Many companies are using data as the core enabler for their business and for many it is the fundamental economic value of the company behind the service they provide. This course focuses on topics relevant understanding and building these types of high-growth companies. How do you create a data driven start-up? What are the fundamentals of building a data driven firm? How can the value of a firm's data assets be maximized? What are the differences between an idea and true opportunity? How does an entrepreneur form a team and gather the resources necessary to create an enterprise? This class focuses on team projects, in-depth case studies, research on the entrepreneurial process, and the opportunity to network and ask questions of top entrepreneurs and venture capitalists for MS engineering students who seek to understand the formation and growth of high-impact technology driven start-ups.

**Course Objective**

This course introduces the fundamentals of data-driven entrepreneurship. You will learn the process that data-driven entrepreneurs use to start companies. It involves taking a technology idea and finding a high-potential commercial opportunity, gathering resources such as talent and capital, figuring out how to sell and market the idea, and managing rapid growth.

This class demonstrates the entrepreneurial mind set ... when others see insurmountable problems, people look for opportunities in technology and business solutions. An entrepreneurial perspective is also a wonderful way of thinking in order to tackle new opportunities in today's innovative market place.

**Who is this Course For?**

This course is designed for engineering students who seek to understand what the entrepreneurial mindset and its key processes are about. Topics introduced in this course
are relevant for future founders of enterprises, as well as the future employees of an independent or corporate startup.

**How Do We Teach this Course?**

Curriculum is delivered through case studies, lectures, workshops, and projects that cover high-growth ventures in information technology, electronics, life sciences, green technology and other industries, this course provides the student with the tools necessary to successfully identify a true business opportunity and to start, grow and maintain a technology enterprise.

At the highest level, you should come away from the class with solid answers to the following questions:

- What are the characteristics of a successful entrepreneur?
- What is the nature of an entrepreneurial career?
- Where do ideas come from?
- How do you distinguish ideas from real opportunities?
- Which opportunities are aligned with a data driven strategy?
- What is the right strategy for managing entrepreneurial projects?
- What are the characteristics of a winning business model?
- How does the entrepreneur manage risk?
- Is an entrepreneurial career right for you?

You should also develop skills in the following areas:

- Using the business model canvas and hypothesis development to identify and refine the core elements of your business and identify opportunities to use data to optimize and monetize the value stream
- Using data to drive business interaction, direction, and extracting economic value from that data
- Using the customer development process to solicit the earliest possible customer feedback to your value proposition and the compelling (or not) nature of your business idea.
- Calculating breakeven, cash flow, and key financial metrics.
- Knowing how to identify early customers to gain and embrace their feedback.
- Understanding the different sources of financing and when each one is appropriate.
- Determining the value of new businesses at various stages of development.
- Learning how to pitch your idea.

**Course Requirements**

There are two requirements for the Data Driven Entrepreneurship course: 1) class participation, and 2) the final presentation and paper.

1. **Class Participation & Attendance:**

Class participation is vital, therefore attendance is critical. Two points will be deducted for each unexcused absence. Two excused absences are permitted, but you must notify the TA in advance. A significant percentage of your grade is earned through class participation. We depend upon each other to make this class vibrant, so preparing in depth and contributing to discussion is important. Expect cold calls.
Finally, make it a priority to be on time. Please try to sit in the same seat for each session, and bring your name cards to every class.

**There is a “no devices” policy. Please leave your phones and computers off.**

### 2. Midterm Presentation & Report:

Your midterm presentation is expected to be a preliminary version of your final pitch. Students will form self-selected groups (of 3 – 4 students) to explore an idea for a new business. While it would not be graded, it would be very important in shaping your final presentation. You will receive valuable feedback from the instructor, TA and your fellow classmates that will help you enhance your value proposition or pivot to a new idea.

For your midterm report, you will be asked a broad question designed to test your creativity and your understanding of the concepts discussed in class. You will also be required to identify specific current market trends that support your conclusions. The report is expected to be 2-3 pages long. You will be given a week to hand in your paper.

### 3. Final Presentation and Paper

At the end of the semester each group will make a 10-minute final presentation of their project followed by Q & A. For the presentation, teams will prepare a 10 to12-slide investor power point pitch. A final paper is also required. The paper is a maximum of eight single-spaced pages (12-point font), plus three appendices (see details below). Both the paper and the power point are to be handed in on the last day of class.

Each team is expected to meet twice with the professor for ½ hour to discuss their projects. The professor is available for a third optional meeting and also available for one-on-one meetings. You can sign up for office hours with the TA.

Your paper will be graded on four elements: the quality of the idea and the entrepreneurial insight; the learning and progress that has occurred during the semester; the diligence with which you have executed the study; and the quality of the pitch or presentation. I am looking for good ideas that have been well developed and iterated based on customer feedback, that are also well researched and presented.

The paper should address the following aspects of the proposed venture:

- Brief Description of the Opportunity and why is it a data driven business
- Market and Customer Segments
- Product or Service and Value Proposition
- Competition and Competitive Insulation
- Key risks
- Timing and Financing
Appendix 1:
The Business Model Canvas: which summarizes the key components of your business model (customers, value proposition, revenue streams, etc.)

Appendix 2:
Summarize, on two-three pages, what you learned about your venture idea from Customer Discovery, including market and value proposition analysis, along with brief summaries of interviews with at least fifteen named (not anonymous) strangers. Provide one short summary paragraph per interview. A stranger is someone you do not know, but have reason to believe has knowledge that will assist you in evaluating your idea. Important interviews with people previously known by you can also be included and can be valuable, but do not count towards the required fifteen interviews. These interviews can and should include: potential customers (including, if applicable, purchase decision makers, distributors, store buyers and end-users), suppliers, investors, people in similar businesses, experts, etc.

Appendix 3:
Write an essay on the following:

What is a data driven business?
What are the most important elements of Data Driven Business?
What makes a Data Driven Business Successful?
What are the challenges a Data Driven Business would face? And how would you overcome that?

Please submit all assignments in hard copy. Soft copies will not be accepted.

Grading
The following weights will be used to calculate grades for the class:

Class Attendance...........................................10%
Class Participation.........................................20%
Midterm Report.............................................15%
Final Paper..................................................25%
Final Presentation ..........................................30%

At the end of the course, each group member will be asked to send the professor a confidential email indicating the percentage that each member contributed to the final project.

I look forward to your participation in the class!!