# Foundations of User Experience Design Recommended Scope and Sequence

**Grades: 9-12** | | | *Updated 7/9/2023*

In this course, students will be introduced to the field of User Experience Design. While applying ethical use and application of technology, they will learn how the various specialties under the umbrella of User Experience are applied to provide solutions to problems presented to them by stakeholders. In a company, majority of the UX professionals are hired to solve problems for technical products(i.e. web sites, mobile apps, AI offerings, AR/VR, etc.), but they can also solve problems for tangible products or experiences as well. The professionals in this field are expected to have great communication skills; the ability to collaborate with a team; have empathy to solve problems; be comfortable with change; as well as always consider accessibility for a variety of users. Students will be able to identify the various specialties(roles) that fall under this UX umbrella: UX Strategy, UX Management, UX/User Research, User Requirements, Information Design, Interaction Design, Information Architecture, UX Writing, Interface Design, UI Development, Testing/Evaluation, and Accessibility.

*\*Note\* New instructors may see UX sometimes advertised as UX/UI. This is mostly created by hiring managers who really do not understand the UX field completely and the new hire is expected to many to all UX roles in addition to UI. Remember User Experience is the umbrella of the profession and User Interface(UI) Design is only 1 speciality of many in this field.*

| Units of Study | Knowledge and Skills | Student Expectations | Notes |
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| **Digital Citizenship** | (4) The student understands and demonstrates legal and ethical procedures as they apply to the use of information technology. The student is expected to: | (A) explain and demonstrate ethical use of technology; | Prepare students for the course by first delving into the ethical and legal journey they are about to begin. |
| | | (B) explain intellectual property laws, including copyright, trademarks, and patents and consequences of violating each type of law; | Can use commonsense.org |
| | | (C) adhere to intellectual property laws; | |
| | | (D) explain the consequences of plagiarism; and | |
| | | (E) demonstrate ethical use of online resources, including citation of sources. | |
| **History of UX** | (3) The student describes the emerging field of UX. The student is expected to: | (A) summarize the evolution of the UX field; | With roots in Human Computer interaction, students need to be familiar with UX Design Don Norman, "Guru of Workable Technology"(Newsweek) who coined this career field as User Experience Design. They will also discover the Jakob Nielsen, the "Guru of Usability" (Newsweek) . Together they created the NNG which is a great resources. |
| | | (B) analyze current trends and challenges of the UX field; | |
| | | (C) examine the diversity of roles and career opportunities across the UX Field; | |
| | | (D) identify terminology associated with UX including Agile, sprint cycles, back and front-end development, design thinking, empathy mapping, journey mapping, gamestorming, human computer interaction, task- analysis observation, quantitative and qualitative data, end user, iteration, persona, wireframing, prototype, scrum, user interface design, journey, and empathy mapping; | |
| | | (E) identify and explain the differences between effective and ineffective design; | |
| | | (F) identify and explain the connection between psychology and behavior with regard to usability; | |
| | | (G) explain how design affects our everyday lives; and | |
| | | (H) predict future applications of UX skills. | |
| **Psychology in UX** Recommendation to scatter these throughout the course. Specifically with the Design Thinking Method | (7) The student applies an understanding of psychological principles used in user centered design. The student is expected to: | | Students should be introduced to the theory before the Design Thinking method is attempted. The students will then need to identify how to integrate these principles as they go through the process used to find a solution to problem they have to solve for the stakeholders. |
| | | (A) identify Gestalt principles and how users tend to unify visual elements into groups; | |
| | | (B) describe visceral reactions in creating a positive user experience; | |
| | | (C) demonstrate knowledge of the psychology of color which is the influence of colors on the human behavior, mind, and reactions; | |
| | | D) explain recognition and scanning patterns; | |
| | | (E) define Hick's Law and Weber's Law of just noticeable difference; | |
| | | (F) explain sensory adaptation phenomenon and perceptual set; a | |
| | | (G) explain the stages of human information processing, including sensing, perceiving, decision-making, and acting. | |
| **Communication** | (2) The student applies professional communications strategies. The student is expected to: | (A) adapt language such as structure and style for audience, purpose, situation, and intent; | Students should learn these skills before they collaborate to solve the stakeholders problem by using the Design Thinking method. It is recommended to focus on small group communication and one to large group. Throughout the Design Thinking Method, they will have to communicate with various stakeholders throughout the process( i.e. CEO, marketing, developers, etc.). |
| | | (B) organize oral and written information; | |
| | | (C) interpret and communicate information, data, and observations; | |

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| | | (D) deliver formal and informal presentations; | |
| | | (E) apply active listening skills to obtain and clarify information; | |
| | | (F) analyze multiple viewpoints of potential diverse users; and | |
| | | (G) exhibit public relations skills. | |
| | (10) The student develops initial hands-on design and development skills using professional software. The student is expected to: | (G) demonstrate basic sketching skills for agile iteration; | Agile is a project management method that accomplishes goals in increments(sprints) and is iterative. Basic sketching skills helps with visual communication to all stakeholders at any stage of the Design Thinking Process. |
| | | (J) explain how design fidelity from sketch to wireframe to prototype to visuals, aligns with and supports agile development lifecycles; and | |
| **Design Thinking Method** | (1) The student demonstrates professional standards/employability skills in the information technology (IT) field with a focus in the area of user experience (UX). | (D) solve problems and think critically; | UX Designers use the Design Thinking Methodology to find solutions to problems using design. This can be used with any human computer interaction(Websites, Mobile Apps, AR/VR, natural language processing, etc) or anything that humans use. |
| | | (E) demonstrate leadership skills and function effectively as a team member with a focus on appreciation for diversity, conflict management, and adaptability; and | It is highly recommended to take students through the Design Thinking Method using Project Based Learning which pairs well with Agile methods. Partner with an organization that has a technology problem(a website page or app page would be simplest) in which students can solve with this method. They will have to communicate to all stakeholders throughout the process with a final presentation. The process will be recorded in their portfolios. This is what will be expected when they are looking for a job. Hiring managers want to see the thought process and decision making, not the pretty final designs. (Note:Can use the UN Sustainability goals if unable to work with a stakeholder. |
| | | (F) demonstrate planning and time-management skills such as storyboarding and project management, including initiating, planning, executing, monitoring and controlling, and closing a project. | Recommend free program like Trello for project management . |
| | (8) The student creates effective, accessible, usable, and meaningful solutions for the end user by using UX design principles. The student is expected to: | (F) apply design thinking methodology to understand users, challenge assumptions, redefine problems, and create solutions to prototype and test; | |
| | (9) The student collaborates to apply UX project management methods. The student is expected to: | (A) identify the relationship between UX research and design-thinking methods and the different stages and roles of UX project management including Scrum and a sprint cycle; | A UX designer will be most familiar with Agile project management in which most phases in the Design Thinking method are done in sprints(short amount of time usually 2-5 weeks). A scrum master is the one who is making sure that everyone on the project is following scrum practice(which includes agile) and is staying on task for the sprints and beyond. |
| | | (B) describe best practices of UX research and design thinking in Agile project cycles; | |
| | | (C) identify and use techniques of building and achieving consensus in solution design; and | |
| | | (D) understand the purpose and roles of UX professionals throughout a project lifecycle. | |
| **Empathize** | (5) The student identifies and demonstrates introductory observation and research methods. The student is expected to: | (A) explain the difference between qualitative and quantitative data; | Highly recommended that students use UX research methods such as empathy mapping, user interviews, diary studies, or user surveys to start off with. If they move on to advanced UX, more methods will be introduced. |
| | | (B) conduct user interviews to gather insights into what users think about a site, an application, a product, or a process; | Tools recommended: Sticky Notes, Sharpies(So that ideas are bold and not timid), Google Jamboard, Figma Figjam |
| | | C) draw conclusions from qualitative data collection and methods; | Psychology TEKS(Standards) can be introduced or reinforced here. |
| | | D) analyze and document how users perform tasks through a task analysis observation; | Psychology TEKS(Standards) be introduced or reinforced here. |
| | | (E) identify patterns in collected data; | Psychology TEKS(Standrards) can be introduced or reinforced here. |
| | | F) define affinity and customer journey maps as a visual document that shows a user's interactions with a company or product to understand business solution opportunities; | |
| | | (G) develop a user persona as a representation of real target audience data; | User personas can be made on paper, using design programs(photoshop, illustrator, canva, etc.) or even word processing programs. |
| **Define Problem** | (5) The student identifies and demonstrates introductory observation and research methods. The student is expected to: | H) prepare communication, observations, analyses, and findings for business product and marketing teams. | With the gathered research that really focuses on the user, the real problem is defined.This is where communication starts with all stakeholders as they are kept in the loop of the entire design thinking process that will eventually be presented with the solution. |
| | (8) The student creates effective, accessible, and meaningful solutions for the end user by using UX design principles. The student is expected to: | (A) identify end-user problems and needs in real-world environments; | |
| **Ideate** | 6) The student uses UX research methodologies to collaborate for the needs of a business. The student is expected to: | (A) organize ideas and data using affinity mapping; | Use UX Ideation Methods such as affinity mapping, storyboarding, crazy 8's, Mission Impossible, Negative Brainstorming, Mash-up,etc. |
| | | (B) produce simple customer journey maps; and | Resources: Interaction Design Foundation https://www.interaction-design.org/ and Nielsen Norman Group |
| | | (C) communicate observations, analyses, and findings with business product and marketing teams. | |

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| **Prototype** | (8) The student creates effective, accessible, usable, and meaningful solutions for the end user by using UX design principles. The student is expected to: | (B) identify principles of accessibility, such as perceivable, operable, understandable, and robust (POUR); | Wireframing will be done in this phase. Low-fidelity wireframes should be made first, followed by mid and then high fidelity wireframes for final presentation. The wireframe software recommended for this is Figma who has a free Figma for Education account. Contact us at **hello@k12uxedu.org** and we can get you a better Figma account for secure FERPA, COPPA, and GDPR compliance. |
| | | (C) identify and explain the connection between human and computer interaction in regard to usability; | |
| | | (D) identify where an existing product or process can be improved for the end user by using empathy and journey mapping; | |
| | | (E) sketch and revise designs to understand the concept of wire-framing, prototypes, and rapid iteration; | |
| | (10) The student develops initial hands-on design and development skills using professional software. The student is expected to: | (H) create wireframes using design software to create mobile and application layout designs and functions; | |
| | | (I) create interactive elements in wireframes as foundational for agile prototyping; | |
| **Testing** | | (G) perform user tests to determine what is effective and efficient for changes to the product or process; | |
| | | (H) define and use iteration process based on user test data to analyze and validate or challenge assumptions for a design solution; and | |
| | | (I) perform various ideation techniques such as prototyping, storyboarding, and gamestorming to visually predict and explore a user experience with a product. | |
| **Roles in UX Design** | (10) The student develops initial hands-on design and development skills using professional software. The student is expected to: | (B) identify the terminology associated with web page and mobile app development, and interactive media; | All roles need to be familiar with technical terminology to communicate with stakeholders, developers, and team. |
| | | F(iv) understand the difference between back-end and front-end development in UX; and | |
| | | (G) demonstrate basic sketching skills for agile iteration; | |
| | | (H) create wireframes using design software to create mobile and application layout designs and functions; | |
| | | (I) create interactive elements in wireframes as foundational for agile prototyping; | |
| UX Researcher | | (A) apply writing skills to document research findings and solution plans; | For all phases of the Design Thinking Method, a UX researcher will have to know which software would work best to document findings. They can use spreadsheets, video software, audio software, etc. but they must use what will work best for the audience, stakeholders, and team. |
| UI Designer | | (C) use design elements such as typeface, color, shape, texture, space, and form; | The User Interface Designer is the most familiar with wireframe software(i.e. Figma) and graphic design elements. |
| | | (D) use design principles such as unity, harmony, balance, scale, and contrast; | |
| | | F(ii) demonstrate proper use of vector and raster-based design software; | |
| "The Unicorn" | | (E) identify and explain common elements of Hypertext Markup Language (HTML) such as tags, style sheets, and hyperlinks; | UX designers only get the final wireframes to the developers to put into action. They work closely with them to make sure the user is getting exactly what was researched and designed. However, if a UX designer can code and develop web/mobile app or other tech, they are highly employable and considered "unicorns". At the high school level, these standards can be touched upon. |
| | | (F) apply design, web, and mobile publishing techniques in order to: | |
| | | (i) create effective user interfaces for browser-based, native, and hybrid mobile applications; | |
| | | (iii) demonstrate an understanding of the difference between desktop and mobile applications; | |
| | | (v) create a web page containing links, graphics, and text using appropriate design principles; | |
| **Presenting to Stakeholders** | (10) The student develops initial hands-on design and development skills using professional software. The student is expected to: | (K) produce digital assets toward a digital product portfolio. | Communication should be evident throughout the Sprints(Short projects completed in usually a few weeks, but for schools can be longer). Once the final solution has been reached after the final phase of the Design Thinking Method (Implementation), a final presentation needs to be presented to the stakeholders. The process of what was accomplished in the Design Thinking Method with their UX team(Usually around 6-8 people) should be presented using a digital and one-to large group oral communication format. The problem would be identified and then how the team defined the problem with their research, presenting the medium to high fidelity prototype created, share the testing that was done and any other iterations until the final solution was tested and what is being presented. The wireframes will have to be delivered to the stakeholder so they can give to their development team unless your school has the dev team to produce whatever they want(i.e. final app, website, AI, AR/VR, tangible product, etc.). The skills in the Communication unit should be present. |
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| Careers and Employability | (1) The student demonstrates professional standards/employability skills in the information technology (IT) field with a focus in the area of user experience (UX). The student is expected to: | (A) identify job opportunities in UX and accompanying job duties and tasks; | |
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| | | (B) employ effective verbal and nonverbal communication skills; | |
| | | (C) examine the role of certifications, resumes, and portfolios in UX professions; | UXPA offers accreditations and will be offering a young professional option soon. |
| | (10) The student develops initial hands-on design and development skills using professional software. The student is expected to: | (K) produce digital assets toward a digital product portfolio. | Students will need a portfolio that shows the process of what UX work they have done and not the "final" pretty product. Encourage them to show the good, the bad, and the ugly and describe how they got to the final solution. This is what they can use to pursue Jr. UX jobs if they choose to do so.  A recommended portfolio tool that is FERPA, COPPA, and GDPR compliant and flexible for transition from K-12 to higher ed or professional life is Bulb Digital Portfolios. However, the instructor can utilize the digital portfolio suitable for their students. |
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| | | | **Additional Recommended Resources:** |
| | | | Design of Everyday Things- Book by Don Norman |
| | | | 10 Usability Heuristics- Author Jakob Nielsen |
| | | | User Experience Professionals Association |
| | | | Interaction Design Foundation |