team name 10%
17	*UI guidelines*	
19	**UI tool sketch**	
22	*Color guidelines*	MVP Due electronically Include team name 19%
24	*Accessibility*	
26	**First page design - UI Tool**	
Mar 1	*User Study in-depth*	
3	*Aesthetics*	Version 0.1 Due electronically Include team name 20%
5	*Main page design - UI Tool*	
8	*Schneiderman's rules - 1*	
10	*Schneiderman's rules - 2*	Version 0.2 User study feedback (of any kind, but must be useful) and 1 minute walk-through video Due electronically Include team name 20%
12	**UI tool flowchart**	
15	*MIDTERM*	*MIDTERM*
17	*VR apps, Voice apps*	
19	**UI tool clickable flowchart**	

22	*Augmented reality*	
24	*Web vs Phone*	
26	***Voice app w/ paper***	
29	*Keyboards*	
31	*Gestures*	
April 2	***Voice app w/ prototype***	
5	*Fonts*	
7	*Internationalization*	
9	***Voice app deployed***	
12	*Information visualization*	
14	*End-user programming*	
16	***Web app sketch***	
19	*Learning / tutorials*	
21		*Version 1.0* 1. *Walkthrough video (2-5 min)* a. *Must show app working as you move in the real world* 2. *Advertising video (1 min or less)* *Due electronically* *Include team name* *20%*
23	***Web app UI tool***	
26	*UX Laws*	
28	*UX Laws*	
30	***Web app clickable***	
May 3	*Project showcase I*	

5	Project showcase II	Extra Credit: Downloads

Technology Support

Engineering & VCU Resources:

·   **Personal Computer Requirement**: For our current system requirements and recommendations, see: https://egr.vcu.edu/admissions/accepted/computer-recommendations/

·   **Remote Access to Public Lab computers**: To provide remote access, we use the Citrix App2Go environment to provide full and exclusive control over "the next available" computer in the lab. See this link for more details: https://wiki.vcu.edu/x/Oa0tBg

·   **VCU provides a lot of software available for students to download to their personal computers.** For a list of software and the specifics for each, see: https://ts.vcu.edu/software-center/. In particular, Microsoft Office is available free to students.

·   **VCU is transitioning to Canvas.** See the Canvas Student Guide at this link: https://community.canvaslms.com/t5/Student-Guide/tkb-p/student

·   **For IT help in the College of Engineering**, see our Wikipedia for "student" help at: https://wiki.vcu.edu/display/EGRITHELP

·   **VCU's Technology Services (TS) provides support for "central IT" services**. If you have a technical issue with any of the following services, please submit a ticket with VCU Technology Services at https://itsupport.vcu.edu/ or call (804) 828-2227. VCU TS maintains and supports these services and will be able to provide assistance to you.

> o VCU Cisco VPN
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> o 2Factor or Dual Authentication (DUO)
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> o Blackboard/Canvas
>
> o Gmail or other Google Apps
>
> o Zoom videoconferencing
>
> o VCU App2Go (Application server)
>
> o Resetting VCU password

· **For IT issues related to College of Engineering teaching and research, email egrfixit@vcu.edu**

· **For loaner Chromebooks for emergency purposes:** See this link for more details: https://vcutsmpc.getconnect2.com/