ENGINEERING DISTRIBUTION (ENGRD)

ENGRD 2020 - Statics and Mechanics of Solids (4 Credits)
Crosslisted with MAE 2020
This course presents the methods for analyzing deformable structures in equilibrium. It is fundamental to mechanical analysis and design and is the basis for many advanced courses and professions in mechanical, civil, materials, biomedical and biological engineering.
Prerequisites: PHYS 1112. Corequisite: MATH 1920.
Last Four Terms Offered: Spring 2025, Fall 2024, Spring 2024, Fall 2023
Learning Outcomes:

- Students will be able to draw complete and correct free body diagrams.
- Students will be able to apply the principle of equilibrium to calculate external and internal forces in simple, statically determinant mechanical systems, including simple shear and bending moment distributions.
- Students will be able to use key terminology related to stress, strain, deformation and elasticity along with analyzing the stress, strain and deformation in bars subject to axial, bending and torsional loads.
- Students will be able to use the principles of elasticity and equilibrium to solve for stresses in simple statically indeterminate systems.

Schedule of Classes (https://classes.cornell.edu/)

ENGRD 2100 - Introduction to Circuits for Electrical and Computer Engineers (4 Credits)
Crosslisted with ECE 2100
This course is an introduction to electronic circuits. We start with the basic quantities used to characterize circuit operation (like current, voltage, and power) and then enforce several physical laws to form the basis of our approach to circuit analysis. Networks comprising passive circuit elements such as resistors, inductors, and capacitors will be examined under constant dc, transient, and sinusoidal steady-state conditions. Active components including transistors and Op-Amps will be introduced and used to build simple amplifiers and switching power converters. Many of these ideas will be unified mathematically through the use of Laplace transforms and associated transfer functions. In the lab part of the course, we will learn how to use modern instruments to test circuits, and explore the concepts from lecture applied to real circuits. Finally, we will develop some simple modeling software in MATLAB to numerically predict the results from analysis and experiment.
Prerequisites: MATH 1920 or PHYS 1112. Corequisite: MATH 2930 or PHYS 2213.
Last Four Terms Offered: Spring 2025, Fall 2024, Spring 2024, Fall 2023
Schedule of Classes (https://classes.cornell.edu/)

ENGRD 2110 - Object-Oriented Programming and Data Structures (4 Credits)
Crosslisted with CS 2110
Intermediate programming in a high-level language and introduction to software engineering. Topics include object-oriented programming (objects, classes, subtypes, encapsulation, polymorphism), program correctness (specifications, invariants, testing), algorithm analysis (asymptotic complexity, big O notation), recursion, data structures (lists, trees, stacks, queues, heaps, hash tables, graphs), iteration and searching/sorting, graph algorithms, and concurrent and event-driven programming (graphical user interfaces, synchronization). Java is the principal programming language.
Prerequisites: CS 1110 or CS 1112 or equivalent course on programming in a procedural language.
Distribution Requirements: (SMR-AS)
Last Four Terms Offered: Spring 2025, Fall 2024, Summer 2024, Spring 2024
Learning Outcomes:

- Employ recursion and object-oriented programming concepts (e.g., classes, interfaces, polymorphism, inheritance) to solve computational problems.
- Design, implement, and verify nontrivial Java programs (roughly 1000 lines of code), starting from an English language specification, leveraging features like encapsulation and unit tests to improve maintainability.
- Build and modify event-driven graphical user interfaces (GUIs) expressed in Java.
- Analyze the asymptotic complexity of algorithms and programs to evaluate their running times and memory requirements.
- Implement basic data structures taught in the course (linked lists, binary search trees, heaps, hash tables, adjacency lists) and be able to use them in programs.

Schedule of Classes (https://classes.cornell.edu/)

ENGRD 2111 - Biomolecular Thermodynamics (3 Credits)
Crosslisted with BME 2110
This course serves as an introduction to thermodynamics and physical chemistry focused on the application to biomolecular systems. Topics include the role of entropy and free energy in determining biological reactions and processes such as enzymatic reactions or molecular interactions, protein folding/unfolding, single molecule mechanics, energy states, and equilibrium distribution of biomolecular and other systems. This course serves as the foundation for the Molecular, Cellular, and Systems Engineering (MCSE) concentration as well as the molecular principles of biomedical engineering course.
Prerequisites: CHEM 2090, MATH 1920, and BIOG 1350 or BIOG 1440.
Enrollment Information: Enrollment preference given to: BME majors.
Last Four Terms Offered: Spring 2025, Spring 2024, Spring 2023, Spring 2022
Schedule of Classes (https://classes.cornell.edu/)

ENGRD 2112 - Object-Oriented Design and Data Structures - Honors (5 Credits)
Crosslisted with CS 2112
Intermediate software design and introduction to key computer science ideas. Topics are similar to those in CS 2110 but are covered in greater depth, with more challenging assignments. Topics include object-oriented programming, program structure and organization, program reasoning using specifications and invariants, recursion, design patterns, concurrent programming, graphical user interfaces, data structures as in CS 2110, sorting and graph algorithms, asymptotic complexity, and simple algorithm analysis. Java is the principal programming language.
Prerequisites: excellent performance in CS 1110, CS 1112 or equivalent course in Java or C++, or permission of instructor.
Distribution Requirements: (SMR-AS)
Last Four Terms Offered: Fall 2024, Fall 2022, Fall 2021, Fall 2020
Schedule of Classes (https://classes.cornell.edu/)

ENGRD 2140 - Computer Systems Programming (4 Credits)
Crosslisted with ECE 2400
Computer systems programming involves developing software to connect the low-level computer hardware to high-level, user-facing application software. This course will provide a strong foundation in the principles, practices, and art of computer systems programming using the C and C++ programming languages. Students will learn procedural programming in C and how to theoretically analyze and practically implement basic data structures and algorithms. Students will transition to C++ to explore object-oriented, generic, functional, and concurrent programming before exploring advanced data structures and algorithms involving trees, tables, and graphs. Students will explore systems programming using the POSIX standard library. The course includes a series of programming assignments for students to put the principles they have learned into practice. For more information, see https://www.csl.cornell.edu/courses/ece2400.
Prerequisites: CS 1110 (preferred) or CS 1112.
Last Four Terms Offered: Spring 2025, Spring 2024, Fall 2021, Fall 2020
Schedule of Classes (https://classes.cornell.edu/)

ENGRD 2190 - Chemical Process Design and Analysis (4 Credits)
Engineering problems involving material and energy balances. Batch and continuous reactive systems in the steady and unsteady states. Introduction to phase equilibria for multicomponent systems. Examples drawn from a variety of chemical and biomolecular processes.
Prerequisites: CHEM 2080, CHEM 2090, and an ENGRI course.
Corequisites: May not be taken concurrently with ENGRI 1120.
Last Four Terms Offered: Fall 2024, Fall 2023, Fall 2022, Fall 2021
Learning Outcomes:

- Basic engineering calculations: convert units quickly and accurately; define, calculate and estimate properties of process materials such as fluid density, concentrations, pressure, etc.
- Material and energy balance calculations: draw and label process flowsheets from verbal descriptions of processes; carry-out degree-of-freedom analyses; write and solve mass and energy balance equations for single unit and multiple unit processes with and without chemical reaction.
- Physical chemistry: perform pressure-volume-temperature calculations for ideal and nonideal gases; perform vapor-liquid equilibrium calculations for systems containing one condensable component and for ideal multicomponent solutions; calculate internal energy and enthalpy changes for process fluids undergoing specified changes in temperature, pressure, phase, and chemical compositions; incorporate such calculations into mass and energy balance problems.
- Other: explain the difference between transient and steady-state processes and make simple mass and energy balance calculations for transient processes; work effectively in teams and know your classmates; produce a written report on the design and analysis of a large scale process addressing a technical problem of national importance.

Schedule of Classes (https://classes.cornell.edu/)

ENGRD 2202 - Biomedical Transport Phenomena (3 Credits)
Crosslisted with BME 2000
Quantitative analysis of transport phenomena in physiological systems, including fluid mechanics and mass transfer. Fluid statics, mass and momentum conservation, laminar and turbulent flow, microscale and macroscale analytical methods, mass transport with biochemical reactions, applications to transport in tissue and organs.
Corequisites: MATH 2930 or equivalent.
Last Four Terms Offered: Fall 2024, Fall 2023, Fall 2022, Fall 2021
Schedule of Classes (https://classes.cornell.edu/)

ENGRD 2210 - Thermodynamics (3 Credits)
Crosslisted with MAE 2210
Presents the definitions, concepts, and laws of thermodynamics. Topics include the first and second laws, thermodynamic property relationships, and applications to vapor and gas power systems, refrigeration, and heat pump systems. Examples and problems are related to contemporary aspects of energy and power generation and to broader environmental issues.
Prerequisites: MATH 1920 and PHYS 1112.
Exploratory Studies: (CU-SBY)

Last Four Terms Offered: Summer 2025, Fall 2024, Summer 2024, Fall 2023
Learning Outcomes:

- Students will be able to choose an appropriate system and identify interactions between system and surroundings.
- Students will be able to obtain values of thermodynamic properties for a pure substance in a given state, using tables, relations for incompressible substances, and relations for gases.
- Students will be able to apply energy and entropy balances in the control mass (closed system) and control volume formulations to the analysis of devices and cycles.

Schedule of Classes (https://classes.cornell.edu/)

ENGRD 2220 - Signals and Information (4 Credits)
Crosslisted with ECE 2200
Last Four Terms Offered: Spring 2021, Fall 2020, Spring 2020, Fall 2019
Schedule of Classes (https://classes.cornell.edu/)

ENGRD 2250 - The Earth System (4 Credits)
Crosslisted with EAS 2250
EAS 2250 provides a broad math-, physics-, and chemistry-based introduction to the earth sciences, including geology, paleontology, oceanography, and atmospheric science. Topics covered include formation of the Earth, the chemistry and physics of the Earth's interior, plate tectonics, weathering and erosion, soil development, stream and groundwater flow, volcanism and crustal deformation, the evolution of life, ocean and atmospheric structure, circulation and heat transport, ocean waves and tides, generation of storms, seawater chemistry, mineral and energy resources, and climate change.
Prerequisites: MATH 1110 or MATH 1910.
Distribution Requirements: (OPHLS-AG), (PHS-AS)
Exploratory Studies: (CU-SBY)

Last Four Terms Offered: Spring 2025, Fall 2024, Spring 2024, Fall 2023
Learning Outcomes:

- Describe and use the scientific process; i.e. explain how theories are built upon observations and how both are tested and revised. Be able to give Earth-related examples of this process.
- Explain how fundamental physical, chemical, and biological principles shape the planet Earth, providing concrete examples.
- Explain the place of the Earth in the cosmos: specifically how and when it formed, and how it continues to evolve through processes such as plate tectonics, erosion and sedimentation, etc. Describe the key observations that have led scientists to this present theory of Earth.
- Describe the history of life on Earth and explain how natural selection and evolution has led to the current diversity of organisms on Earth, including man. Explain how life has affected and changed the Earth.
- Be able to participate knowledgeably and intelligently in discussions of public policy related to earth science, particularly with respect to hazards, such as earthquakes and volcanoes, and resources such as water, mineral deposits, hydrocarbons, etc.; and the impact of man's activities on the Earth, particularly including climate change.

Schedule of Classes (https://classes.cornell.edu/)

ENGRD 2300 - Digital Logic and Computer Organization (4 Credits)
Crosslisted with ECE 2300
This course provides an introduction to the design and implementation of digital circuits and microprocessors. Topics include transistor network design, Boolean algebra, combinational circuits, sequential circuits, finite state machine design, processor pipelines, and memory hierarchy. Design methodology using both discrete components and hardware description languages is covered in the laboratory portion of the course.
Prerequisites: CS 1110 or CS 1112.
Last Four Terms Offered: Spring 2025, Fall 2024, Spring 2024, Fall 2023
Learning Outcomes:

- Understand Boolean logic and state machines as theoretical foundations of digital systems.
- Be able to conceive, analyze, design, and build combinational and sequential digital logic solutions to everyday problems.
- Comprehend the basic structure and functionality of ROM and RAM memories.
- Understand the basic structure and functionality of central processing units, and build a simple one using FPGAs.
- Understand the structure and operation of memory hierarchies and input/output systems.

Schedule of Classes (https://classes.cornell.edu/)

ENGRD 2400 - Observing the Earth: Remote Sensing and GIS (3 Credits)
Crosslisted with EAS 2400
While the environmental challenges and hazards facing society over the next decades are diverse and complex, the next generation of scientists and engineers can look forward to a steadily increasing family of space-based observations that will help us better understand the ongoing changes. This data can enable researchers to highlight potential problems and gain the attention of decision-makers, and to evaluate the efficacy of attempts at mitigation so that we can redirect our efforts into the most useful avenues. Examples of engineering solutions that require evaluation of their outcomes include management and maintenance of coastal infrastructure, flood control or dam-building, and efforts to change land cover/land use. In this course, we will study the key questions facing our planet today, and explore the use of relevant data from current and future satellite missions. We will introduce students to Geographical Information Systems (GIS) and other methods for viewing and manipulating data. We will build from analysis of individual images, including multispectral imagery, and extend to time-series analysis of both optical and microwave data. Students will design and present a capstone project involving satellite data analysis and interpretation.
Distribution Requirements: (DLG-AG, PSC-AG)
Last Four Terms Offered: Spring 2025, Spring 2024
Learning Outcomes:

- Describe how different portions of the electromagnetic spectrum are reflected, absorbed and emitted from the Earth's surface, atmosphere and oceans.
- Calculate key characteristics of the Earth system (e.g., land use, earthquakes, surface temperature, ocean salinity) using data from airplanes or orbiting satellites.
- Analyze large, satellite-based datasets using publicly available, cloud-based GIS tools.
- Assess how engineering choices made during spacecraft design impact the utility of the resulting data (errors, resolution, etc.) for various problems.
- Discuss the history of remote sensing observations and its impact on society.

Schedule of Classes (https://classes.cornell.edu/)

ENGRD 2510 - Engineering Processes for Environmental Sustainability (3 Credits)
Crosslisted with BEE 2510
Students will quantitatively understand and analyze environmental issues such as: the impact of industrial contaminants and excess nutrients on water quality; the global carbon cycle; improving global access to clean water. This course integrates principles from chemistry, biology, math and engineering to understand and solve real-world problems that impact three major environmental compartments: air, water, and soil. Students will solve mass and energy balances beginning with simple, closed systems, then progress through reactive, open systems to describe environmental fate and transport of pollutants, natural environmental cycles and remediation scenarios. Students will be exposed to technical and lay material from interdisciplinary sources to understand the environmental externalities - social, political, economic and cultural - that must be considered when proposing solutions to today's most pressing environmental issues. BE and EnvE students must complete either BEE 2510 or BEE 2600 according to their academic plan. Students who complete both BEE 2510 and BEE 2600 receive engineering credit toward their degree for only one of these courses.
Prerequisites: CHEM 2070 or CHEM 2090 or AP Chem. Prerequisite or corequisite: MATH 2930.
Exploratory Studies: (CU-SBY)

Last Four Terms Offered: Fall 2024, Fall 2023, Fall 2022, Fall 2021
Learning Outcomes:

- Students will improve their ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics (ABET 1).
- Students will demonstrate improved ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety and welfare, as well as relevant global, cultural, social, environmental, and economic factors (ABET 2).
- Students will display an ability to communicate effectively with a range of audiences (ABET 3).
- Students will demonstrate an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgements which consider the impact of engineering solutions in global, economic, environmental, and societal contexts (ABET 4).
- Students will demonstrate an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives (ABET 5).
- Students will improve their ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgement to draw conclusions (ABET 6).
- Students will demonstrate the ability to acquire and apply new knowledge as needed, using appropriate learning strategies (ABET 7).
- Students will improve their capacity to integrate modern biology with engineering principles (ABET-BE).

Schedule of Classes (https://classes.cornell.edu/)

ENGRD 2520 - The Physics of Life (3 Credits)
Crosslisted with AEP 2520
Introduces the physics of biological macromolecules (e.g., proteins, DNA, RNA) to students of the physical sciences or engineering who have little or no background in biology. The macromolecules are studied from three perspectives. First, the biological role or function of each class of macromolecules is considered. Second, a quantitative description of the physical interactions that determine the behavior of biomolecular systems. An introduction is provided to probability and statistical methods used to describe the behavior of biological systems. Finally, techniques that are commonly used to probe these systems, with an emphasis on biotechnology applications, are discussed.
Corequisites: PHYS 2213.
Enrollment Information: Recommended prerequisite: MATH 1920, CHEM 2070 or CHEM 2090.
Last Four Terms Offered: Fall 2021, Fall 2020, Spring 2019, Spring 2018
Learning Outcomes:

- An introductory-level understanding of molecular biology.
- An understanding of the importance of basic physics, math and chemistry concepts to molecular biology.
- An understanding of the importance of physics/math/engineering in developing techniques to probe biological systems.

Schedule of Classes (https://classes.cornell.edu/)

ENGRD 2550 - Engineering Quantum Information Hardware (3 Credits)
Crosslisted with AEP 2550
This course examines the physical hardware of quantum information processing, quantum communication, and quantum sensing technologies. Topics include an analysis of qubit attributes and an introduction to the operational principles of physical qubits. Specific systems will include photonic circuits, trapped ions, superconducting quantum circuits, isolated solid-state spins and quantum dots.
Prerequisites: MATH 1920, PHYS 1112 or PHYS 1116. Corequisite: MATH 2930, PHYS 2213 or PHYS 2217.
Last Four Terms Offered: Spring 2025, Spring 2024, Spring 2023, Spring 2022
Learning Outcomes:

- Understand the basic concepts of quantum information technologies.
- Understand and explain the properties of a qubit and its representation.
- Understand and analyze quantum gate operations.
- Have knowledge of emerging quantum technology platforms and how they relate to quantum engineering goals.

Schedule of Classes (https://classes.cornell.edu/)

ENGRD 2600 - Principles of Biological Engineering (3 Credits)
Crosslisted with BEE 2600
Focuses on the integration of biological principles with engineering, math, and physical principles. Students learn how to formulate equations for biological systems in class and practice in homework sets. Topics range from molecular principles of reaction kinetics and molecular binding events to macroscopic applications such as energy and mass balances of bioprocessing and engineering design of implantable sensors. Students will also experience scientific literature searches as related to the biological engineering topics, and critical analysis and evaluation of relevant information sources. BEE students must complete either BEE 2510 or BEE 2600 according to their academic plan. BEE students who complete both BEE 2510 and BEE 2600 receive engineering credit for only one of these courses.
Prerequisites: Prerequisite or corequisite: MATH 2930, two semesters of core biology major classes (BIOMG 1350, BIOG 1440, BIOG 1445 or BIOEE 1610) plus BIOG 1500 or equivalent.
Last Four Terms Offered: Fall 2024, Fall 2023, Fall 2022, Fall 2021
Learning Outcomes:

- Students will improve their ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics (ABET 1).
- Students will demonstrate improved ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety and welfare, as well as relevant global, cultural, social, environmental, and economic factors (ABET 2).
- Students will display an ability to communicate effectively with a range of audiences (ABET 3).
- Students will demonstrate an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgements which consider the impact of engineering solutions in global, economic, environmental, and societal contexts (ABET 4).
- Students will demonstrate an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives (ABET 5).
- Students will improve their ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgement to draw conclusions (ABET 6).
- Students will demonstrate the ability to acquire and apply new knowledge as needed, using appropriate learning strategies (ABET 7).
- Students will improve their capacity to integrate modern biology with engineering principles (ABET-BE).

Schedule of Classes (https://classes.cornell.edu/)

ENGRD 2610 - Mechanical Properties of Materials: From Nanodevices to Superstructures (4 Credits)
Crosslisted with MSE 2610
Examines the mechanical properties of materials (e.g., strength, stiffness, toughness, ductility) and their physical origins. Explores the relationship of the elastic, plastic, and fracture behavior to microscopic structure in metals, ceramics, polymers, and composite materials. Discusses effects of time and temperature on materials properties. Emphasizes considerations for design and optimal performance of materials and engineered objects.
Prerequisites: PHYS 1112 or PHYS 1117.
Last Four Terms Offered: Fall 2024, Fall 2023, Fall 2022, Fall 2021
Schedule of Classes (https://classes.cornell.edu/)

ENGRD 2620 - Electronic Materials for the Information Age (3 Credits)
Crosslisted with MSE 2620
Examines the electrical and optical properties of materials.
Topics include the mechanism of electrical conduction in metals, semiconductors and insulators; tuning of electrical properties in semiconductors, charge transport across metal/semiconductor and semiconductor/semiconductor junctions, and the interaction of materials with light; semiconductor electronic devices; and the materials science of device fabrication. Applications in microelectronics, solar cells, electronics, and display technologies are discussed. Semiweekly labs provide hands-on experience characterizing electronic materials and devices.
Corequisites: or prerequisite: MATH 2930 and PHYS 2213.
Last Four Terms Offered: Spring 2025, Spring 2024, Spring 2023, Spring 2022
Schedule of Classes (https://classes.cornell.edu/)

ENGRD 2700 - Eng Probability and Statistics: Modeling and Data Science (4 Credits)
Gives students a working knowledge of basic probability and statistics and their application to engineering. Includes computer analysis of data and simulation. Topics include: random variables, probability distributions, expectation, estimation, testing, experimental design, quality control, and regression.
Prerequisites: MATH 1910, MATH 1920.
Forbidden Overlaps: AEM 2100, BTRY 3010, BTRY 6010, CRP 1200, ENGRD 2700, HADM 2010, HADM 2011, ILRST 2100, ILRST 6100, MATH 1710, PSYCH 2500, PUBPOL 2100, PUBPOL 2101, SOC 3010, STSCI 2100, STSCI 2150, STSCI 2200. In addition, no credit for MATH 1710 if taken after ECON 3130, ECON 3140, MATH 4720, or any other upper-level course focusing on the statistical sciences.
Distribution Requirements: (MQL-AG, OPHLS-AG)
Last Four Terms Offered: Summer 2025, Spring 2025, Fall 2024, Summer 2024
Learning Outcomes:

- Understand the breadth of decision situations with uncertainty that arise in engineering, industry, and society.
- Develop the skills needed for extracting information from data in real-world decision situations.
- Learn methods of probability modeling and data analysis.
- Build familiarity with current software used for statistical inference and data analysis.

Schedule of Classes (https://classes.cornell.edu/)

ENGRD 2720 - Data Science for Engineers (4 Credits)
Crosslisted with ECE 2720
An introduction to data science for engineers. The data science workflow: acquisition and cleansing, exploration and modeling, prediction and decision making, visualization and presentation. Tools for data science including numerical optimization, the Discrete Fourier Transform, Principal Component Analysis, and probability with a focus on statistical inference and correlation methods. Techniques for different steps in the workflow including outlier detection, filtering, regression, classification, and techniques for avoiding overfitting. Methods for combining domain-agnostic data analysis tools with the types of domain-specific knowledge that are common in engineering. Ethical considerations. Optional topics include classification via neural networks, outlier detection, and Markov chains. Programming projects in Python.
Prerequisites: MATH 1920 and either CS 1110 or CS 1112. Corequisite: MATH 2940.
Last Four Terms Offered: Spring 2025, Fall 2024, Spring 2024, Fall 2023
Schedule of Classes (https://classes.cornell.edu/)

ENGRD 3200 - Engineering Computation (4 Credits)
Crosslisted with CEE 3200
Introduction to numerical methods, computational mathematics, and probability and statistics. Development of programming and graphics proficiency with MATLAB and spreadsheets. Topics include Taylor-series approximations, numerical errors, condition numbers, operation counts, convergence, and stability, probability distributions, hypothesis testing. Included are numerical methods for solving engineering problems that entail roots of functions, simultaneous linear equations, statistics, regression, interpolation, numerical differentiation and integration, and solution of ordinary and partial differential equations, including an introduction to finite difference methods. Applications are drawn from different areas of engineering. A group project uses these methods on a realistic engineering problem.
Prerequisites: CS 1110 or CS 1112, and MATH 2930. Prerequisite or corequisite: MATH 2940.
Last Four Terms Offered: Spring 2025, Spring 2024, Spring 2023, Spring 2022
Learning Outcomes:

- Be familiar with standard numerical methods and statistical procedures for engineering computation and learn to synthesize from different methods in a specific engineering application.
- Learn how to compute, estimate and track errors associated with numerical computations.
- Have a working knowledge of higher-level programming languages widely used in engineering for numerical methods and graphics, in particular, MATLAB.
- Gain experience in teams.
- Learn how to develop sanity tests for one's computational results and how to report them in a clear and objective manner.

Schedule of Classes (https://classes.cornell.edu/)