

BU Spark! Technology Innovation Fellowship Program

XCC 475: Fall 2021

COURSE INFO

Instructor: Ziba Cranmer
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Office Hours: TBD ([zoom](#) only)

Instructor: James Grady
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Office Hours: TBD ([zoom only](#))

Instructor: Richard Kasperowski
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Office Hours: TBD ([zoom only](#))

Teaching Assistants: Savannah Cardenas, Shateva Long; Eric Chao
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Office Hours: TBD (zoom only)

Other Spark! Resources:

Eng. in Residence: Bandon Das/ Langdon White
Contact Info: bsd@redhat.com/ Langdon@redhat.com
Office Hours: @ (virtual only)

Course Time: Monday, 2:30pm – 5:15m*
Course Location: 565 Commonwealth Avenue [KCB 101](#) and Zoom:
<https://tinyurl.com/spark-fall-2021-weekly>

Course Requirements: Online Application

*** We will have required supplemental sessions for the design sprint - see course outline**

COURSE OVERVIEW & OBJECTIVES

This course aims to provide students—working in interdisciplinary teams—an opportunity to advance a technology product or a technology innovation, through a human-centered design approach. The course provides instruction on the fundamentals of product creation and user experience design (UXD).

Students will have formally applied to the course and have an approved product concept or problem in mind. While the overall course is designed to provide the structure of a typical

product creation experience, students will be self-directed in the technical development of their project with the support of specialized mentors relevant to their project. Technical students will be paired with students who have a creative design background that can guide visual representations, user interface design, animation, and advanced interactive techniques. The goal is for students to have a working Minimum Viable Product (“MVP”) by the end of the semester.

CFA AR535: GRADUATE DESIGN TRACK COURSE OVERVIEW & OBJECTIVES

MFA in Graphic Design students are welcome to apply to the Graduate Design track of the Innovation Fellowship program with instructor approval. See more info on additional course work and deliverables [here](#).

LEARNING OUTCOMES

As a result of completing this course, students will:

- Gain an understanding of product development and innovation processes including design thinking, problem scoping, customer discovery, validation, product design, visual design, low and high fidelity wireframing, and testing.
- Learn how to effectively scope and manage development for your product or artifact in a team-development setting using agile development processes, time estimation, and weekly retrospectives.
- Work effectively in teams and communicate ideas to others
- Practice critical analysis of the product development process through self-reflection and peer feedback

HUB UNITS

This class has been approved for Spring 2020 as a Cross College Challenge (XC 433) which will meet the BU Hub Learning Outcomes for the following 4 Hub Areas:

1. Creativity/Innovation

As teams work on their projects and address specific challenges throughout the semester:

- Students learn creativity as an iterative process of imagining new possibilities that involves risk-taking, use of multiple strategies, and reconceiving in response to feedback. They will be able to identify individual and institutional factors that promote and inhibit creativity.
- Students engage in creative activity by conceiving and executing original work as part of their team.
- **The Spark! interpretation of the creativity and innovation component will take place primarily through the design phase of the program. Once the build phase begins, there will be iteration in the form of continuously refining and narrowing the features to achieve the highest value feature set possible within the time remaining in the semester.**

2. Oral and/or Signed Communication

In communicating with team members, sponsors and other constituents of the project, and through their final team project presentations:

- Students will craft and deliver responsible, considered and well-structured oral and/or signed arguments using media and modes of expression appropriate to the situation.
- Students will interact, attend and respond thoughtfully to others.
- Students will be able to speak/sign effectively in situations ranging from the formal to the extemporaneous and interact comfortably with diverse audiences.
- The Spark! program will focus the team's oral communication over three distinct presentations of the team's problem statement, solution, and value proposition to stakeholders at key milestones in the program. This includes the understand presentation at the beginning of the semester, a mid-term presentation, and the final presentation at Demo Day.

3. Research and Information Literacy

By engaging in substantial research to complete their projects, and following an iterative process for creating a project proposal, completing interim assignments and a final report:

- Students search for, select, and use a range of publicly available and discipline-specific information sources ethically and strategically to address research questions.
- Students understand the overall research process and its component parts, formulate good research questions or hypotheses, gather and analyze information, and critique, interpret, and communicate findings.
- For some teams, the fruits of research will yield new approaches to enduring questions, or new artistic expressions, or fresh arguments.
- Spark! teams will achieve this learning outcome through focused research with users to validate the problem and proposed solutions and in-depth feedback on user experience. The other focus of research will be on the analysis of alternative solutions/competitors.

4. Teamwork/Collaboration

Students are assigned to a team and receive explicit training in teamwork. Through this sustained collaboration on the project, and through the completion of a team contract and project plan:

- Students will learn the characteristics of a well-functioning team.
- Students will engage the tools and strategies for working successfully on a diverse team, including assigning roles and responsibilities, giving and receiving feedback, and engaging in meaningful group reflection that inspires collective ownership of results.
- The application of teamwork and collaboration learning outcomes will be centered around the implementation of agile development principles and the development and evaluation of team agreements to reinforce practices of high performing teams. Students will have an opportunity to give and receive feedback at the beginning of the semester, mid-semester, and at the end and will be expected to proactively solve team issues using the feedback and decision making tools provided.

COURSE FORMAT

This course is taught through a combination of lectures, presentations from external speakers, interactive workshops, and regular reviews by mentors and peers of work progress. There will be four phases of the course:

- I. ***User Insights***: Students will engage in a series of activities designed to gain knowledge of the problem they seek to solve, conduct interviews, competitor feature analysis and value proposition, and build customer profiles.
- II. ***Design***: A series of intense workshops to envision and refine the product concept and minimum viable product (MVP) that students will aim to complete by the end of the semester. This will include validating assumptions, rapid ideation, developing a feature list, prioritization, prototyping, and usability testing with users.
- III. ***Build***: The majority of the course will be spent in a self-directed process of building out the product following the principles of agile development. Students will engage in weekly progress reports and regular code reviews with mentors, instructors, and peers. Ideally, students will test initial prototypes with users.
- IV. ***MVP and Future Product Roadmap***: The final component of the course will focus on finalizing the MVP and preparing for 'Demo Day'—an event where students display their work.

CLASS TOOLS* (*links forthcoming*)

- Blackboard - for submitting assignments
- Jira for weekly sprint tracking
- [Slack](#) for messages: (please check daily before class for latest updates: sparkfellows-spring21.slack.com)
- Readings and Supplementary Materials

Note: The syllabus may change during the semester to accommodate new ideas and the availability of guest speakers.

TEAM RESOURCES:

Students are also able to access computing services e.g. AWS credits, etc. They must be requested at this link and we will assess the request and get back to your team as soon as possible. <https://tinyurl.com/computing-intake>

Each team is allowed up to \$200 for incidental expenses directly associated with implementing their project (i.e. not pizza, etc.). You can submit receipts or procurement requests through this form: <https://bu-spark.typeform.com/to/uJ7jWT>

For questions, please email Korinne Dizon at kdizon@bu.edu. (please copy buspark@bu.edu)

REFERENCE MATERIALS

The class will draw from the following writings around the philosophy and execution of product design. Necessary excerpts will be provided during the course, while the full content will be a supplement/reference. You do not need to purchase these books.

- [Value Proposition Design](#) by Alexander Osterwalder
- [Lean Product Playbook](#) by Dan Olsen
- [Running Lean](#) by Ash Maurya

STUDENT DELIVERABLES*

Students will have the following deliverables, described in greater detail on the class Blackboard.

Design Phase: (Creativity and Innovation; Research and Information Literacy)

- Self Assessment
- Team agreement
- 3 Customer Profiles
- 1 User persona
- Problem Statement and Jobs Map
- Assumptions Map (+ updates)
- Interview Prospect Map
- Problem and Solution Interview Scripts (2 scripts)
- 5 Problem interviews
- 5 Solution interviews
- 3 User Experience interviews
- Online validation exercise (30 users)
- Competitive/ Alternatives assessment
- Lo-Fi and Interactive Wireframes
- User Stories

Teamwork and Collaboration:

- Team Agreement, Mid-term Assessment, Updated Agreement
- 5 Mentor Meetings + Reports

Build Phase

- Scrum Roles
- Jira board with user stories
- Weekly jira sprint plan
- Weekly build sprints - working end-to-end product; must show code
- Weekly retrospectives
- Tech stack plan/ Architecture diagram
- Style Brief and guide

- Mid-Fi and Hi-Fi wireframes
- Responsible and Ethical Computing Audit
- Privacy policy and Terms & Conditions
- Final Product Demo, Poster, and Presentation

Oral and Signed Communication:

- Understand Presentation
- Demo Day Presentations

****Note: Deliverables/ deadlines may change during the semester based on progress and relevancy.***

GRADING

The course grade will be a weighted sum of your grades on the following:

*****Please note:***

- ***All students must share github with instructors for grading***
- ***For projects that started prior to the course, teams must share code and establish start date for new features and development***

Attendance & Participation	10%	Attendance: 50% (unless student have received an approval from instructors to participate asynchronously; this policy applies to students participating remotely) <ul style="list-style-type: none"> ● 1: on time ● .5: late ● 0: no show Participation: 50% - weekly retrospective submissions (individual grade) <ul style="list-style-type: none"> ● 1: contributed ● 0: no contribution
Mentor Engagement	10%	<ul style="list-style-type: none"> ● Complete 5 mentor meetings by the end of the semester ● Fill out a Student Mentor Report for every mentor meeting <p><i>**Does not include times with mentors are included in class</i></p>
Design Phase Assignments	10%	On time submissions: 100% <ul style="list-style-type: none"> ● Late submission: 20% reduction (within 24 hrs), 30% reduction (within one week) ● If instructors request improvements/ clarifications, score will drop to 50%. You will have 2 weeks to iterate changes, which will bring the score back to 100%

		<ul style="list-style-type: none"> Timely submission is critical to keep pace with the development; however, if you plan to submit an assignment late, please contact the professor to discuss impact on grade <p><i>**Extensions may be granted by the instructors on select assignments to all students</i></p>
Weekly Development Sprints	40%	<p>Sprint Planning via JIRA: 50% (group grades)</p> <ul style="list-style-type: none"> XX-week long sprints Each team submits weekly stand up report via blackboard Build sprints will be graded according to this Grading Rubric <p>**Each build sprint must include working end-to-end code**</p> <p>Development: 50% (individual grades)</p> <ul style="list-style-type: none"> Grades based on volume of work by individuals and achievement of user stories assigned to individuals Review of evidence of working code and code commits corresponding to user stories (All students participating in the development track are expected to complete 8-10 hours of development weekly; designers expected to complete 8-10 hours of design work weekly) Complete 15 minute stand up with instructors in class or during office hours
Final Project	20%	<p>Final Poster: 20%</p> <ul style="list-style-type: none"> Grading rubric based on presentation of problem, solution, technology overview, ethics self-assessment, and innovation journey <p>Final Deliverable: 80%</p> <ul style="list-style-type: none"> Grades based on volume of work, quality of idea/ impact, design, technical implementation, and product/user fit. *bonus points for something that users can interact with no broken links or code Mentors will judge final deliverables
Team/ Instructor Feedback	10%	<ul style="list-style-type: none"> Peer evaluation - mid-evaluation based on team agreement Final peer evaluation based on team agreement Instructor's discretion based on weekly check-ins and final work completed

ASSIGNMENTS

Assignments are meant to cement material learnt in class and will usually involve integrating concepts into projects. Late submissions are accepted up to 2 days after the deadline, with a 10% penalty for each day.

MENTORING AND OFFICE HOURS

Each student will be matched with professional mentors by the third week of the course. In addition to the professional mentor, students will have access to a number of specialist mentors with experience in a variety of programming languages and technologies relevant to the student projects.

Engagement with the mentor is the responsibility of the student. Engagement with the mentors (innovation coaches and specialists) will be tracked through mentor reports and three mentor evaluations issued throughout the semester. We encourage students to check in regularly with their innovation coaches either in-person or virtually. Leveraging these relationships for discussions about your career path, and, in a post-covid context, visiting your mentors' places of work is a good opportunity to build your professional network.

Office hours with instructors are listed above or can be booked through [the Spark! portal](#). We are also available on Slack or email for scheduling and questions.

CLASS AND UNIVERSITY POLICIES

Attendance, Assignment Completion & Late Work: Due to the sequential nature of the product creation experience and the goal of completing a product demo by the end of the semester, attendance is mandatory. If you have to miss class for any reason, you must make arrangements with the professor which may involve making up the time in a one-on-one session during office hours or attending an alternative workshop. We expect students to keep pace with the course, but also to follow the flow of their project which we realize will require adjustments and delays. Expect an intense time commitment at the beginning of the course to allow for the completion of the Design Sprint phase as quickly as possible.

Academic Conduct: You may discuss homework assignments with classmates, but you are solely responsible for what you turn in. Collaboration in the form of discussion is allowed and encouraged. We understand that there may be teams working on projects together and they must document which team member completed different tasks on the team Jira board. Any use of 3rd party code in your product creation should be through open source licensing terms and clearly documented. We – both teaching staff and students – are expected to abide by the guidelines and rules of the Academic Code of Conduct (<http://www.bu.edu/academics/policies/academic-conduct-code/>).

Disability Accommodations: If you are a student with a disability or believe you might have a disability that requires accommodations, please contact the Office for Disability Services (ODS) at 617-353-3658 to coordinate any reasonable accommodation requests. For more information, please see <http://www.bu.edu/disability>.

COVID PLAN:

We will notify students of any changes to be made to the in-person schedule once we have confirmation of student participation intent. Each student participating in person will be asked

to participate via zoom simultaneously. ****Students must come to class with a microphone, earbuds and laptop during in-person and remote participation.**** If this presents a financial burden, please contact your instructor ASAP so we can work with you to find a solution. Collaboration activities will take place through online platforms that we will review at the first session of the program. Teams will be asked to take responsibility for engaging and accommodating their teammates who are participating remotely and asynchronously through separately scheduled sessions if needed. Students wanting to participate asynchronously must receive advanced approval from instructors; this will only be considered for students in conflicting time zones. Students participating in person are required to follow the University guidelines around Covid to ensure everyone is safe and healthy. **We ask that students confirm whether they will be attending in-person or remotely 12 hours prior to class.**

CLASS/ MEETING OUTLINE

Date/ Session	Content
Pre Program TBD 4:00-5:30pm (Friday)	<ul style="list-style-type: none"> ● XXC Launch event XX ● Location: Zoom via registration link
Part I: Team Launch	
Session 1: January 25 (Monday)	Problems, Jobs, and Users: <ul style="list-style-type: none"> ● Problem Statement + Customer Profiles ● Jobs, pains, and gains ● Interview prospect mapping ● Assumptions High-Performance Teams <ul style="list-style-type: none"> ● Work style assessments Discussion ● Team agreements discussion ● Difficult conversations
Session 2 February 1 (Monday)	Customer discovery overview <ul style="list-style-type: none"> ● Interview guidance - problem and solution interviews ● Online validation ● Competitive/ Alternatives analysis Team Part II: <ul style="list-style-type: none"> ● Jira

	<ul style="list-style-type: none"> ● Agile
Session 3 February 8 (Monday)	Team Check-Ins: <ul style="list-style-type: none"> ● Presentations: emerging findings ● User insights review/ emerging findings ● Assumptions mapping revision User Stories Activity: Part I
Session 4 February 16 (Tuesday)	Understand Presentations (to mentors) <ul style="list-style-type: none"> ● Mentor check ins
Design Sprint	
Session 5 February 20 (Saturday) 2-5pm	Design Sprint Part I - Diverge <ul style="list-style-type: none"> ● Jobs Map ● Mind mapping ● Critical path crazy eights ● Opportunity space/ value proposition review ● Crazy 8 prioritization ● Value proposition gut check
Session 6 February 21 (Sunday) 2-5pm	Design Sprint Part II – Converge <ul style="list-style-type: none"> ● Revised user story mapping ● User story time estimation ● User story prioritization ● Assumptions Map update ● Mentor Presentations (4-5pm)
Session 7 February 22 (Tuesday - Monday Schedule)	<ul style="list-style-type: none"> ● Wireframing 101 workshop <ul style="list-style-type: none"> ○ From user stories to wireframes ● Architecture overview + recommendations <ul style="list-style-type: none"> ○ Architecture combinations - pros and cons
Session 7 March 1 (Monday)	<ul style="list-style-type: none"> ● Wireframes speed review session (UX-UI mentors invited) ● Tech stack speed review session (with technical mentors) ● Computing services with IS&T

Session 8 March 8 (Monday)	<ul style="list-style-type: none"> ● Test Driven Development ● Product Innovation Case Study: Guest Speaker ● Team Check-Ins
Session 9 March 15 (Monday)	<ul style="list-style-type: none"> ● Product Innovation Case Study: Open Source UX Design ● Team Check-Ins
Session 10 March 22 (Monday)	<ul style="list-style-type: none"> ● DevOps/ Continuous Delivery ● Product Innovation Case Study ● Soofa.co Case Study ● Team Check-Ins
Session 11 March 29 (Monday)	<ul style="list-style-type: none"> ● Responsible and Ethical Computing: Guest Speaker ● Product Innovation Case Study: Guest Speaker ● Team Check-Ins
Session 12 April 5 (Monday)	<ul style="list-style-type: none"> ● Legal Issues in Tech Innovation ● Team Check-Ins
Session 13 April 12 (Monday)	<ul style="list-style-type: none"> ● Product Creation Case Study: Student Innovators ● Team Check-Ins
Session 14 April 21 (Wednesday, Monday Schedule)	<ul style="list-style-type: none"> ● Pitching Workshop ● Team Check-Ins / Standups
Session 15 April 26 (Last Class)	<ul style="list-style-type: none"> ● Demo Day Dry Run/ Team Check-Ins
Session 16 April 30 (Friday) 5:00-7:00pm	<ul style="list-style-type: none"> ● Demo Day