

Spring 2017 Supplement and Course Offerings List

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Information Contained In this Document

- 1) Course Tips & Info and Catalog Supplement (courses new to catalog for 2016-17 or special topics)
- 2) Cross-Registration Links and Deadlines
- 3) Course Offerings List (you can also search this here: [Course Search](#))
- 4) Course Offerings Grid

General Registration Instructions and FAQs, please visit our Registrar's [web page](#).

Registration Timelines for Add; Drop and Pass/No Credit ; Withdraw

Session	Add	Drop and Pass/No Credit	Withdraw
Full Semester (Jan 17 – Apr 27)	January 30, 2017	March 29, 2017	April 27, 2017
Session I (Jan 17 – Mar 3)	January 23, 2017	February 16, 2017	March 3, 2017
Session II (Mar 6 – Apr 27)	March 10, 2017	April 11, 2017	April 27, 2017

Cross-Registration Deadlines

	Babson	Brandeis	Wellesley
Cross-registration open period	11/14/2016 – 1/30/2017 at 4:30 p.m.	1/9/2017 – 1/30/2017	11/21/2016 – 2/10/2017 at 11 p.m.
First day of classes	1/24/2017	1/17/2017	1/24/2017
Drop deadline	1/30/2017 at 4:30 p.m.	3/6/2017	2/24/2017 at 11 p.m.

Questions? Contact the Registrar's Office at Olin College, Campus Center, Room 320; registrar@olin.edu 781-292-2340

Degree requirements are outlined in the course catalog: <http://www.olin.edu/course-catalog/2016-17-course-catalog/>

A Curriculum Map can be found on the portal under MyStAR and My Academic Program.

Course descriptions can also be found in the catalog and in the portal course search. New, highlighted, and Special Topics course descriptions are listed below.

Helpful Tips & Information on Planning Your Spring 2017 Courses

- A. Two new E! courses offer students the opportunity to engage in Entrepreneurial Projects at any time in their Olin career, as opposed to Entrepreneurial Capstone Projects which normally occur in the senior year and typically represent a culmination of E! work. These two courses acknowledge that personal project-based learning is a key way to learn entrepreneurship no matter where you are in the process. Students may use *Iterate* and *Launch* to explore their ideas or variations on their ideas multiple times across their years at Olin.
- B. We have some new courses (and some returning courses) to tempt you ... please take a look at this short list and explore them more fully in the section below or in our college catalog:
 - a. Helen Donis-Keller's 8 credit interdisciplinary course, Intersection of Biology, Art and Technology ... *did you know?* – the SCI portion of this course will count as your foundational biology requirement
 - b. Scott Hersey's and Alison Wood's Environmental Analysis Engineering course ... *did you know it already has an acronym of EAE and you can choose what type of credit you will receive and which requirements it will meet* (see below, item C. – on cross-listed courses)
 - c. E4H – Engineering for Humanity is making a return to spring semester. This course provides a terrific design and anthropologic approach to understanding needs for members of the greater Needham community.
 - d. DREAM– that's right, Amon is back at it with an Engineering course that explores the people-to-people process of Engineering in a “maker movement” environment.
 - e. Alisha Sarang-Sieminski's Biomedical Device Design is new to our offerings and extends the bioengineering topic into the design depth and mechanical engineering elective landscape ... *did you know?* - *this counts as a design depth, and by petition, may count as an ME elective*
 - f. FOCS – is running again this spring 2017 and is still under the experiment of removing the prerequisite of MTH2110, Discrete Mathematics.

C. What does the category of Cross-listed mean?

Cross-listing is a term associated with two distinct course numbers for a single academic activity. The activity can be defined under two topics depending on what aspect of the course content a student focuses on during their enrollment. To this end, the student elects the path at the beginning of the course (no later than the last day to add) by selecting the appropriate course number. During the spring semester we have two such offerings ... Tim Sauder's Tell the Story of What You Make (AHSE 2199D or ENGR2299) and Scott Hersey's and Alison Wood's Environmental Analysis Engineering (ENGR2999 or SCI2399). If you were to enroll in these courses, you would decide if you wanted AHS or ENGR credit for Tim's and for Scott and Alison's ENGR or SCI credit. The distinction is important because it could frame your project and impact how your experience works toward completing a requirement (e.g. SCI for Environmental Analysis Engineering will satisfy your Mat Sci/Chem requirement; but ENGR for the same course will not).

Questions? ... email us, registrar@olin.edu

New, Returning and Special Topics Courses to Note

SPECIAL TOPICS OFFERINGS

AHSE2199A: Special Topics in Arts, Humanities and Social Sciences

Constructing & Performing the Self

Instructor(s): Jon Adler and Professor Beth Wynstra (Babson)

Credits: 4 AHSE

Registration note: This course brings together the psychological study of identity and the theater of solo performance to ask one of the most fundamental of all questions: who am I? The instructors received the inaugural BOW Curriculum Innovation Fellowship to develop the course, which will include students from all three colleges (capped at 8 students per institution) and be offered for the first time this Spring.

In this course, theatrical and psychological approaches will be purposely inter-mingled: the questions we will ask and the answers we will derive will be informed equally by each. You will see, on a daily basis, how each field informs, supports, and speaks to the other as you oscillate between the roles of scholar, writer, actor, and critic. While we will have some class sessions and assignments explicitly grounded in only one field to build your fluency speaking their languages, the major activities of the semester will require both. The final deliverable for the course will be a short, personal monologue, informed by the scientific literature on identity, which you will write and then perform as part of a fully-mounted theatrical production April 20-21 in the Studio Theater at Babson. No playwriting or acting experience is necessary. Please don't hesitate to email Jon (or Beth) with any questions!

AHSE2199B: Special Topics in Arts, Humanities, Social Sciences

Virtualities: An Introduction to Video Gaming History and Theory

(Session I)

Instructor(s): Maruta Vitols

Credit: 2 AHSE

Though a relatively new technology and art form, video gaming has become an integral part of daily life in many societies. Deeply connected to the birth of the computer and the internet, video games today shape and are shaped by our society. How have video games evolved over the past few decades? How do massive multi-player role playing games affect how people conceptualize community? Why do certain games develop an intense cult following, while others sink into obscurity? This course will offer a broad introduction to the history of video game technology, from its inception to the present day. It will also examine major theoretical concerns involved in video gaming, such as the constructions of gender, identity, and community.

AHSE2199C: Special Topics in Arts, Humanities and Social Sciences

Digital Documentary Storytelling

(Session II)

Instructor(s): Maruta Vitols

Credits: 2 AHSE

In this workshop, students learn the basic principles of documentary filmmaking. Providing a brief introduction to the theory and history of documentary media production, class discussion will address the ethical, aesthetic, technological, and economic concerns of non-fiction film art. This course will develop students' visual communication skills, focusing on narrative storytelling techniques. Putting "theory" into "practice," students will create their own short digital documentary for their final project. While no previous experience in filmmaking is required, please note that this is NOT a technical course.

AHSE2599: Special Topics in Entrepreneurship

Iterate...

Instructor(s): Lawrence Neeley

Credits: 2 ENTRP

Prerequisite(s): Products and Markets

Registration Note: May be taken multiple times.

This course is about exploring the potential of ideas and their ability to create value “in the wild”. If you have the seed of an idea, an inkling, or even are just curious, this class offers an explicit and rigorous structure for you to test and validate your ideas. Each offering of the course will consist of three two-week sprints. During each, you will be compelled to test a different question, hypothesis or assumption about your idea by getting in front of real people. Outside resources, mentors and advisors will be substantively engaged based upon the specific needs of each project.

Students may enter as either individuals or teams. You don’t have to have a pre-existing idea or business before the course. This is a 2-credit course and may be taken multiple times for full credit. Four credits of this course may also be used to satisfy the entrepreneurship capstone requirement.

AHSE3599: Special Topics in Entrepreneurship

Launch!

Instructor(s): Lawrence Neeley

Credits: 4 ENTRP

Prerequisite(s): Products and Markets

Registration Note: May be taken multiple times.

This course emphasizes advancing your product, business, creative and impact ideas by seeking recognition and support from external stakeholders. Every student or team will apply to pitch their idea at the Babson B.E.T.A. Challenge. In addition, students will also be encouraged and supported in their efforts to apply to early stage funding sources such as Rough Draft Ventures and accelerators such as MassChallenge.

Students may take this course as either individuals or teams. A pre-existing idea or business isn’t required, but each student must be fully committed to reaching the course milestones, including application and submission to external competitions. Outside resources, mentors and advisors will be substantively engaged based upon the specific needs of each project. This is a 4-credit course and may be taken multiple times for full credit. It may also be used to satisfy the entrepreneurship capstone requirement.

ENGR2199: Special Topics in Engineering

Designing Resources for Empowerment and Making (DREAM)

Instructor(s): Amon Millner

Credit: 4 ENGR

At Olin, students develop an understanding of how engineering can be a “people to people” process. The people who are undertaking engineering efforts and those who are affected by the outcomes are oftentimes part of complex social systems that do not serve all people equitably. DREAM students learn how to recognize and respond to inequalities in both “close-to-home” contexts and less-familiar realms. The course examines and extends “the maker movement,” with a critical eye toward addressing empowerment issues entrenched in maker cultures. The maker movement is, essentially, a growing community of people and resources aiming to support everyone feeling empowered to open and remake the engineered world around them (typically with the help of some computational, electronic, or mechanical tool). DREAM students will gain a deeper understanding of how the maker movement has some properties that can leverage hands-on learning to unify diverse sets of people and some properties that serve as divisive forces between groups. The project-based course will prepare students to identify and harness properties of tools, activities, people, and spaces associated with the maker movement to enable a target group to feel empowered to make things, make a difference, and make their own way.

The course examines how “empowerment and making” is experienced by individuals that represent a variety of: races, colors, nationalities, ethnic origins, ancestries, ages, religions, ability levels, sexes, gender identities, sexual orientations, military involvements, and/or socio-economic statuses. Classes are structured to expose students to a variety of methods for making (with high- and low-tech) and dimensions of (dis)empowerment. The first dozen class meetings feature guests and “make breaks” (sometimes featuring fruits and MaKey MaKeys). The class takes field trips to Boston (and sometimes RI) area community technology centers to experience making outside of Olin’s campus. Off-campus (young) makers usually visit a class session to experience hands-on activities designed by DREAM students. Some assignments are assessed by outside experts, selected to represent perspectives that are not commonplace at Olin.

DREAM culminates with a team project resulting in a “resource for empowerment and making.” Students can choose to take on challenges presented by guest speakers or partner organizations (such as the Boston Childrens Museum). Students are also welcome to craft their own final project trajectory, determining appropriate levels of computational, electronic, and/or mechanical components for the desired context. More about the course can be found at <http://dream.olin.edu>.

ENGR3199 - Special Topics in Engineering

Acoustics

Instructor(s): Neal Lackritz (Director of Technical Education and Development at Bose Corporation)

Credits: 4 ENGR

Recommended Prerequisite(s): Signals and Systems or equivalent

Registration note: This course may serve as both an ECE and ME elective, pending approval from each program group.

This course takes a sound look at many of the fundamentals of engineering through the subject of acoustics and the use of modeling. Covered topics include: Sound generation and propagation in air; Simple sources and arrays of sources; Derivation of lumped parameter acoustical elements and circuits from solutions of wave equations; Radiation impedance; Conversion among acoustical, electrical, and mechanical systems; Modeling and analysis of electroacoustical devices such as microphones and loudspeakers; Sound in rooms; Interaction of sound and humans.

Neal taught a similar course at MIT for several years under Prof. Bose (videos of his lectures at <https://teachingexcellence.mit.edu/category/inspiring-teachers/amar-g-bose-6-312-acoustics>). For reference, Neal’s LinkedIn page is at <https://www.linkedin.com/in/neal-lackritz-32319339>. Oscar will sit in the course and serve as an additional resource for students. This course assumes that you are comfortable analyzing electric circuits. While not explicitly required, it is highly useful to be familiar with the use of Laplace transforms and with frequency-domain analysis of electric circuits. If you have questions or concerns about your background or any other topics, please contact Oscar.

ENGR 3299: Special Topics in Design

Educational Design Studio

Instructor(s): Alexandra Coso Strong and Jon Stolk

Credits: 4 ENGR

Prerequisite(s): ENGR2250.

Registration note: This course satisfies the design depth requirement.

Everything in education is designed – classroom experiences, pedagogical approaches, curricula, educational software, policies, evaluation methods, classroom spaces, project toolkits, standards and accreditation criteria, museum exhibits, textbooks and syllabi, etc. In this course, we will apply a systems perspective to deeply understand and analyze present-day educational designs and their contexts; and we will apply human-centered design methods to develop and implement new educational designs for a variety of settings (K-12, college, professional, community). Through research, readings, site visits, and in-class discussions, will seek to understand not only the ‘what’ (e.g., knowledge, skills, and abilities) and ‘how’ (i.e., pedagogical techniques) of learning, but also the ‘when’, ‘where’, ‘with whom’, and ‘why’. We will unpack the design decisions and examine the mental models that underlie particular educational designs, and consider how to support learning in contexts where stakeholder needs may conflict. By engaging with external clients or advisors on a semester-long project, we will deploy prototype educational designs that creatively address problems, respond to societal needs, leverage opportunities, initiate change, or provoke the system. This course is experimental, so we will work together to adjust and adapt the course plan as we go along.

ENGR3299A: Special Topics in Design

Making Music

Instructor: Ben Linder

Advisors: Chris Lee and Diana Dabby

Credits: 4 ENGR

Registration note: This course does NOT satisfy a design depth requirement.

Students will co-design, prototype, and pilot experimental stringed instruments to support the democratization of music in low-resource contexts with an emphasis on affordability, learnability, and playability. Students will work in teams focused on an instrument or one of its components and a context, such as the cello or its bow for use in elementary public school programs or an electric guitar for a build-an-instrument program in a youth-focused mobile maker space in Mississippi. This course is offered jointly with a senior design studio at Massart. Teams of engineering and industrial design students will collaborate using the Fusion 360 CAD platform to propose, develop, and prototype instruments using modern fabrication

methods including CNC routing. Teams will be supported by advisors including musicians, luthiers, design, and engineering faculty members.

ENGR3399 - Special Topics in Mechanical Engineering

Finite Element Analysis

Instructor(s): Christopher Lee

Credits: 4 ENGR

Prerequisite(s): ENGR 2320 or permission of the instructor

Registration note: This is a tentative offering and is strongly dependent on enrollment.

Computational simulation based on finite element methods is routinely used in engineering, especially in product design and development. In fact it is likely that the design and fabrication of any human-made, commercially-produced structure or mechanical system that you have come in contact with has been guided by finite element analysis.

We'll start with fundamentals principles of FEA focusing on proper usage rather than mathematical theory. You'll learn to apply common analysis processes (e.g., static, dynamic, modal, thermal-mechanical, explicit dynamic). You'll then define your own project(s) where you will apply these tools for quantitative analysis.

ENGR3499A and B - Special Topics in Electrical and Computer Engineering

Asynchronous VLSI

Instructor(s): Ben Hill

Credits: 2 ENGR

Prerequisite(s): recommend Software Design ENGR2510 or equivalent programming familiarity, Circuits ENGR2420 or Computer Architecture ENGR3410 a large plus.

This course investigates delay-insensitive design techniques from the system architecture level down to circuit implementation. Students will use provably-correct synthesis transformations to construct concurrent VLSI circuits for a system of their choice starting from a simple program description.

ENGR 3599: Special Topics in Computing

Computer Networks

Instructor(s): Alex Morrow

Credits: 4 ENGR

Prerequisite(s): Knowledge of object oriented programming language: Python or permission of instructor.

This course is a project oriented introduction to computer networking. It is organized by the standard OSI network model, which consists of seven layers. Students working in teams of two or three use Python 3 to program Raspberry pi computers a layer at a time. The result is that students learn networking by building a working model of the Internet which can host standard Linux UDP/IP applications.

This is the fifth time the experimental course has been offered. This version of the course provides students with a common interface between layers. This makes it much easier for students to understand the network layering model, for teams to compare and interchange layers and for students to create interesting projects and explore alternate layer implementations.

Topics include: implementation of a physical layer based on Morse code that permits two computers to exchange messages; a data link layer (local area network) that turns the physical layer into to a model network layer between multiple computers; a network layer that routes traffic between multiple model local area networks; a transport layer that provides access to the network layer over the Linux socket interface; a session layer that adds asymmetric (RSA) and symmetric ciphers to the socket layer; a presentation that expands Morse code to Unicode; and an application layer that supports Linux UDP/IP applications written in Python 3.

ENGR3599A: Special Topics in Computing

Hacking the Library

Instructor(s): Oliver Steele

Credits: 4 ENGR

Prerequisite(s): recommend ENGR 2510 or equivalent programming experience

Let's create a new kind of Library. In this studio course, teams will leverage the Library's resources and institutional mandate to demonstrate the future of Olin's Library and public libraries writ large. This course will focus on creating, developing, and deploying projects that the Library will host. Our aim is to create systems, artifacts, and spaces that escape the semester and impact the Olin community beyond the semester.

The Library is in the business of capturing, managing and transmitting knowledge. New directions for The Library could include visualizations and context-aware displays, data-mining and machine learning and novel digital/physical environments.

Resources to be leveraged:

- Books, tools, databases, and Integrated Library System (the Library's Operating System)
- Community content such as course archives, photos, and artifacts
- Digital signage infrastructure
- The Library space
- Untapped information flows through the campus - from email to slack channels

This is a studio course, with occasional readings and discussion around production development and operations as well as libraries. Topics will be guided by the specific projects chosen. Projects will be developed by individuals and teams, we will meet regularly to understand the goals and interactions between the projects. Instructors will guide learning of software development that supports both prototyping and robust working systems, as well as design methods.

Students need not have taken Software Design, but should be comfortable coding. Talk to me if you have questions.

ENGR3699: Biomedical Device Design

Instructor(s): Alisha Sarang-Sieminski (with special guest/co-instructor, Andrew Coats '08)

Credits: 4 ENGR

Prerequisite(s): ENGR 2250

Registration note: This course will satisfy a design depth requirement and also count as a Mechanical Engineering elective.

This course covers a number of topics related to the design of biomedical devices including, but not limited to, what constitutes a biomedical device, their history, the response of the body to materials, regulation and approval, stakeholder identification and input, manufacturing, and bioethics. Students will engage in a significant project, working with an external company or organization.

SCI2299: Special Topics in Biological Sciences:

Quantitative Biology

Instructor(s): Theresa Wasylenko

Credits: 4 SCI

Prerequisite(s): recommend Foundational Biology (SCI1210, SCI1220, SCI1230, SCI1240, SCI125)

Registration note: satisfies advanced biology or probability and statistics (by CSTB petition)

Quantitative analysis, especially recently, has had a major impact on understanding new biological concepts. This course will explore how a variety of programming languages and analysis tools are used to solve biological problems. Broadly, we will examine how to use these tools to calculate biostatistics, mine genomic datasets, detect microevolution, and model dynamic systems. While the course will focus on the use of quantitative methods to analyze data, we will spend time exploring the newest technologies for generating high throughput biological data.

CROSS-LISTED OFFERINGS

Students must elect the course number with the appropriate content area prefix at the time of registration (e.g. AHSE or ENGR or SCI). The decision is not reversible after the last day to add.

AHSE2199D or ENGR2299: Special Topics in Arts Humanities, Social Science OR Engineering Design

Tell the Story of What You Make

Instructor(s): Tim Sauder

Credits: 4 AHSE or 4 ENGR

How do engineers creatively engage with multiple audiences and stakeholders for their work? Telling stories is critical for anyone who makes things: communicating technical work to non-experts, creating persuasive arguments for technology adoption, or projecting a future with better engineering in it. This course will cover how stories are built and how to craft your own, exploring communication design in multiple forms of media: print, images, film, music, and more. The course includes excursions to experience location-specific visual representation, multiple individual communication experiments, group collection of media, and a culminating project in which students will tell the story of one of their own projects.

ENGR2999 or SCI2399: Special Topics in Engineering or Science

Environmental Analysis and Engineering

Instructor(s): Scott Hersey; Alison Wood

Credits: 4 ENGR or 4 SCI

Registration note: This course satisfies the Materials Science/Chemistry foundation requirement if SCI course option is chosen.

How do we measure what's happening in our environment, what do we do with that information, and why do we care? This hands-on, project-based course will introduce approaches that environmental engineers use to analyze complex environmental systems and design solutions to mitigate pollution. We will spend the semester making deep-dives into the two leading causes of premature death in the world: lack of access to clean water and chronic exposure to air pollution. Students will learn field sampling techniques and laboratory analysis skills through integrated projects like mapping pollutant concentrations along the Charles River, and the course will incorporate elements of design through projects like assessing affordable HEPA filtration techniques for low-income residents living in close proximity to freeways. Throughout the course we will study pollution in its broader social, political, and economic context, considering the complex motivations for pollution mitigation and the broader implications of water and air treatment processes.

As the first offering of Environmental Analysis and Engineering, students will have the opportunity to help shape the course for future years. We will solicit frequent feedback on assignments, in-class activities, and projects with the goal of co-designing the course with this set of pioneering students. Come join us as we innovate the Olin curriculum!

INTEGRATED OFFERINGS

AHSE2199/SCI1299: Special Topics in Arts, Humanities and Social Sciences and Science

The Intersection of Biology, Art and Technology

Instructor(s): Helen Donis-Keller

Credits: 4 AHSE + 4 SCI

Registration note: This course satisfies the foundation Biology requirement

This course crosses boundaries between art, biology and technology, via hands-on projects inspired by work in all three fields. This intersection opens up thrilling questions: How do technological breakthroughs inform new possibilities in biology and art? How might biology inform art practice and how might art inform biological concepts? What are the implications of being able to change the genome of an organism? In answering these questions we will conduct a range of activities based on student preferences, which can include:

- Lab work that utilizes a CRISPR genome editing experiment
- Experience in visualization technologies such as the scanning electron microscope (SEM)
- Studio projects that employ technologies such as modeling software, 3D printing, video, digital
 - photography/software editing, iPhoneography, drone imaging, and audio
- Traditional art production technology, such as drawing and painting
- First-hand interaction with expert practitioners in biology, art, and technology fields

Advances in biology and its essential link with technology have led to rapid changes in applications to health care, understanding how organisms work, and the impact of human activity on the environment. By the end of the course we will

know how to fluidly move from field to field, and also between thinking and doing, so as to garner creative strength not possible from the perspective of each field alone.

AHSE2141/ENGR2141: Engineering for Humanity

Instructor(s): Caitrin Lynch; Ela Ben-Ur; Tess Edmonds

Credits: 2 AHSE + 2 ENGR

Registration note: Students must simultaneously enroll in AHSE2141 and ENGR2141 for a total of 4 credit hours.

This course introduces students to engineering problem solving, beginning with understanding client needs and ending with implemented, adaptable, adoptable, and sustainable solutions. This course will draw equally on empathetic and ethnographic methods and on a technical understanding of the problem and solution domains. Over the semester, we will learn about and with our clients; we will identify specific challenges that our clients face; and together with our clients we will develop concrete solutions to address these challenges. Students will leave Engineering for Humanity with a grounded understanding of the engineering problem solving process, experience in participant-observer fieldwork, and hopefully a feeling of satisfaction at having made a concrete difference in the lives of members of our community.

The projects will be specific service projects that students identify and design while working with senior citizens in surrounding communities. For example, students might design a device to help someone who has difficulty reaching up to change a light bulb, something to help hold a newspaper steady with shaky hands, or something to enable someone to get clothes out of a clothing dryer that is difficult to stoop down to reach. Some sessions of the course will be devoted to co-design with the client population or to team meetings. Other sessions involving guest speakers and fieldtrips, others with course discussion of topics relevant to aging.

CIE 2017A: Curriculum Innovation Experiment

Quantitative Engineering Analysis I

Instructor(s): Christianson, Geddes, Govindasamy, Michalka, Ruvolo

Credit: 8

Note: For first year students only. This is the first class of a two class, 8 credit each sequence. This 2 class, 16 credit sequence is a designated alternative for the following courses: Linearity 1 and Linearity 2, the Physics Foundation course, Signals and Systems, and Dynamics. **You must commit to enrolling in both classes, although you will only register for the Spring 2017 class at this time.**

The application of quantitative analysis of mathematical models and/or data can enable, improve, and speed up the engineering design process. Using quantitative analysis to answer engineering questions, you'll be able to make the choices necessary to successfully complete an engineering design. Whether you are selecting the best part from a catalog, choosing an appropriate material, sizing a component, determining the effect of certain influences on your design, or optimizing your design within a parameter space, you often need to obtain (through experiment or calculation) and interpret quantitative information to inform your decisions. There are many different approaches to getting and interpreting the data you need: you may conduct an experiment, do a rough estimation, perform a detailed calculation based on mathematical models, or create a computer simulation. If you want to engineer effectively, you must be able to choose and use appropriate quantitative tools for a given situation.

In this class, you will be introduced to various approaches to perform quantitative engineering analysis through real-world examples. You will learn how to *select* between different tools and different approaches within the context of an engineering challenge, how to use many different tools for quantitative analysis, and how to *acquire* new tools on your own in the future.

ALUMNI SEMINARS

SEM 106-S1

Seminar: *What's It Worth? - Valuing Your Startup or Project Idea*

Instructor: Meghan Murry, '12

Meeting Time: Thursdays at 7pm-9pm

Ever wonder why Uber is valued at \$68B while SpaceX is valued at \$12B? What is your start-up idea or project worth? This alumni seminar will give a primer on business valuations and the mechanics behind it. We will create financial models, drill into what assumptions are necessary, how to defend those to investors, and what parts of the business have the biggest

impact on the valuation. Not only for budding entrepreneurs -- an engineer in a corporate setting trying to get funding for their project or a future academic looking to license their research might find it useful to know, "What's it worth?"

SEM 504-S1

Seminar: Working the Data Science Process with Python... or Dirty Data, Done Dirt Cheap (D4C)

Instructor: Ryan Mitchell, '11

Meeting Time: Tuesdays 7pm-9pm

Data science encompasses many advanced fields in mathematics, engineering, and computing, but the basic process of collecting, cleaning, visualizing, and analyzing data is one that can be usefully applied with or without advanced knowledge of these fields. Use Python to build web scrapers, create and store relational data models, and display data with a variety of visualization types. Learn how to create statistical models from data, using regression, clustering, and classification algorithms, and how to appropriately evaluate and refine those models using machine learning techniques. Throughout the seminar, you will work on three team projects involving any data-rich subject of your choosing. Whether you want to analyze the works of William Shakespeare, build a better spam filter, or try your hand at Fantasy Football, be prepared for some hands-on data wrangling! More information available on request

Pre-requisites: Experience with Python encouraged, but not required, especially if you have strong experience with other programming languages. Please contact the instructor at ryan.e.mitchell@gmail.com if you have any concerns about your ability to succeed in this seminar.

Area	Course #	Sec #	Course Title	Instructor	Time	Location	Credits	Enroll Limits	Registration Notes	Curriculum Notes
AHS	AHSE0112	01	Olin Conductorless Orchestra	Dabby	R 6:45-9:00pm	AC305; AC318	1	25		AHS Elective
AHS	AHSE2112	01	Six Books that Changed the World	Martello	MR 10:50-12:30pm	AC318	2	24	Session I; small Waitlist available	AHS Elective
AHS	AHSE2114	01	Science Fiction and Historical Context	Martello	MR 10:50-12:30pm	AC318	2	24	Session II; small Waitlist available	AHS Elective
AHS	AHSE2199A	01	Special Topics in Arts Humanities Social Sciences: <i>Constructing and Performing the Self</i>	Adler	TR 1:15pm-2:55pm	Babson-Sorensen Rehearsal Studio	4	8	small Waitlist available	AHS Elective
AHS	AHSE2199B	01	Special Topics in Arts Humanities Social Sciences: <i>Virtualities: An Introduction to Video Gaming History and Theory</i>	Vitols	TF 10:50-12:30pm	AC128	2	15	Session I	AHS Elective
AHS	AHSE2199C	01	Special Topics in Arts Humanities Social Sciences: <i>Digital Documentary Storytelling</i>	Vitols	TF 10:50-12:30pm	AC128	2	10	Session II	AHS Elective
AHS	AHSE3190	01	Arts Humanities Social Sciences Preparatory Workshop (AHS Prepstone)	Epstein	n/a	n/a	1	n/a	this class has no meeting time	Required prerequisite to enroll in AHSE4190
AHS	AHSE4190	01	Arts Humanities Social Sciences Capstone	Epstein	T 9:10-10:40am	AC417	4	20	NOTE: the Prepstone is a required prerequisite for the Capstone	AHS Capstone
Crosslisted	AHSE2199D OR ENGR2299	01	Special Topics in Arts Humanities Social Science: <i>Tell The Story of What You Make</i> OR Special Topics in Engineering Design: <i>Tell The Story of What You Make</i>	Sauder	MR 9-10:40am	AC213	4	18	Choose either AHSE or ENGR option. small Waitlist available	AHSE course choice grants AHS credit; ENGR grants ENGR credit
Crosslisted	ENGR2999 OR SCI2399	01	Special Topics in Engineering: <i>Environmental Analysis and Engineering</i> OR Special Topics in Science: <i>Environmental Analysis and Engineering</i>	Hersey; Wood	MTR 1-3:10	AC417 (MR); AC409 (MTR); AC213 (T)	4	24	Choose either ENGR or SCI option. small Waitlist available	Meets Mat Sci/Chem foundation if SCI option chosen
Design	ENGR2250	01	User Oriented Collaborative Design	Hendren; Adler; Ben-Ur; Strong; Stein; Adjunct	TF 9:50-12:30pm	AC204; MH120	4	32		Gen. Engineering Req't
Design	ENGR2250	02	User Oriented Collaborative Design	Hendren; Adler; Ben-Ur; Strong; Stein; Adjunct	TF 9:50-12:30pm	AC206; MH120	4	32		Gen. Engineering Req't
Design	ENGR2250	03	User Oriented Collaborative Design	Hendren; Adler; Ben-Ur; Strong; Stein; Adjunct	TF 9:50-12:30pm	AC209; MH120	4	32		Gen. Engineering Req't
Design	ENGR3210	01	Sustainable Design	Linder	MR 3:20-5pm	AC213	4	24		Design Depth Option
Design	ENGR3290	01	Affordable Design and Entrepreneurship	Linder; Govindasamy; Hersey; Mur-Miranda; Taha; Babson	T 3:30-6:30pm	AC213	4	15	Waitlist available	Design Depth Option
Design	ENGR3299	01	Special Topics in Design: <i>Educational Design Studio</i>	Strong; Stolk	TF 1:30-3:10pm	AC417	4	24	small Waitlist available	Design Depth Option
E!	AHSE1515	01	Products and Markets	Neeley; Lynch; Pratt; Woodard	TF 9-12:30pm	AC318; AC326; AC328; MH120	4	85		E! Foundation
E!	AHSE2599A	01	Special Topics in Entrepreneurship: <i>Iterate</i> (Offered in both Session I and II)	Neeley	TF 1:30-3:10pm	AC318	2	5	This is a 2-credit course and may be taken multiple times for credit. Four credits of this course may also be used to satisfy the entrepreneurship capstone requirement.	E! Core
E!	AHSE2599B	01	Special Topics in Entrepreneurship: <i>Iterate</i> (Offered in both Session I and II)	Neeley	TF 1:30-3:10pm	AC318	2	5	This is a 2-credit course and may be taken multiple times for credit. Four credits of this course may also be used to satisfy the entrepreneurship capstone requirement.	E! Core

Area	Course #	Sec #	Course Title	Instructor	Time	Location	Credits	Enroll Limits	Registration Notes	Curriculum Notes
E!	AHSE3599	01	Special Topics in Entrepreneurship: <i>Launch!</i>	Neeley	TF 1:30-3:10pm	AC318	4	5	This is a 4-credit course and may be taken multiple times for credit. It may also be used to satisfy the entrepreneurship capstone requirement.	E! Core
E!	AHSE4590	01	Entrepreneurship Capstone	Neeley	TF 1:30-3:10pm	AC318	4	10	Students enrolled in this course should NOT be enrolling in either Iterate or Launch topics	E! Capstone
E:Bio	ENGR3699	01	Special Topics in Bioengineering: <i>Biomedical Device Design</i>	Sarang-Sieminski	MR 10:50-12:30pm	AC309	4	20		BioE Core; May also count as Design Depth or ME Elective by petition
E:C	ENGR2510	01	Software Design	Millner; Steele	MR 1:30-3:10pm	AC326	4	28	small Waitlist available	ECE or E:C Core
E:C	ENGR2510	02	Software Design	Millner; Steele	MR 1:30-3:10pm	AC328	4	28	small Waitlist available	ECE or E:C Core
E:C	ENGR3520	01	Foundations of Computer Science	Pucella	R 4-6:30pm	AC318	4	32		E:C Core
E:C	ENGR3525	01	Software Systems	Downey; Hill	MR 10:50-12:30pm	AC326; AC328	4	50	small Waitlist available	E:C Core
E:C	ENGR3599	01	Special Topics in Computing: <i>Computer Networks</i>	Morrow	MR 1:30-3:10pm	AC428	4	20		E:C Elective
E:C	ENGR3599A	01	Special Topics in Computing: <i>Hacking the Library</i>	Steele	MR 10:50-12:30pm	AC304	4	25	Prereq: Software Design or equivalent programming familiarity; small waitlist available	E:C Elective
E:Robo	ENGR3392	01	Robotics Systems Integration	Bennett	MR 1:30-3:10pm	AC128	4	30		E: Robo Core / ME Elective
E:Robo	ENGR3590	01	A Computational Introduction to Robotics	Ruvolo	MR 3:20-5pm	AC109	4	15	small Waitlist available	E: Robo Core
E:Robo	ENGR3590	02	A Computational Introduction to Robotics	Ruvolo	TF 10:50-12:30pm	AC109	4	15	small Waitlist available	E: Robo Core
ECE	ENGR2410	01	Signals and Systems	Mur-Miranda	MR 3:20-5pm	AC304	4	25		ECE Core
ECE	ENGR2420	01	Introduction to Microelectronic Circuits with Laboratory	Minch	MR 1:30-3:10pm; F 9-10:40am	AC309	4	20		ECE Core
ECE	ENGR3420	01	Intro to Analog and Digital Communication	Govindasamy	TF 10:50-12:30pm	AC304	4	20		ECE Core
ECE	ENGR3499A	01	Special Topics in Electrical and Computer Engineering: <i>Asynchronous VLSI Design</i>	Hill	MR 3:20-5pm	AC326	2	5	Session I; Prereqs: Software Design or equivalent programming familiarity, Circuits, CompArch knowledge is strongly encouraged	
ECE	ENGR3499B	01	Special Topics in Electrical and Computer Engineering: <i>Asynchronous VLSI Design</i>	Hill	MR 3:20-5pm	AC326	2	5	Session II; Prereqs: completion of Session I offering	
ENGR	ENGR1330	01	Fundamentals of Machine Shop Operations	Andruskiewicz	W 12:30-4:30pm	AC104	4	6		Engr. Elective
ENGR	ENGR2199	01	Special Topics in Engineering: <i>Designing Resources for Empowerment and Making (DREAM)</i>	Millner	M 3:20-6:00pm	AC328	4	18	Waitlist available	Engr. Elective

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ENGR	ENGR2330	01	Introduction to Mechanical Prototyping	Barrett; Faas	MR 3:20-5pm	AC128	4	40	small Waitlist available	Engr. Elective
ENGR	ENGR3110	01	Elecanisms	Hoover; Minch	M 9-12:30pm; R 10:50-12:30pm	AC306	4	25	small Waitlist available	ECE/ME Elective Option
ENGR	ENGR3199	01	Special Topics in Engineering: <i>Acoustics</i>	Lackritz	MW 6-7:40pm	AC304	4	24	small Waitlist available	ECE Elective
ENGR	ENGR3299A	01	Special Topics in Design: Making Music	Linder; Lee; Dabby	T 3:20-5:00pm	AC309	4	15		Engr Elective; <u>not</u> a design depth
ENGR	ENGR4190	01-14	Senior Capstone Program in Engineering (SCOPE)	SCOPE Faculty	W 9-6:00pm	various locations	4	99	please enroll in the team section you are for fall 2016	Capstone Option
ENGR	ENGR4290	01	Affordable Design and Entrepreneurship	Linder; Govindasamy; Hersey; Mur-Miranda; Taha; Babson	T 3:30-6:30pm	AC213	4	15	Waitlist available	Capstone Option
Integrated	AHSE2141 / ENGR2141	01	Engineering For Humanity	Lynch; Staff	T 1:30-4:30pm; F 1:30-3:10pm	AC306	2+2	20	Waitlist available	AHS/ENGR Elective
Integrated	AHSE2199 / SCI1299	01	Intersection of Biology, Art and Technology	Donis-Keller	M 1-3:10p; W 1-6:00pm	AC313; AC406 (W)	4+4	20	small Waitlist available	Integrated Offering: AHS and Biology (meets bio requirement)
Integrated	CIE2017A	01	Curriculum Innovation Experiment: <i>Quantitative Engineering Analysis I</i>	Christianson; Geddes; Govindasamy; Michalka; Ruvolo	MR 9-12:30pm	AC113	8	36	opt-in experiment; commit for 2 semesters; enroll via lottery	Satisfies Lin I, II, Physics Fnd, Dynamics, Signals & Systems
Integrated	MTH2131 / ENGR3531	01	Data Science	Downey	TF 1:30-3:10pm	AC326	4	30	small Waitlist available	Prob Stat Option
Integrated	MTH2132 / SCI2032	01	Bayesian Inference and Reasoning	Mahajan	MR 9-10:40am	AC109	4	48	small Waitlist available	Prob Stat Option
MTH	MTH2210	01	Linearity I	Hoffman; Mur-Miranda	MR 10:50-12:30pm; W 9-10:40am	AC417; AC428	4	48		Math Requirement
MTH	MTH3120	01	Partial Differential Equations	Hoffman	TF 10:50-12:30pm	AC417	4	32		Advanced Math in Major
ME	ENGR2320	01	Mechanics of Solids and Structures	Lee	MR 9-10:40am; W 9:30-10:30am	AC328	4	40		ME Core
ME	ENGR2350	01	Thermodynamics	Storey	MR 1:30-3:10pm	AC318	4	28		ME Core
ME	ENGR3399	01	Special Topics in Mechanical Engineering: <i>Finite Element Analysis</i>	Lee	TF 9-10:40am	AC109	4	24	Prerequisite of ENGR2320: Mech Solids and Structures; small Waitlist available	ME Elective Option
Science	SCI1130	01	Mechanics	Holt	TW 3:20-5pm	AC328	4	24	small Waitlist available	Standard Physics Foundation Option
Science	SCI1210	01	Principles of Modern Biology with lab	Wasylenko	MR 1:30-3:10; R 3:20-6pm	AC109 (MR); AC406 (R lab)	4	24	small Waitlist available	Biology Requirement Option
Science	SCI2130	01	Quantum Physics	Holt	TF 1:30-3:10pm	AC328	4	15	small Waitlist available	optional Physics Foundation

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Science	SCI2299	01	Special Topics in Biological Sciences: <i>Quantitative Biology</i>	Wasylenko	TF 1:30-3:10pm	AC304	4	18	prereq of Mod Bio or equivalent; small Waitlist available	Advanced Biology or Prob Stat Designated Alternative
Seminar	SEM 106	S1	What's It Worth? - Valuing Your Startup or Project Idea	Murray, '12	R 7-9:00pm	AC128	1	24		general credit
Seminar	SEM 504	S1	Working the Data Science Process with Python... or Dirty Data, Done Dirt Cheap (D4C)	Mitchell, '11	T 7-9:00pm	AC328	1	36	Experience with Python encouraged, but not required. Please contact the instructor at ryan.e.mitchell@gmail.com if you have any concerns.	general credit
ADMN	OIP1000	01	Olin Internship Practicum	Phelps	n/a	n/a	1	n/a	See Post Graduate Planning to Enroll	required for international student with internships
ADMN	AWAY1000	01	The Study Away Program	Administration	n/a	n/a	4	n/a	enroll in this course if you will be studying away in the spring 2017 semester	

AHSE		SCI		Math		INTEGRATED OFFERING (colored via discipline blending)		Color Key-Offering Blocks							
Thursday				Friday											
MTH 2132/SCI 2032 Bayesian Inference & Reasoning AC109	CIE2017A Quantitative Engineering Analysis I MR 9-12:30pm AC113	AHSE2199D or ENGR 2299 Spec Top: Tell the Story of What You Make AC213	ENGR 2320 Mechanics Solids Structures MR 9-10:40a + W 9:30 AC328			AHSE 1515 All Sections Products & Markets AC318 AC326 MH120	ENGR 2420 Intro MicoElectronic Circuits MR 1:30 & F 9am AC309	ENGR 3399 Spec Top ME: Finite Element Analysis AC109	9:00 AM						
ENGR 3699 spec Top in BioE: Biomed Dev Dsn AC309		ENGR 3110 Elecancisms M 9-12:30; R 10:50-12:30p AC 306	ENGR 3525 Software Systems AC326 AC328	AHSE 2112 Six Books that Chg'd the World SESS I AC318	AHSE 2114 Science Fiction: Hist Context SESS II AC318	ENGR 3599A Spec Top in Computing: Hacking the Library AC304	MTH 2210 Linearity I AC417; AC428	ENGR 2250 Sec 01, 02, 03 User-Oriented Collaborative Design 9:50-12:30p AC 204, 206, 209 MH120	ENGR 3420 Analog and Digital Comm AC304	ENGR 3590, sec 02 Comp Intro to Robotics AC109	AHSE 2199B Spec Topic AHS: Video Gaming/Theory SESS I AC128	AHSE 2199C Spec Topic AHS: Digital Docu Story SESS II AC128	MTH 3120 Partial Differential Equations AC417	10:40 AM 10:50 AM	
SCI 1210 Prin of Modern Biology AC109	ENGR 3599 Spec Top Computing: Computer Networks AC428	ENGR 3392 Robotics Systems Integration AC128	ENGR 2350 Thermodynamics AC318	ENGR2999 OR SCI2399 Environmental Analysis Engr AC417	ENGR 2420 Intro MicoElectronic Circuits MR 1:30 & F 9am AC309	ENGR 2510, sec 01 Software Design AC326	ENGR 2510, sec 02 Software Design AC328	AHSE 2199A Spec Topics AHS: Constr Perf Self TR 1:15-2:55p Sorensen	ENGR 3299 Spec Top in Design: Educ Design Studio AC417	AHSE 2141/ENGR 2141 E 4 H T 1:30-4:30; F 1:30-3:10pm AC306	AHSE 2599, 3599, 4590 EI Crs Iterate, Launch & Capstone AC318	SCI 2299 Spec Top in Biological Sciences: Quant Biology AC304	MTH 2131 & ENGR 3531: Data Science AC326	SCI 2130 Quantum Physics AC328	1:30 PM
SCI 1210 Prin of Modern Biology LAB AC406	ENGR 3499 A and B Spec Top in ECE: Asynchronous VLSI Design AC326	ENGR 3590, sec 01 Comp Intro to Robotics AC109	ENGR 2330 Mechanical Prototyping AC128	ENGR 3210 Sustainable Design AC213	ENGR 2410 Signals and Systems AC304	ENGR 3520 Foundations of Computer Science 4:00-6:30p AC318	"Do Something" Dedicated Time				3:10 PM	3:20 PM	5:00 PM		
AHSE 0112 Olin Conductorless Orchestra 6:45-9pm AC305, AC318		SEM 106 - S1 Seminar: What's It Worth - Valuing your Startup or Project Idea 7-9:00pm AC128													