DREXEL UNIVERSITY
First-Year Exploratory Studies

Engineering Majors Info Session

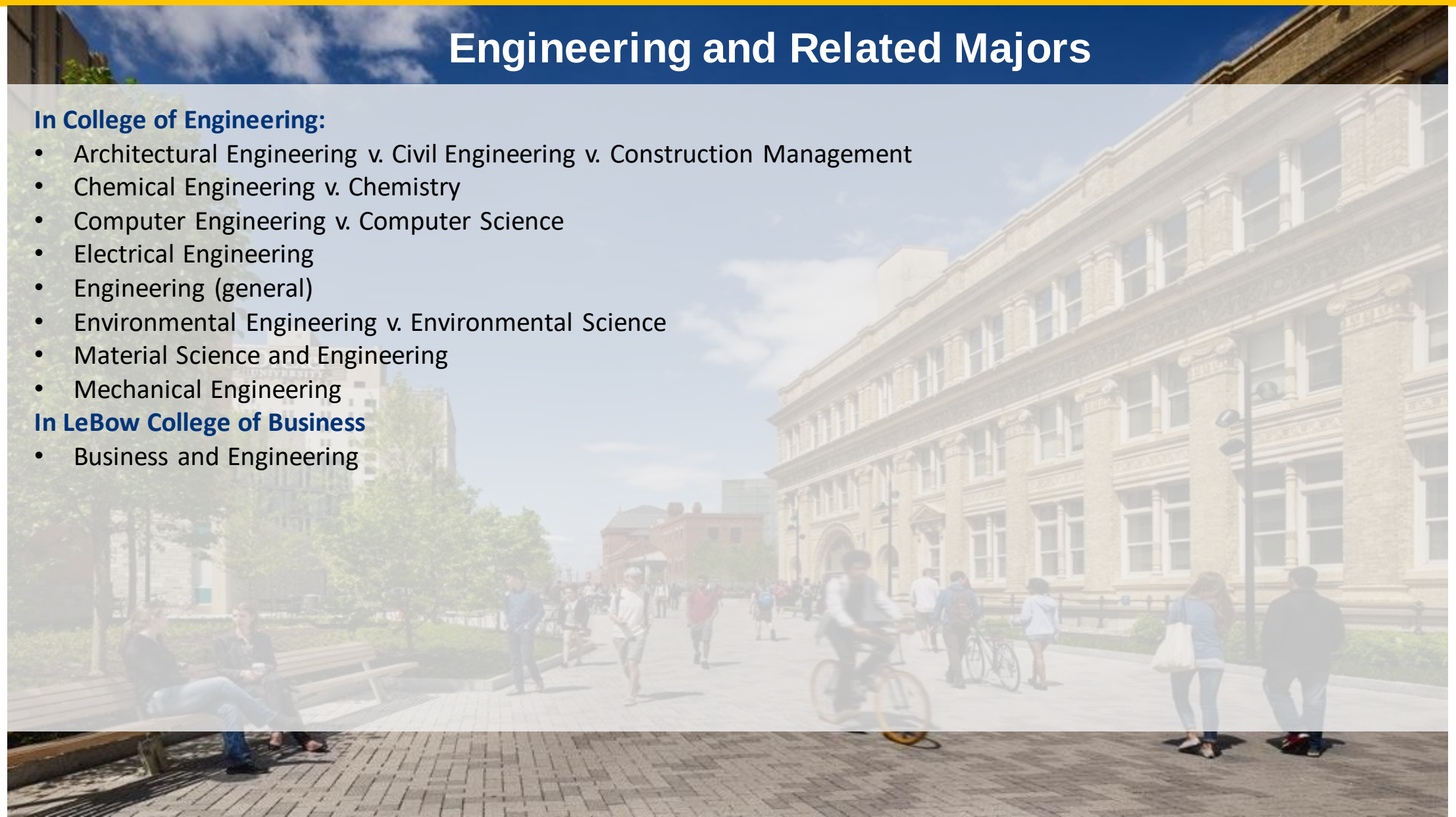
Engineering and Related Majors

In College of Engineering:

- Architectural Engineering v. Civil Engineering v. Construction Management
- Chemical Engineering v. Chemistry
- Computer Engineering v. Computer Science
- Electrical Engineering
- Engineering (general)
- Environmental Engineering v. Environmental Science
- Material Science and Engineering
- Mechanical Engineering

In LeBow College of Business

- Business and Engineering



In general, what do Engineers do?

Engineers, as practitioners of engineering, are professionals who invent, design, analyze, build and test machines, complex systems, structures, gadgets and materials to fulfill functional objectives and requirements while considering the limitations imposed by practicality, regulation, safety and cost.

The skills you need to be a successful engineer are:

Problem-solving
Computer science
Industry skills
Pressure management
Teamwork
Creativity
Structural analysis
Communication
Attention to detail
Educational commitment
Data modeling
Leadership

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Architectural Engineering v. Civil Engineering v. Construction Management

What do you study?

Architectural Engineering:

Architectural engineers work in the design, construction, and maintenance of commercial, institutional, and industrial building systems. The goal of the program is to develop an engineer who is familiar with all aspects of safe, economic construction and can work effectively with a team of architects, engineers and contractors. Student study the principles of structural, mechanical, and electrical design for buildings while developing strength in one particular discipline.

Civil Engineering

This Program covers the range of civil practice from environmental to structural design, and from project management to engineering materials. There is continuing emphasis on communications skills, teamwork and understanding how to divide a project into its components, design them and integrate them into a functioning whole.

Construction Management

Students study traditional engineering subjects like math, physics, building materials, soil mechanics and structures as well as business topics like statistics, economics, finance, accounting, law and ethics. Additionally, they complete more specialized courses in construction subjects such as contracts and specifications, site planning and design, cost estimating and scheduling, building systems, safety and sustainability. Students use the latest information technology and software for job-site coordination, virtual design and construction, job costing, scheduling and estimating. Communication and leadership are emphasized to develop a foundation for good

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Architectural Engineering v. Civil Engineering v. Construction Management

What is the difference in career options?

Architectural Engineering compared to Architects:

An architect and engineer both participate in designing and building a structure. An architect designs and draws up plans for buildings, bridges, and other structures. The goal of an architect's design is to make sure the appearance of the structure to the customer's liking.

Civil, architectural and structural engineers have the responsibility of applying an architect's design and carrying it through to construction. The goal of these engineers is to make the design functional and safe.

Civil Engineer vs. Architectural Engineer

Civil engineers work on a variety of different projects, such as roads, buildings, bridges, and water systems, while architectural engineers typically work on the structural foundation and systems of particular buildings or structures. For a given structure, an architectural engineer may plan and execute the physical support system from the ground up and design electrical and HVAC systems. Civil engineers, on the other hand, are more likely to design, manage and supervise large-scale building projects, such as cities and public works projects. Civil engineers and architectural engineers work together on some projects; if a civil engineer designs and manages a project spanning twenty buildings, architectural engineers may help with the structural requirements and systems of certain buildings. Both professionals visit construction sites to ensure work is being completed correctly; they also both estimate costs and create plans based on projected budgets. While civil engineers do a lot of the planning and management of major, multi-structure projects, architectural engineers typically take the lead on how particular structures are built to maximize safety and functionality.

Architectural Engineering v. Civil Engineering v. Construction Management

What is the difference in career options?

Where do Construction Managers fit in?

Construction managers are master coordinators, organizers, communicators and leaders. They manage all the various parts and pieces of construction projects and ensure that the people, materials, and equipment are in the right place at the right time. They set schedules, keep an eye on finances, make sure everybody is where they are supposed to be every day, ensure there are no safety hazards, ensure everyone has access to all the resources required to complete their work and keep everyone happy. They are responsible for keeping everyone in the loop during the entire project, from clients and architects to contractors and subcontractors. They are hired to lead and oversee a variety of building projects from start to finish. They help clients plan and even help with the selection of architects and general contractors to design and build their projects.

First-Year Curriculum

Architectural Engineering First-Year Curriculum:

The required Math courses are Calc I, Calc II, Multivariate Calculus, Linear Engineering Systems, and Dynamic Engineering Systems . Architectural Engineering offers two optional concentrations in structural AE or in digital building.

Term 1	
CHEM 101	General Chemistry I
COOP 101	Career Management and Professional Development
ENGL 101 or 111	Composition and Rhetoric I: Inquiry and Exploratory Research English Composition I
ENGR 111	Introduction to Engineering Design & Data Analysis
MATH 121	Calculus I
UNIV E101	The Drexel Experience
	Term Credits
Term 2	
CHEM 102	General Chemistry II
CIVC 101	Introduction to Civic Engagement
ENGR 131 or 132	Introductory Programming for Engineers Programming for Engineers
PHYS 101	Fundamentals of Physics I
MATH 122	Calculus II
	Term Credits
Term 3	
BIO 141	Essential Biology
ENGL 102 or 112	Composition and Rhetoric II: Advanced Research and Evidence-Based Writing English Composition II
ENGR 113	First-Year Engineering Design
MATH 200	Multivariate Calculus
PHYS 102	Fundamentals of Physics II
	Term Credits
Term 4	
CAEE 202	Introduction to Civil, Architectural & Environmental Engineering
ENGL 103 or CIVE 240 [WI]	Composition and Rhetoric III: Themes and Genres Engineering Economic Analysis
ENGR 220	Fundamentals of Materials
ENGR 231	Linear Engineering Systems
PHYS 201	Fundamentals of Physics III
	Term Credits

First-Year Curriculum

Civil Engineering First-Year Curriculum:

The required Math courses are Calc I, Calc II, Multivariate Calculus, Linear Engineering Systems, and Dynamic Engineering Systems

Term 1	
CHEM 101	General Chemistry I
COOP 101	Career Management and Professional Development
ENGL 101 or 111	Composition and Rhetoric I: Inquiry and Exploratory Research English Composition I
ENGR 111	Introduction to Engineering Design & Data Analysis
MATH 121	Calculus I
UNIV E101	The Drexel Experience
	Term Credits
Term 2	
CHEM 102	General Chemistry II
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ENGL 102 or 112	Composition and Rhetoric II: Advanced Research and Evidence-Based Writing English Composition II
ENGR 113	First-Year Engineering Design
MATH 200	Multivariate Calculus
PHYS 102	Fundamentals of Physics II
	Term Credits

First-Year Curriculum

Construction Management First-Year Curriculum:

The required Math courses are Precalculus, Calculus I and Business Statistics

Term 1	
CHEM 101	General Chemistry I
COOP 101	Career Management and Professional Development
ENGL 101 or 111	Composition and Rhetoric I: Inquiry and Exploratory Research English Composition I
ENGR 111	Introduction to Engineering Design & Data Analysis
MATH 121	Calculus I
UNIV E101	The Drexel Experience
	Term Credits
Term 2	
CHEM 102	General Chemistry II
CIVC 101	Introduction to Civic Engagement
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MATH 200	Multivariate Calculus
PHYS 102	Fundamentals of Physics II
	Term Credits

Chemical Engineering v. Chemistry

What is the difference?

The big difference between chemistry and chemical engineering has to do with originality and scale.

Chemists are more likely to develop novel materials and processes, Bachelor degree chemists usually work in labs. They may contribute to R&D or perform sample analysis. **Chemical engineers** are more likely to take these materials and processes and make them larger or more efficient. Chemical engineers work on R&D teams, process engineering at a plant, project engineering, or management.

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Chemistry

What do you study?

The Department of Chemistry offers two undergraduate degrees - A BS in chemistry provides a certified curriculum with substantial research experience, while a BA in chemistry provides a solid chemistry core within a flexible curriculum.

BS in Chemistry:

Provides a complete introduction to the many subfields of chemistry, along with significant hands-on laboratory research experience. All students must earn at least 9 credits of research experience prior to graduation. The BS degree in chemistry is well suited for students wishing to pursue graduate degrees in chemistry or a related discipline. Students are prepared for careers in a range of industries, including pharmaceutical, biotech, environmental, manufacturing or other allied fields. Students can also elect to do a concentration in biochemistry.

BA in Chemistry:

This program is less demanding mathematically compared to the BS, and is well suited for those interested in entering medical school and other chemistry-related fields, as well as those aspiring to careers in biotechnology, forensic chemistry and environmental chemistry. Graduates may work as laboratory technicians in the pharmaceutical industry, as research assistants in medical school science departments such as toxicology or biochemistry, or as technicians in biotechnology and forensic firms.

Students primarily take chemistry courses, with several courses in physics, and biology courses along with additional electives. The math requirements are Calc I, II, Multivariable Calculus and Linear Algebra/Differential equations.

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First-Year Exploratory Studies

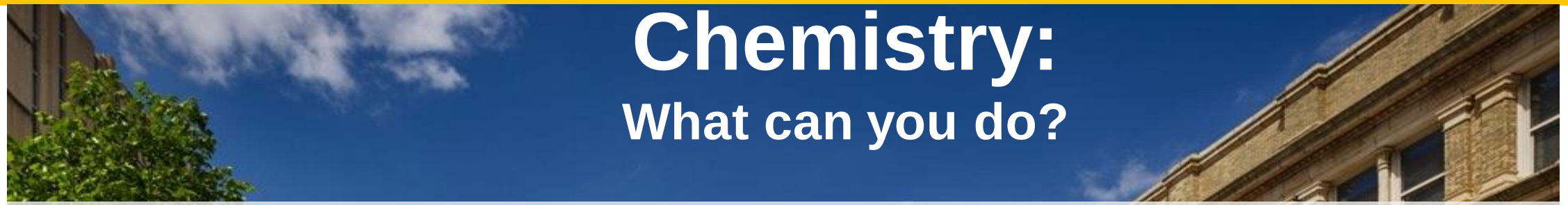
Chemical Engineering

What do you study?

This program prepares graduates to succeed in careers requiring strong communication, teamwork, and scientific and engineering skills. Graduates will also be able to conduct or evaluate research and development, including application of findings, and recognize their work's global, societal and ethical impact on their surroundings.

The department of Chemical and Biological Engineering's chemical engineering curriculum progresses through sequences in the fundamental physical sciences, humanities, engineering sciences, and engineering design.

Students primarily take engineering and chemical engineering courses, a significant number of chemistry courses and must take Calculus I, Calculus II, Multivariable Calculus, Linear Algebra and Differential Equations.



Chemistry:
What can you do?

Earning a degree in chemistry provides opportunities to a wide variety of careers in many different fields, including science, research, business and healthcare. With a chemistry degree, you can find a position that suits your particular interests while also earning a high salary.

- **Agricultural and Food Scientist -** conducts experiments and analyze data about crops and food production methods. May also use their findings to create new and innovative ways to increase agricultural output or improve the quality of our food supply. Work can involve traveling to farms and other specific sites to obtain samples
- **Biochemist or Biophysicist –** works in a laboratory setting using very specialized equipment that can analyze microscopic molecules. A biochemist may be involved with synthesizing new compounds while a biophysicist might evaluate the structural characteristics of the new compound. An example problem both scientists might address is the muscle atrophy of astronauts who are in space for a long time. A biochemist would study the nutritional requirements of muscles and work to enhance the way proteins in muscles are produced, while a biophysicist would study the force of gravity on muscles and work to enhance the way proteins already in muscles are strengthened..
- **Chemist -** researches chemical substances, performs experiments with the properties of chemical substances, measures the effects of chemical compounds in various situations, and studies inter-chemical reactions.
- **Toxicologist** - Toxicologists are responsible for testing various blood and tissue samples to detect the presence of pharmaceuticals, poison, alcohol and other substances in the body. They help answer questions related to criminal cases
- **Forensic scientist** - Forensic scientists collect and analyze evidence from a crime scene. This might include items like dirt samples, blood samples, fingerprints and more.

Chemical Engineering:

What can you do?

Here is just a sampling of what can be done with a degree in chemical engineering:

- **Chemical engineer** - designs and develops a diverse range of products. The work focuses on changing the chemical, biochemical and physical state of a substance to turn it into something else, such as making plastic from oil.
- **Energy engineer** - involves the production of energy through natural resources, such as the extraction of oil and gas, as well as from renewable or sustainable sources of energy, including biofuels, hydro, wind and solar power.
- **Nuclear engineer** - designs, builds, runs or decommissions nuclear power stations. Works in multi-disciplinary teams to come up with technical solutions.
- **Petroleum engineer** – is involved in nearly all of the stages of oil and gas field evaluation, development and production. Their aim is to drill for hydrocarbons in the most efficient way, and to resolve any operating issues. Also responsible for using new drilling tools and techniques, and getting the most out of underperforming or older wells. Tasked with reducing the effect of drilling on the environment.
- **Product/process development scientist –** optimizes the performance of manufacturing systems by identifying and developing new processes for product manufacture, and implementing process controls to ensure the products are of a high quality and produced in a way that can be accurately replicated.

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Computer Engineering v. Computer Science

What do you study?

Computer engineers design smaller, faster, and more reliable computers and digital systems, build computer networks to transfer data, embed microprocessors in larger physical systems such as cars and planes, work on theoretical issues in computing, and design large-scale software systems. Computer engineers may work in positions that apply computers in control systems, digital signal processing, telecommunications, and power systems, and may design very large-scale integration (VLSI).

The major provides a broad focus on electronic circuits and systems, computer architecture, computer networking, embedded systems, programming and system software, algorithms, and computer security.

Required Courses include:

Foundations of Electric Circuits I
Data Structures
Computer Organization & Architecture
Introduction to Computer Networks

Students take a full year of Calculus and 4 additional math courses

Well, What about Computer Science?

What do you study?

Curriculum emphasizes the theory and practice of effective computing. Students must select two tracks in a wide array of computing disciplines. CS majors tend to be skilled at math and writing code.

The CS major offers both a BS and a BA.

The BS program emphasizes foundation courses in the sciences and in applied mathematics, leading to careers involving applications in science and engineering. This major requires a full year of calculus and 5 additional math courses.

The BA program emphasizes foundation courses in the humanities and the social sciences, leading to careers involving applications in those areas. This major requires a full year of calculus and 5 additional math courses.

Required coursework for both degrees include

- Data Structures
- Mathematical Foundations of Computer Science
- Algorithms and Analysis

Optional Concentrations

- **Game Programming and Development**
  provides conceptual understanding of game design and practical experience in the design and the development of games.
- **Computing Security**
  gives students the ability to design and implement computing security and privacy processes, software and systems. Students use mathematical foundations, algorithmic principles and computer science theory in the modeling and design of such systems.

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Computer Engineering

What can you do?

Computer engineering is an interdisciplinary field of study, one that combines electrical engineering and computer science disciplines into a specialized professional area of practice.

Possible jobs include:

- **Product Development and Advancement** - computer engineers are needed to develop and create computer systems in products like smart appliances, video game consoles, and cars. Companies who make these products are always working toward coming up with better designs that have more capabilities than the ones that came before them, which means they will need computer engineers to keep coming up with newer and better designs for the computers inside those products.
- **Database Engineer** - data collection, storage, and management is now done by most organizations for a variety of reasons. Database engineers build the systems that store this data and make it easy to retrieve and use when needed. New storage technologies have given database engineers plenty to work with when designing data management solutions, and the field is expected to grow 11 percent by 2024 to accommodate these needs.
- **Computer Architects** – designs and develops new, more powerful computing systems.
- **Robotics** - Designing and developing robotic systems used in a variety of industries (e.g. industrial production).

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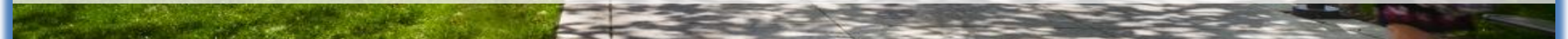
Computer Science

What can you do?

The following types of jobs are positions where a degree in computer science is a major asset:

- **Data scientist** - cleans and munges data to meet a company's purpose. Duties may include experimental frameworks for product development and machine learning with the aim to lay a strong data foundation for robust analytics to be performed.
- **Web developer** - responsible for the coding, design and layout of a website according to a company's specifications. A certain level of both graphic design and computer programming is necessary
- **Systems analyst** - analyzes how well software, hardware and the wider IT system fit the business needs of their employer or of a client.
- **Software developer** - researches, designs, implements and manages software programs; tests and evaluates new programs. Identifies areas for modification in existing programs and subsequently develops these modifications.
- **User interface designer** – makes sure that every page and every step a user will experience in their interaction with the finished product will conform to the overall vision created by UX designers.
- **Database administrator** – responsible for the performance, integrity and security of a database. You'll be involved in the planning and development of the database, as well as in troubleshooting any issues on behalf of the users.
- **Information security analyst** - monitors computer networks for security issues. Investigates security breaches and other cyber security incidents.
- **Information technology specialist** - is responsible for the implementation, monitoring, and maintenance of IT systems. ... Solve technical problems, such as computer systems, software, hardware, networks, cloud platforms, etc. .



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Electrical Engineering

What can you do?

With a degree in electrical and electronic engineering you can find work in a wide range of sectors including aerospace, automotive, energy, IT and telecommunications. Some potential careers include:

Acoustic consultant – helps mobile phone developers manipulate sound through digital signals, advises on the design of a concert hall or uses ultrasound in the field of seismology. As this is a multidisciplinary profession, you could work in a wide array of disciplines including science, engineering and construction.

Broadcast engineer – works with hardware and broadcast systems that are used across television, radio and new media. Makes sure that programs are broadcast on time and to the highest quality.

Control and instrumentation engineer - designs, develops, installs, managing and maintaining equipment which is used to monitor and control engineering systems, machinery and processes.

Electrical engineer - As an electrical engineer, you'll design, develop and maintain electrical control systems and components to required specifications. Your work will focus on economy, quality, reliability, safety, and sustainability.

Electronics engineer - designs, develops and tests components, devices, systems or equipment that use electricity as part of their source of power. These components include capacitors, diodes, resistors and transistors.

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Engineering

What do you study?

This is a flexible and customizable degree program combining a fundamental overview of engineering with other areas of emphasis, which may include studies in business, medicine, law, or even an in-depth engineering program in a cross-disciplinary field motivated by the student's interest. This degree empowers students to meet society's current and emerging complex, multi-disciplinary challenges. Students take Calc I, II, Multivariable Calculus, Linear Engineering Systems and Linear Dynamic Systems.

This major allow for a large number of elective engineering courses to allow for a really customized major.
Common B.S. In Engineering Plans of Study include:

- Engineering/Pre-Law
- Engineering/Entrepreneurship
- Engineering/Business Administration
- Engineering/Pre-Health
- Engineering(BSE)/MBA

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Engineering

What can you do?

Potential career paths include:

- **Business Analyst** - analyzes an organization or business domain and documents its business or processes or systems, assessing the business model or its integration with technology. Helps in guiding businesses in improving processes, products, services and software through data analysis.
- **Production Assistant** - also known as a PA, is a member of the film crew and is a job title used in filmmaking and television for a person responsible for various aspects of a production.
- **Data Analyst** - collects, processes and performs statistical analyses of data. Translates numbers and data into plain English in order to help organizations and companies understand how to make better business decisions.
- **Project Manager -** is responsible for the planning, procurement and execution of a project, in any undertaking that has a defined scope, defined start and a defined finish; regardless of industry.
- **Product Designer** - is responsible for the user experience of a product, usually taking direction on the business goals and objectives from product management.

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Environmental Engineering v. Environmental Science

What's the difference?

In Drexel's College of Arts and Sciences, we offer an Environmental Science degree, and in the College of Engineering, we offer and Environmental Engineering Degree. So What's the difference?

Both areas of study are concerned with the natural environment and its relationship with the human world. Both focus on data gathered from the natural environment, particularly data on the past and future effects of human activity and its impact, in order to devise and implement solutions.

Beyond that, however, these paths begin to diverge, although it's fair to say they are complementary and may share the same goals. An environmental scientist generally performs research for a specific project, gathering data provided by the natural environment focusing on a certain issue, An environmental scientist may then analyze this data, and further provide a recommendation to be implemented in order to facilitate change or enact future benefits.

Here, the environmental engineer steps in. Once provided with data, an analysis, and a recommendation by a scientist, an engineer can then use knowledge of both engineering and environmental science to formulate a plan and solution. Plans could include planning new infrastructure to limit the effects of human activity on a specific space, or even shaping a plan to ensure that a given area is rapidly developed to allow for human use.

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Environmental Engineering v. Environmental Science

What do you study?

Environmental Science students primarily study science including biology, chemistry, physics . Students have the option of taking either Calculus I, II, and II or Math Analysis I, II, and Math for Life Sciences. They only have 6crs for humanities/social science and whatever they choose for free electives. Two computer programming courses have also been added to the curriculum beginning this Fall 2020.

Environmental engineering builds on other branches of engineering, especially civil, chemical, and mechanical engineering. It also builds on information from many of the sciences, such as chemistry, physics, hydrology, geology, atmospheric science, and several specializations of biology (ecology, microbiology, and biochemistry). Students who elect to study environmental engineering will become familiar with many of these areas because maintaining and improving the environment requires that problems be evaluated and solutions found using a multidisciplinary approach. Environmental Engineering students take both science and engineering courses, in addition to Calc I, II, Multivariable Calculus, Linear Engineering Systems and Linear Dynamic Systems.

Environmental Engineering or ENVS

What can you do?

Environmental Engineering	Environmental Science
Environmental Engineer - resolves and helps prevent environmental problems. Works in air pollution control, industrial hygiene, toxic materials control, and land management.	**Ecologist** – studies the interrelationships between organisms and their environments.
Civil Engineer – same as with civil engineering	**Sustainability Consultant** – collects and analyzes data, identifies needs and devises strategies to meet those needs and launch sustainability initiatives.
Environmental health and safety technician - improves and protect environmental health. Performs laboratory and field tests to monitor the environment and investigate sources of pollution.	**Environmental Researcher** – conducts **research** to identify, control, or eliminate sources of pollutants or hazards affecting the environment or public health.
	Conservation Officer – manages and protects wildlife and water resources. Patrol parks, lakes or other wildlife areas to enforce laws and answer questions.

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Materials Science and Engineering

What do you study?

Materials science and engineering is an interdisciplinary field that is the foundation for many engineering applications. Materials engineers extend the limited supply of materials; improve existing materials; and develop new, superior, and sustainable materials and processes with an awareness of cost, reliability, safety, and ecological implications. Materials engineers also address the pivotal role of materials selection and performance in energy applications, including generation, conversion, and storage.

Students get a comprehensive understanding of the selection, production, properties, characterization and use of ceramics, composites, electronic materials, metals, and polymers. Students are introduced to the cutting-edge fields of nanomaterials, biotechnology, materials for energy, and nuclear materials science. Their studies can be complemented with courses in business to prepare future entrepreneurs. Materials science and engineering is an excellent first degree for those who are interested in pursuing subsequent studies in law leading to professional opportunities in the fields of intellectual property and technology.

Students are required to take Calc I, II, Multivariable Calculus, Linear Engineering Systems and Linear Dynamic Systems.

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Materials Science and Engineering

What can you do?

Job opportunities include:

Design engineer- is involved in the initial concept, design, development and management of projects in a range of sectors such as construction and the built environment, materials, software, components, machinery and vehicles.

Materials engineer – works with various materials to improve their performance, or creating new materials to help advance technologies or products. Needs an understanding of the properties and behaviors of different substances, from raw materials to finished products. You could work with many different materials, from ceramics to plastics, and polymers to industrial minerals.

Metallurgist - Is concerned with the extraction and processing of various metals and alloys. You'll investigate and examine the performance of metals such as iron, steel, aluminum, nickel and copper and use them to produce a range of useful products and materials with certain properties.

Product/process development scientist - is at the forefront of new technologies, developing metals for new applications, or involved in the traditional manufacture of anything from razor blades to washing machines.

Materials Scientist - studies and analyzes the chemical properties and structure of different man-made and natural materials. They then take this knowledge and devise ways to strengthen existing materials, combine particular materials, or create brand new materials with certain properties and characteristics for use in different applications and products.

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Mechanical Engineering

What do you study?

The role of mechanical engineers is rapidly changing. Advances in manufacturing, transportation, infrastructure systems, materials, communications, and high-performance computing have introduced new demands, opportunities, and challenges. Today's industries require mechanical engineers to possess diverse interdisciplinary skills, a global viewpoint, entrepreneurial and managerial abilities, and an understanding of the forces governing the marketplace.

The curriculum is designed to balance technical breadth (provided by a set of fundamental required core courses) with technical depth (provided by optional concentrations that emphasize particular fields within the profession). The program not only prepares its graduates to become successful mechanical engineers needed in industry and government, but also provides an excellent springboard to pursue graduate studies in engineering, medical sciences, law, business, information technology, and any other disciplines in which technological and analytical skills play an important role.

The curriculum is primarily mechanical engineering coursework, with physics, chem, bio and Students are Calc I, II, Multivariable Calculus, Linear Algebra and Differential Equations.

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Mechanical Engineering

What can you do?

Aerospace engineer (or aeronautical engineer) - researches, designs, develops, maintains and tests the performance of civil and military aircraft, missiles, satellites, space vehicles, weapons systems. Work is also carried out on the different components that make up the aircraft and systems. Works to improve flight safety, fuel efficiency, speed and weight, as well as to reduce system costs and uses developing technologies to meet customer needs.

Automotive engineer - designs, develops and manufactures vehicles such as cars, motorbikes, buses and trucks and their engineering systems. Develops new products and in some cases modifies those currently in use. Needs a combination of engineering and commercial skills to be able to deliver projects within budget.

Control and instrumentation engineer – designs, develops, installs, manages and maintains equipment which is used to monitor and control engineering systems, machinery and processes. Makes sure that these systems and processes operate effectively, efficiently and safely.

Mechanical engineer - provides efficient solutions to the development of processes and products, ranging from small component designs to extremely large plants, machinery or vehicles. Works on all stages of a product, from research and development to design and manufacture, through to installation and final commissioning. Mechanical engineering is thought to be one of the most diverse of all engineering disciplines. Due to this, there are employment opportunities across several sectors.

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Engineering Technology

What do you study?

Engineering Technology offers several concentrations, and students interested in a hands-on engineering major can opt to student engineering technology with a concentration in electrical engineering or mechanical engineering. Adding a minor can allow a student to branch further out to healthcare engineering or computer engineering.

Engineering Technology is a branch of engineering that emphasizes practice and the application of theory to solve real-world problems. Although the subject areas of core courses in both engineering technology and traditional engineering are similar, engineering technology courses stress the application of engineering techniques, while traditional engineering courses focus on the development of concepts.

Required Courses include:

Circuit Analysis I
Digital Electronics
Microprocessors

Students take a Precalculus, Calculus I and II and Stat 201.

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Engineering Technology

What do you study?

More about the concentrations:

Engineering Technology offers two concentrations:

Electrical Engineering - prepares graduates to design, develop, test, and manufacture electrical and electronic equipment such as communication components, radar, industrial and medical devices, navigational equipment, and computers.

Mechanical Engineering - focuses on the design, development, testing, and manufacturing of industrial machinery, consumer and biomedical products, Computer Numerical Control, prototyping machinery, and similar equipment. Includes study in computer graphics, statics, dynamics, stress analysis, fluid dynamics, and Computer Aided Engineering (CAE) tools.

Students can also craft a Healthcare Engineering and Computer Engineering Track as well.

Healthcare Engineering –the electrical engineering concentration can be supplemented with healthcare technology courses as technical electives and free electives. The fundamentals of biomedical engineering is electrical principles.

Computer Engineering – the basis of computer engineering is electrical engineering, and therefore the electrical concentration can be supplemented with a minor in CS or software engineering.

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Business and Engineering

What do you study?

The Business and Engineering (B&E) major combines two of Drexel's most exciting programs, linking business and engineering to provide students with expertise in both fields. The B&E program contains a broad-based business and engineering curriculum, enabling graduates to work successfully in technically oriented business positions.

Students complete a set of broad functional business core courses along with a firm foundation in science, mathematics, and engineering. Students also study more deeply the areas of operations management, entrepreneurship, finance, and marketing, while also studying the functional areas of engineering. Graduates of this program will be well prepared to participate in innovative technological efforts in business. The major gives students the opportunity to learn important concepts in functional business areas such as accounting, economics, finance, information systems, law, marketing, organizational behavior, operations, and statistics.

They complete a minor in business as well as a concentration in engineering. Students are required to take Calc I, II, Multivariable Calculus, Linear Engineering Systems and Linear Dynamic Systems.

Business and Engineering

What can you do?

Common Titles for Undergraduate Business and Engineering Graduates

Business Analyst

Consulting Analyst - helps improve business performance by providing insight and solutions for organizational problems. Job duties include analyzing datasets and information, interviewing management and stakeholders, conducting studies and surveys, and conveying findings to clients.

Engineer

Management Consultant - works with domestic and/or global clients (organizations, executives, leaders and teams) to identify and solve complex business, organizational and operational problems and define and improve processes.

Project Manager

A final thought

Minors

With any of these majors, there are plenty of minors to supplement your degree to bolster what you do after!

Minors include:

- Architectural Engineering
- Chemical Engineering
- Computer Engineering
- Construction Management
- Electrical Engineering
- Engineering Leadership
- Engineering Management
- Engineering Policy Analysis
- Engineering Product Development
- Entertainment Engineering
- Environmental Engineering
- Global Engineering
- Green Energy and Sustainability
- Materials Science and Engineering
- Mechanical Engineering and Mechanics
- Nuclear Engineering
- Project Management
- Robotics and Automation
- Systems Engineering
- Technology