ENGR 493 *Dean's Seminar in Entrepreneurship:*
"Disruptive Technologies with an Entrepreneurial Mindset"

Syllabus Spring 2023
Fridays 10:00 – 11:50 Pacific Time Zone

C. L. Max Nikias, Ph.D.
President Emeritus and Professor
Malcolm R Currie Chair for Technology and the Humanities
Director, The USC Institute for Technology Enabled Higher Education
University of Southern California
https://presidentemeritus.usc.edu/

Professor Cauligi Raghavendra, Ph.D.
Vice-Dean, Global Academic Engagement
Viterbi School of Engineering
Department of Electrical & Computer Engineering
University of Southern California
https://viterbi.usc.edu/directory/faculty/Raghavendra/C

Dr. Alice Liu, Ph.D
Part-Time Lecturer
Viterbi School of Engineering
University of Southern California
https://www.nae.edu/234226/Alice-Liu-

Office Hours: Fridays 9:00-10:00am via Zoom by appointment.

This class will be entirely online for USC course credit. This course is being given as credit/no credit for 2 credit hours. Synchronous class sessions will be held Fridays from 10:00 – 11:50 Pacific Time Zone via Zoom. The Zoom link is posted on the course Blackboard site.

Course Description

This course is designed to introduce students to a variety of disruptive technologies or simply disruptions that can change human behavior, create new markets, and eventually displace previously established market leaders. A major focus of this program is to expose students to a variety of technology innovations, the importance of big data analytics, cloud computing,

artificial intelligence, and the Internet of Things (IoT), as well as the supply chain and role of semiconductor chips, and the importance of an entrepreneurial mindset to create disruptive business models. The class sessions will involve lectures, guest speakers, discussions, and case studies.

Course Learning Objectives

In this course, students will develop a good understanding of how a combination of technology innovation, big data, consumer behavior and entrepreneurship may lead to disruptive business models that can create new industries and grow our economy.

Upon completion of the program, students should be able to:

• Demonstrate a clear understanding of the emerging engineering ecosystems that combine technology innovation, consumer behavior, and Big Data.

• Identify emerging technologies and the potential of disruption that may surround them.

• Gain knowledge of the skills required to manage an entrepreneurial journey based on engineering technology innovation.

• Explore the Engineering Habits of the Mind that help frame the study, research, and practice of engineering.

In addition, this course provides an opportunity for students to develop their personal capabilities. Specifically, they will develop their analytical skills and critical thinking: learn to analyze and critically evaluate ideas and viewpoints; and learn to form conclusions and recommendations and to support them with logic and evidence.

Guest Lecturers

Throughout the semester and every week, we will host in class noteworthy individuals as guest lecturers who by their leadership roles have made important contributions in the world of disruptive business sectors. We will have the opportunity to interact with them in a Q&A session and discussion.

Our Inclusive Learning Community

Our USC Principles of Community state "USC is a multicultural community of people from diverse racial, ethnic, gender, and class backgrounds, national origins, faith backgrounds, political beliefs, abilities, and sexual orientations. Our activities, programs, classes, workshops, lectures, and everyday interactions are enriched by our acceptance of one another, and we strive to learn from each other in an atmosphere of positive engagement and mutual respect."
https://diversity.usc.edu/usc-principles-of-community/

As Trojans, we understand the value of the perspectives of individuals from all backgrounds that reflect the rich diversity of our USC community and beyond. The study of Leadership requires us to recognize how diversity, equity and inclusion is not only the ethical approach, but also creates a competitive advantage for organizations. Together, we will strive to make this classroom a psychologically safe and inclusive environment for all of us to develop and practice inclusive behaviors. As such, we will:

- Respect the dignity and essential work of all individuals,
- Promote a culture of respect within the university community,
- Respect the privacy, property, and freedom of others,
- Reject bigotry, discrimination, violence or intimidation of any kind,
- Practice personal and academic integrity and expect it of others, and
- Promote the diversity of opinions, ideas and backgrounds which is the lifeblood of the university.

If you see ways we can improve, please let us know.

Course Requirements and Evaluation

This course is being given as credit/no credit for 2 credit hours. Course requirements include regular class attendance and participation in discussions, debates and case studies, and timely completion of any assignments (14 sessions in all). No other course pre-requisite is required.

Course Policies

Please be prompt arriving to the classroom. Arriving late or leaving early from class meetings is not acceptable. Remember to turn off cell phones and other personal communication devices. Turn off and close laptop computers unless otherwise instructed. Each student is expected to know and abide by the University's policies on student behavior and the production of their own work product.

Online Class Expectations

1. Class attendance and participation is important in developing a coherent view of the materials covered in the course. Because this will be a highly interactive and experiential class, attendance and active participation is required at the synchronous Zoom class sessions.
2. Students are expected to have cameras on during the synchronous Zoom sessions. Headsets or earphones ensure the best audio quality but are not required.

3. During synchronous Zoom sessions, the following netiquette is expected, as if you were in a physical classroom.

   a. Please DO:
      i. Log into class early or promptly.
      ii. Arrange to attend class where there is a reliable internet connection and without distractions.
      iii. Dress respectfully. Video conference business meetings are and will be the norm, so practice your professional telepresence.
      iv. If you use a virtual background, please keep it respectfully professional.

     v. Display both your first and last name during video conferencing and synchronous class meetings.
    vi. Respectfully minimize distractions by muting and or turning off video if necessary and when appropriate.
   vii. Engage in appropriate tone and language with instructors and classmates.

b. Please DON'T:
    i. Engage in a simultaneous activity not related to the class.
   ii. Interact with persons who are not part of the class during the class session.
  iii. Leave frequently or not be on camera for extended periods of time.
  iv. Have other persons or pets in view of the camera.

Online Technology Requirements

The following equipment and system requirements are recommended to successfully participate in this online course:

- Computer with webcam
- Earphones or headset
- Reliable (preferably high speed) Internet connection
- Current operating system for Windows or Mac
- Current browser
  - Google Chrome
  - Firefox
  - Internet Explorer (not recommended)
  - Safari (Mac)

For technical support please see:

- **USC Systems** (Blackboard, USC Login,)
  For assistance with your USC login or other USC systems, please call +1 (213) 740-5555 or email Consult@usc.edu. They are open Mon – Fri, 9:30am – 5pm and weekends from 8am - 5pm (all Pacific time).

- **Zoom Video Web Conferencing System**
  For assistance using Zoom, go to Zoom Support Page. You may also call +1 (888) 799-9666 ext. 2. They are available 24/7.

Course Sessions and Topics

This course will be centered around concepts of technology innovation, big data analytics, cloud computing, Internet of Things (IoT), semiconductor chips and consumer behavior for each one of the disruptive technology topics to provide students with contemporary and emerging contexts as well as the impact of an entrepreneurial mindset. The following topics will be covered in class with invited speakers, lectures, and discussion sessions:

- *Ingredients to Create Disruption, Disruptive Technologies and Disruptive Business Models*
- *Innovator's DNA and Entrepreneurial Mindset*
- *Cloud Computing for Cheaper and Faster Innovation*
- *The AI Technology Revolution and IoT*
- *The Disruptive Technology of 3-D Printing and Manufacturing Process*
- *Autonomous Driving*
- *Renewable Energy and Cleantech*
- *Blockchain and Cryptocurrencies*
- *Semiconductor Chips: The Brains Behind Everything*
- *Cybersecuring Democratic Societies*
- *The 5G and 6G Telecommunications Infrastructure*
- *Virtual Reality and Metaverse Platforms*
- *Quantum Computing*
- *Biotech and Gene Editing*

The Weekly Class Schedule with the names of the invited speakers will be available on Blackboard at the beginning of the semester as a separate document.

The students will be divided into groups with five members in each group. Each group will be asked to choose a disruptive innovation and explain why they think it can change consumer behavior. Each group will give a presentation to the class about their disruptive technology case study.

Course Materials

Reading materials will be distributed in class or referenced as appropriate. In addition, the following textbooks will provide important background:

Gaddam, Srikanth (2020). The Future of Disruptive Technologies: Impacts on Business, Workforce, and Societies. ISBN 979-85684-64518

Armstrong, Paul (2017). Disruptive Technologies: Understand, Evaluate, Respond. Kogan Page Limited. ISBN 978-07494-77288.

Lorenzo, Oswaldo and Kawalek, Peter and Wharton, Leigh (2018). Entrepreneurship, Innovation and Technology: A Guide to Core Models and Tools. Routlege. ISBN-978-1-138-49761-0

All course information is available through your Blackboard account. Blackboard is the primary channel of communication for this course so take note of announcements and other email messages you receive. Assignments are posted here as well.

To access Blackboard from your web browser, enter https://blackboard.usc.edu, and use your USC username and password to log in.

Decks of PPT Slides for each topic, articles and video clips can be found on Blackboard.

Student Disability Accommodations

Any student requesting academic accommodations based on disability is required to register with Disability Services and Programs (DSP) each semester. A letter of verification for approved accommodations can be obtained by DSP. Please make sure the letter is received by the instructors as early in the semester as possible.

Academic Integrity & Conduct

USC seeks to maintain an optimal learning environment. General principles of academic honesty include the concept of respect for the intellectual property of others, the expectation that individual work will be submitted unless otherwise allowed by an instructor, and the obligations both to protect one's own academic work from misuse by others as well as to avoid using another's work as one's own. All students are expected to understand and abide by these principles. *SCampus*, the Student Guidebook, (www.usc.edu/scampus) contains the University Student Conduct Code (see University Governance, Section 11.00), while the recommended sanctions are located in Appendix A in the *SCampus* document online.

Should there be any suspicion of academic dishonesty, students will be referred to the Office of Student Judicial Affairs and Community Standards for further review. The Review process can be found at: https://sjacs.usc.edu/students/academic-integrity/. Failure to adhere to the academic conduct standards set forth by these guidelines and our programs will not be tolerated by the USC community and can lead to dismissal.

Plagiarism – presenting someone else's ideas as your own, either verbatim or recast in your own words – is a serious academic offense with serious consequences. The use of unauthorized material or technology, communication with fellow students during an examination, attempting to benefit from the work of another student, and similar behavior that defeats the intent of an examination or other course work is unacceptable and will be treated accordingly. Other integrity violations include handing in someone else's homework assignment for them when they did not attend class or claiming credit for words or thoughts that are not your own, which includes having your name appear on a team project/paper when you did not fully participate in completion of the project/paper. These actions will have significant impact such as failing the course. Not only is it your responsibility to abide by these standards, it is also your responsibility to notify the instructor if you observe any violations of academic integrity in this course.

You are expected to familiarize yourself with the discussion of plagiarism in *SCampus* in Part B, Section 11, "Behavior Violating University Standards" https://policy.usc.edu/scampus-part-

[b/](#). Other forms of academic dishonesty are equally unacceptable. See additional information in *SCampus* and university policies on scientific misconduct, http://policy.usc.edu/scientific-misconduct.

Statement on Technological Use

Please note that you will need to use your <u>computer laptop or tablet</u> for this course to log into Zoom and access other digital tools as instructed by your professors. It is far more important to participate than to take detailed notes. Course PPT slides and Zoom recordings will be posted on Blackboard. After each class session, you may want to take some time to reflect on the learning experience and type up whatever notes seem useful. You should turn off your mobile phone and kept off throughout the class session unless you are using it to access the class session. We invite you to "Be Here, Be Present!" to create an engaging learning community.

Religious/Cultural Observance

Persons who have religious or cultural observances that coincide with class should let me know by email as soon as possible so we can make accommodations for any missed work or participation. I strongly encourage you to honor your cultural and religious holidays! However, if I do not hear from you before the holiday, We will assume that you plan to attend all class meetings.

Emergency Preparedness/Course Continuity

In case of a declared emergency (i.e. earthquake or fire), the *USC Emergency Information* web site (http://emergency.usc.edu/*)* will provide safety and other information, including electronic means by which instructors will conduct class using a combination of USC's Blackboard learning management system (blackboard.usc.edu), teleconferencing, and other technologies.

Student Well-being Support Systems

Counseling and Mental Health - (213) 740-9355– 24/7 on call
https://studenthealth.usc.edu/counseling/
Free and confidential mental health treatment for students, including short-term psychotherapy, group counseling, stress fitness workshops, and crisis intervention.

National Suicide Prevention Lifeline - 1 (800) 273-8255 – 24/7 on call
suicidepreventionlifeline.org
Free and confidential emotional support to people in suicidal crisis or emotional distress 24 hours a day, 7 days a week.

Relationship and Sexual Violence Prevention Services (RSVP) - (213) 740-9355(WELL), press "0" after hours – 24/7 on call
https://studenthealth.usc.edu/sexual-assault/
Free and confidential therapy services, workshops, and training for situations related to gender-based harm.

Office of Equity and Diversity (OED)- (213) 740-5086 | Title IX – (213) 821-8298
equity.usc.edu, titleix.usc.edu
Information about how to get help or help someone affected by harassment or discrimination, rights of protected classes, reporting options, and additional resources for students, faculty, staff, visitors, and applicants.

Reporting Incidents of Bias or Harassment - (213) 740-5086 or (213) 821-8298
https://usc-advocate.symplicity.com/care_report/
Avenue to report incidents of bias, hate crimes, and microaggressions to the Office of Equity and Diversity |Title IX for appropriate investigation, supportive measures, and response.

The Office of Disability Services and Programs - (213) 740-0776
dsp.usc.edu
Support and accommodations for students with disabilities. Services include assistance in providing readers/notetakers/interpreters, special accommodations for test taking needs, assistance with architectural barriers, assistive technology, and support for individual needs.

USC Campus Support and Intervention - (213) 821-4710
https://uscsa.usc.edu/
Assists students and families in resolving complex personal, financial, and academic issues adversely affecting their success as a student.

Diversity at USC - (213) 740-2101
diversity.usc.edu
Information on events, programs and training, the Provost's Diversity and Inclusion Council, Diversity Liaisons for each academic school, chronology, participation, and various resources for students.

USC Emergency - UPC: (213) 740-4321, HSC: (323) 442-1000 – 24/7 on call
dps.usc.edu, emergency.usc.edu
Emergency assistance and avenue to report a crime. Latest updates regarding safety, including ways in which instruction will be continued if an officially declared emergency makes travel to campus infeasible.

USC Department of Public Safety - UPC: (213) 740-6000, HSC: (323) 442-120 – 24/7 on call
dps.usc.edu Non-emergency assistance or information.

Trojans Care for Trojans – (213) 740-0411; https://campussupport.usc.edu/trojans-care-4-trojans/
USC Trojans Care for Trojans (TC4T) is an initiative within the Office of Campus Wellbeing and Crisis Intervention that empowers USC students, faculty and staff to take action when they

are concerned about a fellow Trojan challenged with personal difficulties. This **private and anonymous request form** provides an opportunity for Trojans to help a member of our Trojan Family.

Appendix A

How to Access ARES Course Reader:
Automated Reserves System (ARES) manages course reserves including electronic reserves and physical reserve requests. Maintained and operated by the **Integrated Document Delivery (IDD)** department, the ARES database differs from Blackboard as it is supported by USC Libraries staff to manage physical and electronic reserve requests obtainable and available from library resources.

You can access ARES at: **https://reserves.usc.edu**

Students can find a quick introduction and guide on how to add courses to their ARES profile at:

http://libguides.usc.edu/distancelearning/coursereserves