UNSW SYDNEY

Faculty of Engineering

School of Computer Science and Engineering

COMP4511 User Interface Design and Construction

T3, 2020

Course Staff

- Dr. Sasha Vassar, Lecturer
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- Please use the Teams Forum channel for course related questions.
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Course Details

- 6 units of credit (UoC)
- Pre-requisites
  - A mark of 70 in COMP3511/9511
  - A mark for 65 in COMP2911/COMP9021
- The lectures (Monday 12-2pm, and Tuesday 9-11am) are common for undergraduates and postgraduates. Lectures on Monday will focus on UX issues, and Tuesdays will be reserved for learning React Native
- Each student should be enrolled in one of the designated 2-hour tutorial/laboratory time slots
- Tutorial/laboratory will start in Week 2 and go through until Week 10.
- Tutorial/laboratory and project checkpoints (in Week 4, 5, 7 and 10) will take place during your scheduled lab time

Course Summary

- This is a project-based course, the project will run for the duration of the semester and will make up a big proportion of your final course mark. Checkpoints throughout the semester will ensure that you are meeting the deadlines and proceeding adequately through the project lifecycle.
- Lecture topics are summarised in the Course Schedule below.
- The course includes topics relating to Requirements, Design, Prototyping and Evaluation within the User Centred Design process.
- It is assumed knowledge that you are already able to conduct basic usability evaluations (based on the skills acquired in COMP3511/9511)

- This course will take you through a basic cycle of Paper Prototype, Electronic Prototype and Beta version of an app
- Due to the COVID restrictions currently in place, and limited access to the labs, it has been decided to proceed with React Native (so both Windows and Mac users can be accommodated equally) as the language.

Course Aims

- to develop your skills in the area of user-centred design, with focus on mobile design
- to develop and implement techniques/heuristics necessary to evaluate systems for their usability
- to develop further the capability of executing a user-centred design process
- to give you experience in using paper-based design techniques, including software systems designed for paper-based prototyping techniques
- to give you experience in using electronic-based prototyping techniques, including software systems designed for electronic prototyping techniques
- to give you a basic grounding and understanding of Swift to develop applications
- to give you experience in the formal evaluation of user interfaces
- to ensure that your design work includes user needs analysis
- to give you experience of user centred design tools, methods, and techniques
- above all, maintain a real-world perspective to applying this knowledge in industry

Learning Outcomes

This course is designed to further develop student understanding about the theories and principles behind user interface design. The students are expected to undertake a semester long project, where they will gain familiarity with both low- and high-fidelity prototyping techniques and will also be introduced to Swift to assist with the development of a functioning prototype or an app. At the completion of the course, students should be able to:

- Prepare a project plan that is based on user-centred design principles and then carry out activities to design, evaluate and refine user interaction based on iteration.
- Develop the skills necessary to create a user interface evaluation report (written and oral) that critiques a user interface.
- Develop design skills, primarily using paper for rapid solutions, and consolidate individual designs to understand the importance of design decisions and the selection process.
- Develop design skills, to construct high-fidelity prototypes based on previous paper-based design activities
- Prepare and carry out usability walkthroughs to evaluate both paper and electronic based designs for their usability, and then create structured reports that quantify the issues discovered from evaluation activities.
- Develop skills with React Native to implement their prototype into a functioning beta version of an app.
- Ability to critically evaluate current research in the UX domain and apply it to projects

- To develop an awareness of user-centred design tools, methods, and techniques and maintain a real-world perspective in order to be able to apply this knowledge in industry.

Assumed Knowledge

It is assumed knowledge for this course that you are already familiar with the basic concepts of user centred design cycle, heuristic and cognitive evaluations, paper prototyping, and usability evaluations. Additionally, you must be able to write a number of usability-based documents, including consent forms, questionnaires, usability test plans, etc. (learnt in COMP3511/9511). Students are also expected to be familiar and comfortable working with OO concepts. Because students come from a variety of backgrounds, with different knowledge bases, the assumed knowledge is not extensive. The course does, however, involve some reading that will be based on industry experience and standards.

Teaching Rationale

- This course has a heavy practical component in the form of a semester-long project, and introduces you to the programming aspects of user interface software.
- Whilst we do not assume that you have developed apps before, we do require that you be competent in object-oriented principles and programming techniques. We will be using React Native as our language.
- Usability evaluation is a key component of the user-centered design lifecycle, so your peers in the class will be providing you with feedback to improve your designs.
- We build on the user centred design principles introduced in COMP3511/9511 expecting that you will conduct user interviews to better understand requirements, develop paper and electronic prototypes of your design and conduct usability walkthroughs of your designs BEFORE you write code
- Your project is to develop an interactive application in the domain that is of interest to you. We believe that by helping you create something that you are passionate about then your desire to excel and learn far outweighs completing a project for which you have no interest.
- We try and train software aware students to be more than just programmers

Teaching strategies

Every week, starting in Week 1 we will have lectures on Monday and Tuesday. We will use the Monday lecture to explore UX and UI methods and gain further understanding of concepts within the space. On Tuesdays, we will focus on playing with React Native and putting together some example apps. The lectures will consist of lecture material, design diary and design exercises and activities. We expect all students to engage and participate with the content, ask questions and use this time to solidify understanding of material. I will be running continuous feedback throughout the trimester, so that we are better able to implement changes that you want to see straight away. Please remember that you will get a lot out of this course if you engage with the content and with us and ask lots of questions ☺

Each week you will be required to participate in your timetabled tutorial/studio class. We are still unsure about whether face-to-face labs will go ahead, we are currently considering very small group meetings. You can find more information about UNSW's safe return to campus strategy here: **https://www.covid-19.unsw.edu.au/safe-return-campu...** You will be notified if this goes ahead. These will be held in the CHIL (Computer Human Interaction Laboratory) G13-K17, ground floor Mac lab (if they go ahead). If you are feeling unwell or showing any symptoms, please stay at home: **https://edtech.eng.unsw.edu.au/c19mess/comms.html**

You are welcome to either keep a digital design diary using OneNote on the Teams app, or use a physical design diary and scan your pages in to upload to OneNote. Some of the tutorial time will be dedicated to project work under the guidance of your tutor, with the rest of the time spent on React Native and usability exercises. The project will be extensive and will require your attention and hard work to get through. In Week 4, 5, 7 and Week 10, you will have checkpoints for your project work, to make sure that you are on track to meet project deadlines and to continue with projected timelines. Late penalties will be applied if you have not adequately prepared for these checkpoints. This is also a great time to ask any question relating to the project or otherwise, and receive feedback on your work.

Your design diary will be used to assess and comment on your project progress and milestones. This will be done every alternate week in the studio space (or online). You are encouraged to use your design diary creatively – feel free to doodle, write down ideas, sketch down ideas and use the design diary as you see fit – think of it as a graphical and textual timeline of your project development. Use it like a coding sandbox – to try new things and experiment with different ideas! Feel free to use the pen and paper method, and upload images to the digital diary space.

We will be moving through the lifecycle at a rapid pace and it is therefore important that you can keep up with all the deliverables and associated reading.

Project

All students will complete a semester long project, which will involve designing, implementing and evaluating a user interface. Because in industry you will rarely be a lone wolf in this type of project, we will be doing this in groups of 3-4 students. Remember that user interface design is an iterative process, your project will involve AT LEAST three iterations – starting as a low fidelity prototype, a higher fidelity prototype and finally with a beta version of an app, using React Native. Because iterations take time, we need to get started as soon as possible on the project. There will be two formal checkpoints in your tutorial/studio time (in Week 3, 5, 7 and Week 10) to assess your progress with the project and provide you with feedback. Weekly deliverables through the online Moodle submission will be available. The purpose of these is to make sure you remain on track to finish the project and to provide feedback through the various stages of the design and development. The project specification will be available on Teams and will be discussed as part of the first lecture.

Assessment

- Four pieces of work make up the assessment for this course: the paper prototype and relevant documentation, the electronic prototype and all relevant documentation and the beta version and all the relevant documentation. The fourth assessment piece will be the individual reflection. Late penalties for project work will be applied to submissions received after the due date. 10% of the total project mark will be deducted from the assigned mark per day late. This will apply to the checkpoints and the weekly deliverables throughout the semester.
- All electronic work submitted will be retained by the University of New South Wales and can be used for teaching, research and review purposes. We will acknowledge your contribution if you wish, or withhold your name should you choose to remain anonymous.
- All submissions can be checked for plagiarism.

Assessment

Task	**Mark contribution**	**Week Due**
Design Diary	25%	Week 5 and Week 10
Individual Research and Presentation Assignment 1	25%	Week 8
Group Project	50%	See Assessment Project Breakdown for details

Textbooks

References

Buxton (2007), *Sketching User Experiences: Getting the Design Right and the Right Design*, Morgan Kaufmann.

Cooper et al (2007), *About Face 3.0: The Essentials of Interaction Design*, John Wiley

Goodwin (2009), *Designing for the Digital Age*, John Wiley

Johnson, J. (2013). *Designing with the mind in mind: simple guide to understanding user interface design guidelines*. Elsevier.

Lazar, Feng & Hochheiser, (2010), *Research Methods in Human-Computer Interaction*, John Wiley

Nielsen (1993), *Usability Engineering*, Morgan Kaufmann.

Norman, D.A. (1998), *The Design of Everyday Things* (Paperback), MIT Press, London

Rubin (1994 or 2008) *Handbook of Usability Testing*, John Wiley Publishing.

Snyder C (2003), *Paper Prototyping*, Morgan Kaufmann

Other Materials

- Design Diary A4, A5 or A3 bound sketchpad for design work. This will be checked during checkpoints to ensure you are sketching out your ideas and thoughts!

- Post-it Notes™, coloured pens and pencils will be used as part of the design work. Please use only Blu-Tack™ for placing posters on walls. Do not use sticky or masking tape.

Other Resources

- Students seeking resources can also obtain assistance from the UNSW Library. One starting point for assistance is:
  http://www.info.library.unsw.edu.au/web/services/services.html

Course Evaluation and Development

Since this course is being resurrected and run for the first time in a number of years, we are introducing a new project-based format. Research has found that this format of teaching is valuable and leads to favourable student experiences and learning outcomes. We will greatly value any feedback you have throughout the course and at the conclusion of the course, so that we can continue to improve it in subsequent offerings. Both lab-based feedback and/or electronic survey tools will be used to gather feedback about the course. We take all feedback seriously and approach the design of this course using user centred design philosophies. Students are also encouraged to provide informal feedback during the session, and to let the lecturer in charge know of any problems, as soon as they arise. Suggestions will be listened to very openly, positively, constructively and thankfully, and every reasonable effort will be made to address them.

Other Matters

- Students are expected to attend all classes.
- Students are expected to read their UNSW emails regularly. They are also expected to use their UNSW email addresses for all UNSW related communications.
- Please be aware of **CSE's new Student Conduct statement** available at:
  http://webapps.cse.unsw.edu.au/cse/student-conduct.html
  (the content of which is listed below)

Student Conduct

The **Student Code of Conduct** (Information , Policy) sets out what the University expects from students as members of the UNSW community. As well as the learning, teaching and research environment, the University aims to provide an environment that enables students to achieve their full potential and to provide an experience consistent with the University's values and guiding principles. A condition of enrolment is that students *inform themselves* of the University's rules and policies affecting them, and conduct themselves accordingly.

In particular, students have the responsibility to observe standards of equity and respect in dealing with every member of the University community. This applies to all activities on UNSW premises and all external activities related to study and research. This includes behaviour in person as well as behaviour on social media, for example Facebook groups set up for the purpose of discussing UNSW courses or course work. Behaviour that is considered in breach of the Student Code Policy as discriminatory, sexually inappropriate, bullying, harassing, invading another's privacy or causing

any person to fear for their personal safety is serious misconduct and can lead to severe penalties, including suspension or exclusion from UNSW.

If you have any concerns, you may raise them with your lecturer, or approach the School Ethics Officer , Grievance Officer , or one of the student representatives .

Plagiarism is defined as using the words or ideas of others and presenting them as your own. UNSW and CSE treat plagiarism as academic misconduct, which means that it carries penalties as severe as being excluded from further study at UNSW. There are several on-line sources to help you understand what plagiarism is and how it is dealt with at UNSW:

- Plagiarism and Academic Integrity
- UNSW Plagiarism Procedure

Make sure that you read and understand these. Ignorance is not accepted as an excuse for plagiarism. In particular, you are also responsible that your assignment files are not accessible by anyone but you by setting the correct permissions in your CSE directory and code repository, if using. Note also that plagiarism includes paying or asking another person to do a piece of work for you and then submitting it as your own work.

UNSW has an ongoing commitment to fostering a culture of learning informed by academic integrity. All UNSW staff and students have a responsibility to adhere to this principle of academic integrity. Plagiarism undermines academic integrity and is not tolerated at UNSW. Plagiarism at UNSW is defined as using the words or ideas of others and passing them off as your own.

If you haven't done so yet, please take the time to read the full text of

- UNSW's policy regarding academic honesty and plagiarism

The pages below describe the policies and procedures in more detail:

- Student Code Policy
- Student Misconduct Procedure
- Plagiarism Policy Statement
- Plagiarism Procedure

You should also read the following page which describes your rights and responsibilities in the CSE context:

- Essential Advice for CSE Students

Special Consideration
If your work in this course is affected by unforeseen adverse circumstances, you should apply for Special Consideration through myUNSW, including documentation on how you have been affected. If your request is reasonable and your work has clearly been impacted, then

- for an assignment, you may be granted an extension
- for a Mini Prac Exam, you may be granted an opportunity to take the exam later

- for the Final Exam, you may be offered a Supplementary Exam

Note the use of the word "may". None of the above is guaranteed. It depends on you making a convincing case that the circumstances have clearly impacted your ability to work.

If you are registered with Disability Services, please forward your documentation to Sasha Vassar within the first two weeks of trimester.