

BME 180B BME Engineering Design

MSE 189B Senior Design Projects

Winter 2022

Course Descriptions

BME 180B – Design strategies, techniques, tools, and protocols commonly encountered in biomedical engineering; clinical experience at the UCI Medical Center and Beckman Laser Institute; industrial design experience in group projects with local biomedical companies; ethics, economic analysis, and FDA product approval. In-progress grading. Prerequisite: BME180A.

MSE 189B – Group supervised senior design projects that deal with materials selection in engineering design and that involve case studies in ethics, safety, design, failure modes, new products, and patents. Activities conclude with a presentation of the projects. Materials fee.

<https://canvas.eee.uci.edu/courses/42663/pages/syllabus?titleize=0>

BME 180B Instructors

Prof. William C. Tang, 3113 Natural Sciences II, wctang@uci.edu (<mailto:wctang@uci.edu>)

Prof. Christine King, 3410 Engineering Hall, kingce@uci.edu (<mailto:kingce@uci.edu>)

MSE 189B Instructor

Dr. Chris Hoo, 621 Engineering Tower, cmhoo@uci.edu (<mailto:cmhoo@uci.edu>)

Teaching Assistants

Yasaman (Yassi) Fatapour, yfatapou@uci.edu (<mailto:yfatapou@uci.edu>)

Joanne Ly, joannl6@uci.edu (<mailto:joannl6@uci.edu>)

Jie Shen, shenj8@uci.edu (<mailto:shenj8@uci.edu>)

Office Hours

By appointment via E-mail

Dr. King's Drop In and Career Advising Hours via ZOOM: Mondays 11am

Zoom Link: <https://uci.zoom.us/j/96493897834> (<https://uci.zoom.us/j/96493897834>)

Dr. King's Open Lab Hours: Mondays 12-2pm, Tuesdays 2-5pm, Thursdays 2-5pm, Location: MSTB 214

Lectures

Tuesdays, Thursdays 5:30PM to 6:50PM

Location: Biological Sciences III (BS3), [Room 1200](#)

[\(https://classrooms.uci.edu/classrooms/bs3/bs3-1200/\)](https://classrooms.uci.edu/classrooms/bs3/bs3-1200/) ****ZotPass**

[\(https://students.uci.edu/zotpass.html\)](https://students.uci.edu/zotpass.html) **is Required to Enter the Space**

Live Zoom Link for Remote Students: <https://uci.zoom.us/j/98527311038>

[\(https://uci.zoom.us/j/98527311038\)](https://uci.zoom.us/j/98527311038)

A Note on Zoom:

As the instructor, I will be recording the lecture and posting the recording. I will be posting this session to the course's website. If you have privacy concerns and do not wish to appear in the recording, you may turn video off (click "stop video") so that Zoom does not record you. If, when you disable live video, you also want to use a profile image (other than a picture of you) instead of your name, please let me know which image you will be using so that I know who you are during the session. If you would like to ask a question, you may do so privately through the Zoom chat by addressing your chat question to me only (and not to "everyone"), or you may contact me by another private method. If you have questions or concerns about this, please contact me.

Prerequisites

BME 180A/B/C must be taken in the same academic year. Senior standing only.

MSE 189A/B/C must be taken in the same academic year.

Required Text: None

Reference Texts

Paul Yock, Stefanos Zenios, and Josh Makower, eds., *Biodesign: The Process of Innovating Medical Technologies, 2nd Ed.*, Cambridge University Press, 2015.

Clive L Dym, Patrick Little, and Elizabeth Orwin, *Engineering Design: A Project-Based Introduction, 4th Ed.*, Wiley, 2014.

Grading Policy

Attendance:	10%
Homework:	50% (HW1: 7%, HW2: 8%, HW3: 15%, HW4: 10%, HW5: 10%)
Presentation:	20% (15% overall, 5% individual)
Poster:	10%
Peer evaluation:	5%
Mentor evaluation:	5%
Course Survey Bonus:	1%
Team Lead Bonus:	3%

Course Learning Outcomes

BME 180B – Upon completing the course, students will be able to:

1. Demonstrate leadership and teamwork skills in a project team environment.
2. List and define the various steps in bringing a biomedical product from concept to market.
3. Identify the realistic constraints of the team project.
4. Articulate the impacts of the project in a global, economic, environmental and societal context.
5. Design and conduct experiments to verify team projects requirements.
6. Use knowledge in mathematics, statistics, biological sciences, physical sciences, and engineering to solve the problems at the interface of engineering and biology whenever required.
7. Use the appropriate computer tools to design, model, simulate, and/or operate, the team projects.
8. Demonstrate oral communication skills in presenting team projects.

MSE 189B – Upon completing the course, students will be able to:

1. Apply knowledge of mathematics, science, and engineering.
2. Design and conduct experiments as well as to analyze and interpret data.
3. Process and select a material to meet desired needs.
4. Function on multi-disciplinary teams.
5. Identify, formulate, and solve engineering problems using techniques, and modern engineering tools essential for engineering practice.
6. Understand professional and ethical responsibility.

7. Communicate effectively both orally and in writing.
8. Understand the impact of engineering solutions in a global and societal context.
9. Recognize the need for life-long learning.
10. An ability to understand contemporary issues influencing the society and the materials profession.
11. Apply and integrate knowledge from each of the four primary elements of Materials Science and Engineering (structure, properties, processing and performance) to solve problems related to materials selection and design.

<https://canvas.eee.uci.edu/courses/11781/files?preview=4350718>

Overall Program Schedule

Quarter	Activities Performed	Track Expectations
Fall	focus on team formation, project definition and planning, addressing clinical need, FDA and technical documentation, initial experimentation on possible design solutions, decision on chosen design	<i>Industry Track:</i> develop research components of the project, UROP proposal <i>Entrepreneurial Track:</i> develop market study, first-draft business plan
Winter	focus on the implementation of the chosen solution and redesign to a more detailed design with considerations of standards. Mid-course adjustment may be needed, depending on the findings	<i>Industry Track:</i> continue research tasks as part of the project development <i>Entrepreneurial Track:</i> continue business plan as part of the project development
Spring	pursue final testing, validation, and revision of the design solution followed by complete documentation	<i>Industry Track:</i> present at UROP engineering design competition <i>Entrepreneurial Track:</i> present at NVC business plan competition

Course Schedule

Week #	Date	Day	Lecture

1	1/4	Tue	<p>Introduction to the Quarter: Deliverables and Expectations</p> <p>Lecturers: Dr. Christine King, Dr. William Tang, Dr. Chris Hoo</p> <p>**ON ZOOM ONLY</p> <p><u>Lecture 1 Introduction to Winter Quarter 2022.pptx</u> (https://canvas.eee.uci.edu/courses/42663/files/17104627?wrap=1) </p> <p style="text-align: center;">↓</p> <p> (https://canvas.eee.uci.edu/courses/42663/files/17104627/download?download_frd=1) </p>
1	1/6	Thu	<p><i>BME Students Only: Curriculum Feedback Review</i></p> <p>Lecturers: Bernard Choi, Elliot Hui</p> <p>**ON ZOOM ONLY</p> <hr style="border-top: 1px dashed black;"/> <p style="text-align: center;">--</p> <p><i>MSE Students: Office Hours</i></p> <p>**ON ZOOM ONLY. Link: https://uci.zoom.us/j/96551585221 (https://uci.zoom.us/j/96551585221) </p>
2	1/11	Tue	<p>Business Model Canvas Part II</p> <p>Lecturer: Dr. Michelle Khine, Jaune Odombrown, Antrepneur Center</p> <p>**ON ZOOM ONLY</p> <p><u>Lecture 2: Business Model Canvas Part II</u> (https://canvas.eee.uci.edu/courses/42663/files/17221397?wrap=1) </p> <p style="text-align: center;">↓</p> <p> (https://canvas.eee.uci.edu/courses/42663/files/17221397/download?download_frd=1) </p> <p><u>HW 1: SWOT Analysis and Team Science</u> (https://canvas.eee.uci.edu/courses/42663/assignments/885391) </p>
2	1/13	Thu	<p>Customer Interviews</p> <p>Lecturer: David Ochi</p> <p>**ON ZOOM ONLY</p>

			<p style="text-align: center;"><u>Lecture 3: Customer Interviews</u></p> <p style="text-align: center;">(https://canvas.eee.uci.edu/courses/42663/files/17222839?wrap=1)</p> <p style="text-align: center;">↓</p> <p style="text-align: center;">(https://canvas.eee.uci.edu/courses/42663/files/17222839/download?download_frd=1)</p>
3	1/18	Tue	<p style="text-align: center;">Crash Course on Prototyping</p> <p style="text-align: center;">Lecturer: Dr. Christine King</p> <p style="text-align: center;"><u>Crash Course on Prototyping - Fabrication.pptx</u></p> <p style="text-align: center;">(https://canvas.eee.uci.edu/courses/42663/files/17288847?wrap=1)</p> <p style="text-align: center;">↓</p> <p style="text-align: center;">(https://canvas.eee.uci.edu/courses/42663/files/17288847/download?download_frd=1)</p> <p style="text-align: center;">**ON ZOOM ONLY</p>
3	1/20	Thu	<p style="text-align: center;">FMEA and Quality Control</p> <p style="text-align: center;">Lecturer: Dr. Chris Hoo</p> <p style="text-align: center;">**ON ZOOM ONLY</p> <p style="text-align: center;"><u>FMEA Lecture Winter 2022.pptx</u></p> <p style="text-align: center;">(https://canvas.eee.uci.edu/courses/42663/files/17394689?wrap=1)</p> <p style="text-align: center;">↓</p> <p style="text-align: center;">(https://canvas.eee.uci.edu/courses/42663/files/17394689/download?download_frd=1)</p> <p style="text-align: center;"><u>FMEA Example.xlsx</u></p> <p style="text-align: center;">(https://canvas.eee.uci.edu/courses/42663/files/17394691?wrap=1)</p> <p style="text-align: center;">↓</p> <p style="text-align: center;">(https://canvas.eee.uci.edu/courses/42663/files/17394691/download?download_frd=1)</p> <p style="text-align: center;"><u>FMEA blank sheet.xlsx</u></p> <p style="text-align: center;">(https://canvas.eee.uci.edu/courses/42663/files/17394693?wrap=1)</p> <p style="text-align: center;">↓</p> <p style="text-align: center;">(https://canvas.eee.uci.edu/courses/42663/files/17394693/download?download_frd=1)</p>
4	1/25	Tue	<p style="text-align: center;">Design Considerations in Healthcare</p>

			<p>Lecturers: Amit Rushi, Chief Commercial Officer at Bodyport</p> <p>**ON ZOOM ONLY</p> <p><u>Professional Etiquette on Customer Interviews.pptx</u> (https://canvas.eee.uci.edu/courses/42663/files/17394009?wrap=1)</p> <p style="text-align: center;">↓</p> <p>(https://canvas.eee.uci.edu/courses/42663/files/17394009/download?download_frd=1)</p>
4	1/27	Thu	<p>Resume Workshop</p> <p>Lecturer: Daniel Hahn, Medtronic</p> <p>**ON ZOOM ONLY</p> <p><u>Lecture: Resume Writing Workshop</u> (https://canvas.eee.uci.edu/courses/42663/files/17470027?wrap=1)</p> <p style="text-align: center;">↓</p> <p>(https://canvas.eee.uci.edu/courses/42663/files/17470027/download?download_frd=1)</p>
5	2/1	Tue	<p>TEAM CHECK INS (2-5PM) @ ISEB 4020</p> <p>Path from Student to Entrepreneur</p> <p>Lecturer: Vas Bailey, ARTIS Ventures</p> <p>**ON ZOOM ONLY</p>
5	2/3	Thu	<p>TEAM CHECK INS (2-5PM) @ ISEB 5020</p> <p>Regulatory and Clinical Strategies in FDA</p> <p>Lecturer: Jessica Richter, Experien Group</p> <p>**ON ZOOM ONLY</p> <p><u>Lecture: Regulatory and Clinical Strategies in the FDA</u> (https://canvas.eee.uci.edu/courses/42663/files/17558935?wrap=1)</p> <p style="text-align: center;">↓</p> <p>(https://canvas.eee.uci.edu/courses/42663/files/17558935/download?download_frd=1)</p>
5	2/4	Fri	<p>TEAM CHECK INS</p>

(5-7:30PM) @ ISEB 2020			
6	2/8	Tue	<p style="text-align: center;">Lean Six Sigma and Agile Design Process Part II</p> <p style="text-align: center;">Lecturer: Dr. Chris Hoo</p> <p style="text-align: center;"><u>Lecture: Lean Six Sigma and Agile Design Process Part II</u> <u>(https://canvas.eee.uci.edu/courses/42663/files/17634809?wrap=1)</u></p> <p style="text-align: center;">↓</p> <p style="text-align: center;"><u>(https://canvas.eee.uci.edu/courses/42663/files/17634809/download?download_frd=1)</u></p>
6	2/10	Thu	<p style="text-align: center;">Hospital Environment Factors: Innovation Barriers and Promotors</p> <p style="text-align: center;">Lecturer: Eric Oberwise, Edwards Lifesciences</p> <p style="text-align: center;"><u>Lecture: Hospital Environment Factors: Innovation Barriers and Promotors</u> <u>(https://canvas.eee.uci.edu/courses/42663/files/17661600?wrap=1)</u></p> <p style="text-align: center;">↓</p> <p style="text-align: center;"><u>(https://canvas.eee.uci.edu/courses/42663/files/17661600/download?download_frd=1)</u></p>
7	2/15	Tue	<p style="text-align: center;"><u>Industry Networking Night</u> <u>(https://canvas.eee.uci.edu/courses/42663/files/17005548?wrap=1)</u></p> <p style="text-align: center;">↓</p> <p style="text-align: center;"><u>(https://canvas.eee.uci.edu/courses/42663/files/17005548/download?download_frd=1)</u></p> <p style="text-align: center;">Location: The Cove</p> <p style="text-align: center;"><u>BioENGINE Industry Night Agenda</u> <u>(https://canvas.eee.uci.edu/courses/42663/files/17622757?wrap=1)</u></p> <p style="text-align: center;">↓</p> <p style="text-align: center;"><u>(https://canvas.eee.uci.edu/courses/42663/files/17622757/download?download_frd=1)</u></p> <p style="text-align: center;"><u>HW 2: Initial Fabrication Design Review, Customer Interviews</u> <u>(https://canvas.eee.uci.edu/courses/42663/assignments/885392)</u></p>
7	2/17	Thu	<p style="text-align: center;">Emotional Intelligence- What You Need to Close a Deal</p> <p style="text-align: center;">Lecturer: Mark Santora</p>

			<p><u>Lecture: Emotional Intelligence - What You Need to Close a Deal</u> (https://canvas.eee.uci.edu/courses/42663/files/17751455?wrap=1) ↓ (https://canvas.eee.uci.edu/courses/42663/files/17751455/download?download_frd=1)</p> <p><u>How to Win Friends and Influence People Book Link</u> (https://www.amazon.com/How-Win-Friends-Influence-People/dp/0671027034)</p>
8	2/22	Tue	<p>TEAM CHECK INS (2-5PM) @ ISEB 4020</p> <p>How the Senior Design Projects Impacted my Future Panel Discussion</p> <p>Lecturers: UCI Alumni</p> <p><u>HW 3: Qualification Test Procedure, New Venture Competition Concept Paper</u> (https://canvas.eee.uci.edu/courses/42663/assignments/885393)</p> <p>**NVC Concept Paper due to competition website on Sunday, March 6th!</p>
8	2/24	Thu	<p>TEAM CHECK INS (2-5PM) @ ISEB 5020</p> <p>How to Pitch Your Idea</p> <p>Lecturer: Dr. Errol Arkilic, Applied Innovation (https://canvas.eee.uci.edu/courses/42663/assignments/885399)</p>
8	2/25	Fri	<p>TEAM CHECK INS (5-7:30PM) @ ISEB 2020</p>
9	3/1	Tue	<p><u>Project Presentations</u> (https://canvas.eee.uci.edu/courses/42663/assignments/885390) (8 min presentation each team)</p> <p><u>Due 3/2: Winter Design Review Poster due at 2pm to Dropbox Drive and Canvas Assignment</u> (https://canvas.eee.uci.edu/courses/42663/assignments/885399)</p>

9	3/3	Thu	<p align="center"><u>Project Presentations</u></p> <p align="center"> (https://canvas.eee.uci.edu/courses/42663/assignments/885390) (8 min presentation each team)</p>
10	3/8	Tue	<p align="center"><u>Project Presentations</u></p> <p align="center"> (https://canvas.eee.uci.edu/courses/42663/assignments/885390) (8 min presentation each team)</p>
10	3/10	Thu	<p align="center"><u>Project Presentations</u></p> <p align="center"> (https://canvas.eee.uci.edu/courses/42663/assignments/885390) (8 min presentation each team)</p>
10	3/11	Fri	<p align="center">8am – 3pm: Winter Design Review – Poster Exhibition (Location: Upper Engineering Gateway Plaza, 2pm-3:30pm)</p> <p align="center"><u>Winter Design Review Flyer and Information</u></p> <p align="center"> (https://canvas.eee.uci.edu/courses/42663/files/17699687?wrap=1)</p> <p align="center">↓</p> <p align="center"> (https://canvas.eee.uci.edu/courses/42663/files/17699687/download?download_frd=1)</p> <p align="center"><u>HW 4: New Venture Competition Pitch Deck, First Generation Prototype</u></p> <p align="center"> (https://canvas.eee.uci.edu/courses/42663/assignments/885394)</p>
Final	3/18	Mon	<p align="center"><u>HW 5: Team Evaluations, Senior Survey</u></p> <p align="center"> (https://canvas.eee.uci.edu/courses/42663/assignments/885395)</p>

Prototyping and Fabrication

Prototyping and Fabrication Spaces: Fabworks, RapidTech, Applied Innovation

FabWorks Location:

2302 Calit2 Building

RapidTech Location:

444 Engineering Tower

Contact: Ben Dolan, dolanb@uci.edu (<mailto:dolanb@uci.edu>)

FabWorks Website: <http://manufacturing.uci.edu/index.php/fabworks-2/>
(<http://manufacturing.uci.edu/index.php/fabworks-2/>)

RapidTech Website: <http://manufacturing.uci.edu/index.php/rapidtech/>
(<http://manufacturing.uci.edu/index.php/rapidtech/>)

Machine Shop Location:

137 Engineering Tower

Machine Shop Website: <https://manufacturing.uci.edu/index.php/facilities/machineshop/>
(<https://manufacturing.uci.edu/index.php/facilities/machineshop/>)

Contact: Tyler Schuldt, tschuldt@uci.edu (<mailto:tschuldt@uci.edu>)

Materials Testing Space: Engineering Tower

Contact: Jie Shen (TA), Dr. Chris Hoo, cmhoo@uci.edu (<mailto:cmhoo@uci.edu>)

Electrical/PCB Design Space: CalPlug

Contact: Dr. Mike Klopfer, mklopfer@uci.edu (<mailto:mklopfer@uci.edu>)

Website: <http://www.calit2.uci.edu/calit2-building/itemdetail.aspx?cguid=da1b9907-942d-4eed-bd3b-8bc8a78bcf2e>
(<http://www.calit2.uci.edu/calit2-building/itemdetail.aspx?cguid=da1b9907-942d-4eed-bd3b-8bc8a78bcf2e>)

Need Clinical Data? (e.g. images, physiological data):

Center for Artificial Intelligence in Diagnostic Medicine

4500 Calit2 Building

Contact: Dr. Peter Chang

Email: caidmadmin@hs.uci.edu (<mailto:caidmadmin@hs.uci.edu>)

Business and Research Library Resources:

UCI Libraries Innovation and Entrepreneurship Librarian: Sara Heimann, sheimann@uci.edu
(<mailto:sheimann@uci.edu>)

Website: <https://guides.lib.uci.edu/entrepreneurship>
(<https://guides.lib.uci.edu/entrepreneurship>)

UCI Research Librarian for Applied Sciences and Engineering: Julia Gelfand, jgelfand@uci.edu
(<mailto:jgelfand@uci.edu>)

Website: https://guides.lib.uci.edu/engr_biomed (https://guides.lib.uci.edu/engr_biomed)

Want Advice on Your Business Plan or Pitch Deck?:

Contact: Daniel Hahn

Email: Daniel.hahn@medtronic.com (<mailto:Daniel.hahn@medtronic.com>) (NOTE: by appointment only)

Contact: Fabio Gratton

Email: fabio@alchemyfactory.co (<mailto:fabio@alchemyfactory.co>)

Other Resources (<https://canvas.eee.uci.edu/courses/42663/pages/resources>)

(<https://canvas.eee.uci.edu/courses/20058/files/7209758/download?wrap=1>)

Project Team Assignment

(<https://canvas.eee.uci.edu/courses/20058/files/7328528/download?wrap=1>)


Project and Team List (<https://canvas.eee.uci.edu/courses/42663/files/17005367?wrap=1>) 
(https://canvas.eee.uci.edu/courses/42663/files/17005367/download?download_frd=1)

Purchase Request Form and Instructions

(<http://engineering.uci.edu/faculty-staff/purchasing-reimbursement/purchasing-requests>)

Please use the below template and instructions to submit purchase requests:

Step 1): Fill out the below form for EACH vendor:

Purchase Request Template Form (<https://canvas.eee.uci.edu/courses/42663/files/18199849?wrap=1>)
 (https://canvas.eee.uci.edu/courses/42663/files/18199849/download?download_frd=1)

Save the above form as "ARuth_Vendor Name_MM.DD.YYYY_Requestor Name"

for example: "ARuth_McMasterCarr_03.10.2022_Christine King"

Always use the above template file and rename the file appropriately as described above.

Step 2) Email your Purchase Request Form (separated by vendor) to bioengineundergrad@gmail.com (<mailto:bioengineundergrad@gmail.com>) with the following Title/Subject Line (insert name/group/etc appropriately):

"PO Request, BME 180, Group #"

BME Offices Address: 3120 Natural Sciences II, BME Offices, UC Irvine, Irvine, CA 92697

Step 3) Keep track of your purchases for your final report. You have \$2,000 as a budget for the entire project. You can use this starting 9/23/2021.

Step 4) Expect a 1-2 week lead time to receive your order. If you want to check on your order and when it was placed, please email bioengineundergrad@gmail.com (<mailto:bioengineundergrad@gmail.com>)

For more information on purchasing and reimbursement, please see:

<http://engineering.uci.edu/faculty-staff/purchasing-reimbursement/purchasing-requests>
(<http://engineering.uci.edu/faculty-staff/purchasing-reimbursement/purchasing-requests>)

COVID-19 Related Teaching Information and Policies:

ZotPass to Enter Classrooms and UCI Spaces:

<https://students.uci.edu/zotpass.html> (<https://students.uci.edu/zotpass.html>)

General Resources:

<https://sites.uci.edu/teachanywhere/home/fall-2021-resources/>
(<https://sites.uci.edu/teachanywhere/home/fall-2021-resources/>)

What happens if someone tests positive?

<https://uci.edu/coronavirus/testing-response/contact-tracing.php>
(<https://uci.edu/coronavirus/testing-response/contact-tracing.php>)

Face Coverings in Class are REQUIRED:

[UCI Policy on Face Coverings in Class](https://canvas.eee.uci.edu/courses/38367/files/15596116?wrap=1) (<https://canvas.eee.uci.edu/courses/38367/files/15596116?wrap=1>)  (https://canvas.eee.uci.edu/courses/38367/files/15596116/download?download_frd=1)

Upcoming Workshops:

New Venture Competition: <https://merage.uci.edu/research-faculty/centers/innovation-entrepreneurship/new-venture-competiton.html> (<https://merage.uci.edu/research->

[faculty/centers/innovation-entrepreneurship/new-venture-competiton.html](https://www.uci.edu/faculty/centers/innovation-entrepreneurship/new-venture-competiton.html))

Job Opportunities:

Please Share with your Mentors and Industry Representatives - Save the Date and RSVP

<https://canvas.eee.uci.edu/courses/42663/files/17005368?wrap=1>) ↓

https://canvas.eee.uci.edu/courses/42663/files/17005368/download?download_frd=1)

<https://canvas.eee.uci.edu/courses/22237/files/8495297/download?wrap=1>)

2 Job Openings at Stealth Startup Company in San Diego

1859, Inc. is a stealth mode start-up developing a pico-scale high throughput screening (HTS) platform that enables the testing of millions of small molecule potential medicines in a single day and at an exponentially lower cost point compared to conventional HTS. They are looking to hire 2 research associate-level people to perform screening campaigns on their droplet microfluidic discovery platform. Additionally, new hires would help on-board assays onto the platform, ensuring that they are compatible and appropriate for screens. All levels (BS, MS, PhD) welcome to apply.

See attached [job description \(https://canvas.eee.uci.edu/courses/42663/files/17271959?wrap=1\)](https://canvas.eee.uci.edu/courses/42663/files/17271959?wrap=1) ↓
https://canvas.eee.uci.edu/courses/42663/files/17271959/download?download_frd=1) . If interested, contact:

Dr. Alex Price

Director of Screening

1859, Inc.

San Diego, California

Email: alex@eighteenfifty-nine.com (<mailto:alex@eighteenfifty-nine.com>)

Any questions about this company? Feel free to contact company co-founder, Dr. Brian Paegel at UCI: bpaegel@uci.edu (<mailto:bpaegel@uci.edu>)

3 Job Opportunity at TCF Biomedical:

<https://www.usajobs.gov/job/638851000> <https://www.usajobs.gov/job/638851000>)

Open & closing dates: 02/23/2022 to 03/10/2022

4 Job Opportunity at Abbvie:

<https://abbvie.taleo.net/careersection/2/jobdetail.ftl?job=2203767>

[_ \(https://abbvie.taleo.net/careersection/2/jobdetail.ftl?job=2203767\)_](https://abbvie.taleo.net/careersection/2/jobdetail.ftl?job=2203767)

Other Competitions:

ANSI Competitions (Standards):

https://www.ansi.org/news_publications/news_story?menuid=7&articleid=713eb799-ab8b-403b-9d36-2b53dc98109c&utm_campaign=OO_EML_20September-21-2020-

[whatsnew_BG&utm_medium=email&utm_source=whatsnew](https://www.ansi.org/news_publications/news_story?menuid=7&articleid=713eb799-ab8b-403b-9d36-2b53dc98109c&utm_campaign=OO_EML_20September-21-2020-)

[_ \(https://www.ansi.org/news_publications/news_story?menuid=7&articleid=713eb799-ab8b-403b-9d36-](https://www.ansi.org/news_publications/news_story?menuid=7&articleid=713eb799-ab8b-403b-9d36-2b53dc98109c&utm_campaign=OO_EML_20September-21-2020-)

[2b53dc98109c&utm_campaign=OO_EML_20September-21-2020-](https://www.ansi.org/news_publications/news_story?menuid=7&articleid=713eb799-ab8b-403b-9d36-2b53dc98109c&utm_campaign=OO_EML_20September-21-2020-)

[whatsnew_BG&utm_medium=email&utm_source=whatsnew\)_](https://www.ansi.org/news_publications/news_story?menuid=7&articleid=713eb799-ab8b-403b-9d36-2b53dc98109c&utm_campaign=OO_EML_20September-21-2020-)

VentureWell Competitions and Resources

[ASPIRE](https://venturewell.org/aspire/) [_ \(https://venturewell.org/aspire/\)_](https://venturewell.org/aspire/)

[BMEidea](https://venturewell.org/bmeidea/) [_ \(https://venturewell.org/bmeidea/\)_](https://venturewell.org/bmeidea/)

[Cleantech University Prize](https://venturewell.org/cleantech-university-prize-cleantech/) [_ \(https://venturewell.org/cleantech-university-prize-cleantech/\)_](https://venturewell.org/cleantech-university-prize-cleantech/)

[DEBUT](https://venturewell.org/debut/) [_ \(https://venturewell.org/debut/\)_](https://venturewell.org/debut/)

[E-Teams Grants](https://venturewell.org/student-grants/) [_ \(https://venturewell.org/student-grants/\)_](https://venturewell.org/student-grants/)

[Inventing Green Toolkits](https://venturewell.org/inventing-green-toolkits/) [_ \(https://venturewell.org/inventing-green-toolkits/\)_](https://venturewell.org/inventing-green-toolkits/)

[NSF I-Corps](https://venturewell.org/i-corps/) [_ \(https://venturewell.org/i-corps/\)_](https://venturewell.org/i-corps/)

Other Competitions and Resources

[ACC InVenture Prize](http://accinventure.gatech.edu/) [_ \(http://accinventure.gatech.edu/\)_](http://accinventure.gatech.edu/)

[Baylor New Venture Competition](https://www.baylor.edu/business/newventurecompetition/) [_ \(https://www.baylor.edu/business/newventurecompetition/\)_](https://www.baylor.edu/business/newventurecompetition/)

[Collegiate Inventors Competition](http://www.invent.org/challenge/) [_ \(http://www.invent.org/challenge/\)_](http://www.invent.org/challenge/)

[James Dyson Award](https://www.jamesdysonaward.org/) [_ \(https://www.jamesdysonaward.org/\)_](https://www.jamesdysonaward.org/)

[MIT Clean Energy Prize](http://cep.mit.edu/) [_ \(http://cep.mit.edu/\)_](http://cep.mit.edu/)

[MIT Water Innovation Prize](http://www.mitwaterinnovation.org/) [_ \(http://www.mitwaterinnovation.org/\)_](http://www.mitwaterinnovation.org/)

[Rabobank-MIT Food and Agribusiness Innovation Prize](http://food-squarespace.com/innovation-prize/) [_ \(http://food-squarespace.com/innovation-prize/\)_](http://food-squarespace.com/innovation-prize/)

[Rice Business Plan Competition](https://rbpc.rice.edu/) [_ \(https://rbpc.rice.edu/\)_](https://rbpc.rice.edu/)

[Westly Prize](https://westly.org/westly-prize/) [_ \(https://westly.org/westly-prize/\)_](https://westly.org/westly-prize/)

[Pitch Launch Grow](https://www.universitylabpartners.org/our-events/pitch-launch-grow-2021/) [_ \(https://www.universitylabpartners.org/our-events/pitch-launch-grow-2021/\)_](https://www.universitylabpartners.org/our-events/pitch-launch-grow-2021/)

<https://ucinnovationchallenge.org/> [_ \(https://ucinnovationchallenge.org/\)_](https://ucinnovationchallenge.org/)

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[\(https://www.linkedin.com/groups/13533228/\)](https://www.linkedin.com/groups/13533228/)

BioENGINE Instagram: @bioengine

BME Discord Channel: <https://discord.gg/y37NkV5f> [_ \(https://discord.gg/y37NkV5f\)](https://discord.gg/y37NkV5f)