Syllabus

User Interface Design & Implementation - CMSC 475
Spring 2022
11:00 am - 11:50 am, MWF
Course website: Lecture in class, grades via Canvas, communication via Slack, assignments via
Gradescope, in-class activities via Mentimeter
3.00 Credits

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

<u>Course description</u>

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 [Figma](), 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.*

<u>ABET Criteria</u>

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.

<u>Course Objectives</u>

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.

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<u>Course Policies and Expectations</u>

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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.

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<u>Materials and Access</u>

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Any required materials will be linked to from the syllabus. Grades will be posted on Canvas. 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.

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<u>Assignments and Grading Procedures</u>

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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 an app for Android phones. It will be an implementation of the* [Squares game](#)*. 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.*

The **Mid-term** and **final** will be an in-class exam that requires a laptop. Please discuss with me if you do not have a laptop.

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 19	1	Intro & Overview	
21	2	Wireframes / sketching	Form groups - due at end of class 1% of project grade
24	**3**	**Paper sketch**	
26	4	Nielsen's 10 Heuristics - 1	
28	5	Nielsen's 10 Heuristics - 2	
31	**6**	**Paper flowchart (2-3 states)**	Wireframe of main page of app 5% of project grade
Feb 2	7	Prototyping	
4	8	User Study Intro	
7	**9**	**UI tool sketch**	Critique of another group's wireframe 5%

9	10	*Branding guidelines*	
11	11	*UI guidelines*	
14	**12**	**UI tool sketch**	Full mockup Due electronically Include team name 10%
16	13	*Color guidelines*	
18	14	*Accessibility*	
21	**15**	**First page design - UI Tool**	
23	16	*User Study in-depth*	
25	17	*Aesthetics*	
28	**18**	**Design**	MVP Due electronically Include team name 19%
Mar 2	19	*Schneiderman's rules - 1*	
4	20	*Review projects*	
14		**Review**	
16		**MIDTERM**	*MIDTERM (Gradescope)*
18		*Review projects*	
21	**21**	**Studio**	
23	31	*Augmented reality*	
25	27	*Web vs Phone*	
28	**25**	**Voice app w/ paper**	Version 0.1 Due electronically Include team name 20%
30	23	*Keyboards*	
April 1	30	*Gestures*	

April 4	*25a*	*Voice app w/ prototype*	
6	*22*	*Fonts*	
8	*26*	*VR*	
11		**Voice app deployed**	
13	*24*	*Metrics*	
15	*31*	*End-user programming*	
18		**Web app sketch**	
20		*Learning / tutorials*	
22		*Navigation*	*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%*
25		**Web app UI tool**	
27	*28*	*UX Laws*	
29	*28*	*UX Laws*	
30		*Project showcase I*	
May 2		*Project showcase II*	

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/