Thinking about spending some time back in Chicago this summer for work or play?

Summer is also a great time to get ahead in your studies. Enclosed you will find an exciting list of course offerings this summer at Illinois Institute of Technology.

At Illinois Tech, we take summer seriously.

Some of our best courses are taught in summer by our best faculty—all with a low faculty-to-student ratio. If you are thinking about getting ahead in your major, or just exercising your mind under a shade tree, consider spending some time this summer at Illinois Tech.

It is easy to register.

Just visit summer.iit.edu and fill out the quick app by providing your contact information and uploading an unofficial transcript from your current school. Scholarships are available. Upon receipt of your quick app, you will receive an admission decision and financial aid package within one week.

We look forward to seeing you on campus this summer!

Questions?

**Undergraduate-Level Courses**
Contact Breigha Adeyemo, Senior Transfer Admission Counselor at badeyemo@iit.edu or call 312.567.3027.

**Graduate-Level Courses and Certificates**
Contact Nathan Robbins, Assistant Director at nrobbins@iit.edu.
VISITING AND NON-DEGREE SEEKING STUDENTS

Study at Illinois Tech among a diverse student body in one of the world’s greatest cities—Chicago!

Students interested in taking undergraduate or graduate-level courses at Illinois Tech without earning a degree are invited to apply through our Office of Admission.

Undergraduate-Level Courses
Non-degree applicants to undergraduate-level courses will need to submit unofficial transcripts as evidence that you have met pre-requisites for the courses you wish to take. We encourage you to use Transferology, a nationwide online transfer planning resource, to identify which courses transfer over to your home institution. Simply register for an account at https://www.transferology.com/school/iit to access our transfer guides.

To apply, visit http://go.iit.edu/summer-nondegree-19

Questions? Contact Breigha Adeyemo, Senior Transfer Admission Counselor at badeyemo@iit.edu or call 312.567.3027.

Graduate-Level Courses and Certificates
Illinois Tech requires a four-year bachelor’s degree* conferred with a minimum cumulative undergraduate GPA of 2.5/4.0 (or its equivalent) from an accredited institution for admission as a non-degree student.

To apply, visit http://go.iit.edu/summer-certificate-19

Questions? Contact Nathan Robbins, Assistant Director at nrobbins@iit.edu.

COMMUNITY COLLEGE AND TRANSFER STUDENTS

FastForward to Illinois Tech! Get a head start on taking courses at Illinois Tech by enrolling in a summer course! Reach out to your admission counselor at transfer@iit.edu to receive additional academic guidance regarding transfer credits and course planning, and see how taking summer courses at Illinois Tech can help make the transfer process easier for you. To apply, visit http://go.iit.edu/summer-transfer-19
The IPRO team will be undertaking cost-benefit analyses and impact assessments on the Office of Campus Energy and Sustainability’s website. The team will interview critical community members who are invited to the end-of-semester review.

The following issues, among others as identified by the IPRO team, may be addressed: assessing prototype feasibility. The team will be designing and field-testing prototypes of recycling at Illinois Tech. Throughout the semester, the IPRO team will be introduced to different profiles and will develop solutions that are meant to be provocative for executives in the museum community who are invited to the end-of-semester review.

The IPRO project explores trends such as augmented reality, artificial intelligence and machine learning to develop immersive prototypes and narratives of the future. Building on research from previous classes, the IPRO team will be designed to different profiles and will develop solutions that are meant to be provocative for executives in the museum community who are invited to the end-of-semester review.

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The IPRO project will begin with a comprehensive survey of recycling programs and best practices across domestic and foreign universities, focusing on their efficiency, effectiveness, and feasibility. In conjunction with the needs of the Office of Campus Energy and Sustainability, this IPRO will prototype state-of-the-art recycling solutions for Illinois Tech.

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It has been over eight years since Illinois Tech received the Princeton Review’s best “green” rating among universities in Illinois. Building on this success, and in coordination with the Office of Campus Energy and Sustainability, this IPRO will prototype state-of-the-art recycling solutions for Illinois Tech.

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The following issues, among others as identified by the IPRO team, may be addressed: alleviating confusion for students about how to effectively recycle on campus; implementing new recycling processes (recapturing design, collection, and preparation for pickup by recycling hauler); improving coordination between recycling efforts at Illinois Tech with the City of Chicago as well as with other local universities; increasing food waste diversion to the on-campus composter; creating a data collection process for regular auditing of Illinois Tech’s waste diversion rates; the information of which would be posted on the Office of Campus Energy and Sustainability’s website.

The IPRO team will be undertaking cost-benefit analyses and impact assessments of recycling at Illinois Tech. Throughout the semester, the team will interview critical stakeholders — the Office of Campus Energy and Sustainability, the Facilities Department, haulers of recycling materials, students active in Illinois Tech’s environmental community — to assess prototype feasibility. The team will be designing and field-testing prototypes to determine feasibility and obtain feedback from users and stakeholders. Our aim is to deploy the prototypes on campus for further testing, evaluation and adoption.

Interprofessional Project (IPRO): Creating and Prototyping Concepts for the Museum of the Future
IPRO 497-302, Lecture/Lab/ 33381
Professor: Twisha Shah-Brandenburg
Day/Time: TR / 6:25 to 9:05 p.m.
Location: MC / Location: CR-001
Dates: June 3, 2019 to July 27, 2019

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Interprofessional Project (IPRO): Innovating and Prototyping Recycling Solutions for Chicago and IIT
IPRO 497-311, Lecture/Lab/ 32391
Professor: Matthew Shapiro
Day/Time: MW / 1:50 to 4:15 p.m.
Location: MC / CR-001
Dates: June 3, 2019 to July 27, 2019

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Interprofessional Project (IPRO): Innovations in Neuromuscular and Stroke Rehabilitation
IPRO 497-217, Lecture/Lab/ 32385
Professor: Mahesh Krishnamurthy
Day/Time: MW / 10:00 a.m. to 1:10 p.m.
Location: MC / CR-001
Dates: May 20, 2019 to June 29, 2019

Problem or issue. The broad purpose of this IPRO project is to rethink available assistive technologies for people with neuromuscular issues, such as Multiple Sclerosis, Cerebral Palsy, Guillain Barre Syndrome, Chronic Inflammatory Demyelinating Polyneuropathy (CIDP) and Muscular Dystrophy. In addition to drug-based treatments, adults and children affected by any of these conditions undergo substantial physical therapy and rehabilitative treatments for managing their condition as they work toward treatment. There is a huge need for innovations in this area, some of which have been identified in this article: http://www.slideshare.net/Healthstartups/hsus5-topic-presentationfinal.

Since the majority of these assistive technologies are billed through insurance, they are extremely cost-prohibitive for anyone that does not have adequate coverage. For example, a sophisticated gait trainer for a child with developmental delays (delay in walking) can be over $5,000. However, approval for such devices is subject to a diagnosis that identifies a clear need for each device. This could leave several users unable to upgrade or even purchase them without significant financial assistance. This IPRO project will investigate if and how designs can be simplified through the use of lighter, inexpensive (yet sturdy) materials for design, as well as integration of electromechanical actuators and user feedback options that are modular and can easily be retrofitted to devices currently in the market.

Interprofessional Project (IPRO): SIPRO Abroad Osaka: Tsunami Disaster Prevention Planning
IPRO 497-313, Lecture/Lab/ 32388
Professor: Rebecca Steffenson
Day/Time: MW / 10:00 a.m. to 1:10 p.m.
Location: MC / CR-001
Dates: May 20, 2019 to June 29, 2019

Experts believe that Osaka is due for a major infrastructure-changing earthquake/tsunami in the next 30 years. Japanese citizens are well educated about tsunami safety protocol, but Osaka has seen a major increase in foreign visitors and residents from 2 million in 2002 to 11.2 million since 2012. The disaster planning agencies are concerned that this new population is not properly informed about tsunami safety protocols. The IPRO project will collaborate with the Tsunami and Storm Surge Disaster Prevention Station in Osaka to help local planners explore solutions to help increase disaster preparedness among foreign tourists and expatriates. This IPRO project will develop risk assessments for areas with high concentrations of foreigners (both tourists and expatriates) and develop strategies to increase tsunami safety education. Students will research tsunami safety education programs, engage with stakeholders, analyze existing data, develop new data collection tools, and prototype a solution to this problem that utilizes the best available technology.
Interprofessional Project (IPRO): Through methodical, rational and visual presentation, it will be critical to achieving the course objective. We will also discuss and evaluate the ethical implications of the subject matter. The success of the course is achieved when the team will be introduced to important industry knowledge and the fabrication of working prototypes and cost analysis related to the stated problem.

The IPRO team will scrutinize all components of commercial building envelope technologies — the rain screen. The goal is to maintain the sustainable benefits of the rain screen while discovering and evaluating affordable and aesthetic alternatives. The IPRO team will brainstorm and develop concept alternatives to one of the newer performance alternatives to a new exterior cladding – the rain screen. The team will embark on a design / making process to provide affordable habitats. This IPRO project will investigate effective cost and economic analysis — in the context of applying discipline-specific fundamental knowledge and user-centered design and open-ended problem solving method.

The IPRO team will examine the challenges we face in Chicago with a focus on the summertime. This may encompass whatever the team members identify as interesting to explore that tie in to the experience of residents and visitors. This could encompass the neighborhood festivals, concerts at various park venues, Navy Pier, Millennium Park, Chicago Park District programs, life along the Chicago River, various museums, etc. Underlying issues to be explored could encompass population density, transportation, energy consumption, less dependence on non-renewable resources, aging infrastructure and technology, usable social space, and more (which are also shared by other major metropolises). The innovation teams that are formed through this examination of urban realities will propose creative solutions to those challenges and prototype them. In addition to increasing awareness and understanding of urban problems, students in this IPRO section will learn and develop skills related to team dynamics, project management, economic analysis — in the context of applying discipline-specific fundamental knowledge and user-centered design and open-ended problem solving method.

Interprofessional Project (IPRO): The Building Envelope Rain Screen—Reconsidered

IPRO 497-250, Lecture/Lab/ 34309
Professor: Mark McKinney
Day/Time: TR / 6:25 to 9:05 p.m.
Location: MC /
Dates: June 3, 2019 to July 27, 2019

The continued increase of the cost of construction materials and labor along with the increased demand to achieve sustainable building envelopes is counter to the necessity to provide affordable habitats. This IPRO project will investigate effective cost and performance alternatives to a new exterior cladding – the rain screen.

The IPRO team will brainstorm and develop concept alternatives to one of the newer building envelope technologies — the rain screen. The goal is to maintain the sustainable benefits of the rain screen while discovering and evaluating affordable and aesthetic alternatives.

The IPRO team will scrutinize all components of commercial building envelope construction and evaluate opportunities for innovation in efficiency, performance and cost effectiveness. The goal is to achieve alternative and more affordable approaches to the rain screen exterior envelope system. The team will embark on a design / making process that will prepare, evolve and present research findings, analysis of data, creation of logistic diagrams and models, and the fabrication of working prototypes and cost analysis related to the stated problem.

This IPRO will give students, from a variety of disciplines, the opportunity to explore multiple approaches to a problem and prepare solutions that have both technical, social, and wellness relevance. The team will be introduced to important industry knowledge and trends. The project is relevant to the disciplines of architecture, architectural engineering, design, materials science, business, etc. Teamwork, communication, logic / reasoning (leveraging prototyping and analytical thinking) and time / project (process) management will be critical to achieving the course objective. We will also discuss and evaluate the ethical implications of the subject matter. The success of the course is achieved when students have raised the bar or set the stage for moving the bar related to the problem through methodical, rational and visual presentation.

IPRO: Red Line Extension Project: Enabling Community Engagement and Neighborhood Development

IPRO 497-412, Lecture/Lab/ 34343
Professor: William Briggs
Day/Time: TR / 5:00 to 7:25 p.m.
Location: MC /
Dates: June 3, 2019 to July 27, 2019

In the southern region of Chicago, there is a project called the Redline Extension. This project offers an extension of the CTA Redline from the 95th Street station to include stations at 103rd Street, the Medical District on 111th Street, the 115th Street Business District and 130th Street. The Red Line Extension project is estimated to be completed by 2026; however, the 95th Street Station is due to be completed at the end of 2018 with the extension to 103rd and Egleson Street Station to follow soon after.

Surrounding the proposed stations are several abandoned homes, buildings and vacant lots. These properties are wasted and are sometimes used for criminal activities by children looking to make money selling drugs and a hang-out for gangs and squatters looking to live free. This causes problems with people in the community who want to maintain their property and keep the neighborhood safe. These vacant properties normally sit and decay until the property values decrease to 60 to 80 percent of their worth and are later torn down leaving vacant lots that are not maintained.

The Greater Roseland Community will be effected by this change. Therefore, the CTA, politicians, and the Greater Roseland Community (GRC) leaders and other stakeholders are now involved with the future development of the GRC surrounding the Red Line extension. One of these organizations is called the Red Line Extension Coalition (RLEC), RLEC has taken the initiative in bringing all stakeholders together into one group now called “The Red Line Extension Round Table.” We have also partnered with other organizations in the area. The problem is that there is not enough compiled information on the area for investors to use when considering the area.

The objectives of the IPRO team for spring 2019 are to assist the RLEC in:

- Continue development of an interactive map of the Greater Roseland Community.
- Work with Transit Orientated Development (TOD) in designing and beautifying the GRC business/shopping district.
The three objectives are intertwined, with the model/interactive map providing a focal point for community and external stakeholder conversation, planning and action.

**IPRO: Cultural Infrastructure: Prototyping Interventions for the Future of Our Pedways**

**IPRO 497-406, Lecture/Lab/ 34310**

Professor: Skylar Moran  
Day/Time: TR / 5:00 to 7:25 p.m.  
Location: MC /  
Dates: June 3, 2019 to July 27, 2019

The Chicago Pedway system dates back to the early 1950’s, when cities around the world explored ways to separate pedestrians from motorists using multi-level infrastructure. It has been expanded in several growth spurts resulting from planning studies and modernization efforts, and it occupies private, government, and public-owned properties. The Environmental Law and Policy Center (ELPC) is conducting an ongoing project to revitalize the Chicago Pedway system, working with City government officials, local business owners, and residents. Barriers to increasing adoption of the Pedway by both local and visiting pedestrians include visibility, accessibility, wayfinding, policy variations among landowners, perceived safety, and environmental quality.

The goals of this IPRO project are to evaluate the conditions associated with existing cultures; to identify barriers to those which are emergent or forthcoming; to propose new infrastructure addressing those barriers, prototype, and test on-site; to record all processes and results, and present documentation. The success of this project will be measured by the breadth of initial investigations, the depth of proposed interventions and tests, and the delivery of the body of work. This project builds on a body of work accumulated during previous semesters; future semesters may continue the work achieved here, or operate parallel to it. Multiple semesters’ works may be collected as a larger knowledge base.

**The Internat Genetically-Engineered Machine Competition and Conference (Engrg Life in the Svc of Huma)**

**IPRO 497-518, Lecture/Lab/ 34372**

Professor: Nicholas Menhart  
Day/Time: TR / 10:00 a.m. to 12:25 p.m.  
Location: MC /  
Dates: June 3, 2019 to July 27, 2019

Can we apply engineering and design principles to Life? Can we modify, build, design and use modified living systems for our own purposes? Indeed, should we? And if so – what roles can engineered life play? These are all questions central to IGEM, the International Genetically Engineered Machine Competition is a student centered competition and conference held annually at Harvard/MIT. Teams from across the US and internationally gather to present their projects, learn from each other, and interact and compete. In 2018, 371 teams (79 US) from 46 countries gathered. Teams develop, present and analyze novel engineered living systems that illustrate how engineering principles can be integrated into biology and biotechnology to develop novel applications. This is planned as a three-semester IPRO experience, involving spring, summer and fall 2019 teams, with the competition and conference occurring within the timespan of the fall 2019 IPRO team.
Advanced Automotive Projects

ENGR 498-21, Independent Study/Research/ 34422
Professor: Francisco Ruiz
Day/Time: / TBD
Location: MC / Location: MC / Location: TBD
Dates: May 29, 2019 to July 19, 2019
We will continue on-going research on advanced engine cycles, levitating vehicles, and “flying cars.” The research will consist mostly of computer simulation, but there could also be design and construction of components, such as levitation coils.

Aircraft System Identification

ENGR 498-47, Independent Study/Research/ 34428
Professor: David Williams
Day/Time: / TBD
Location: MC / Location: MC / Location: TBD
Dates: May 29, 2019 to July 19, 2019
Students will do glide and flight tests with a model of the Lockheed ICE aircraft to acquire performance data. The flight data will be analyzed with Matlab System.

Assistive Technology Solutions

ENGR 498-52, Independent Study/Research/ 34433
Professor: Mahesh Krishnamurthy
Day/Time: / TBD
Location: MC / Location: MC / Location: TBD
Dates: May 29, 2019 to July 19, 2019
This team will focus on the design and development of assistive technologies for stroke patients and people with limited mobility. Sample projects include conceptualization of solutions for grip assist solutions, local exo-skeletons and electric wheelchair powertrains.

BIM (Building Information Modeling) in Design, Construction and Operation

ENGR 498-03, Independent Study/Research/ 34424
Professor: Julide Demirdoven
Day/Time: / TBD
Location: MC / Location: MC / Location: TBD
Dates: May 29, 2019 to July 19, 2019
This research provides a faculty-mentored immersive research experience as a part of a student team. Research topics are determined by instructor's area of research and work which is Building Information Modeling (BIM). Building Information Modeling (BIM) is a digital representation of physical and functional characteristics of a facility. As such it serves as a shared knowledge resource for information about a facility forming a reliable basis for decisions during its life cycle from inception onward. It is clear that Building Information Modeling (BIM) is the trend of the future, with increased use documented in the construction industry in the last few years. To sustain the momentum of BIM, effective workforce development that aims to balance the supply-demand equation in the labor market is essential. This opportunity consists of an experiential approach adopted to BIM-enabled learning to investigate collaboration with Building Information Models. Around many uses of BIM, the researchers select their primary roles creating a BIM team and explored the interoperability of selected tools to operate their tasks. In this creative and collaborative process the researchers gain some skills for BIM capabilities of the integrated design project by using various opportunity materials and software licenses provided for their use in a limited time frame. This methodology allows the researchers to experience integrated design process in a realistic way and helps them to learn how different tools and methods integrate with each other. Experiences in integrating BIM in terms of learning by doing into the undergraduate immersive research program at IIT are presented and discussed through sample assignments and specific research sessions including lectures, seminars, researchers’ oral and poster presentations, industry partnerships, workshops and activities. The objective of this study is to educate the engineers/architects of the future who will be actively using BIM routinely.

Building Energy Analysis for Resilient Design

ENGR 498-51, Independent Study/Research/ 34432
Professor: Julide Demirdoven
Day/Time: / TBD
Location: MC / Location: MC / Location: TBD
Dates: May 29, 2019 to July 19, 2019
The main research topics will include (1) building services engineering, (2) sustainable and advanced building materials, (3) energy-efficient design, (4) high performance based design, and (5) building codes and social studies. This opportunity consists of an experiential approach to investigate building energy models and use building performance analysis tools and software.

Control of Connected and Autonomous Vehicles

ENGR 499-18, Independent Study/Research/ 34436
Professor: Baisravan HornChaudhuri
Day/Time: / TBD
Location: MC / Location: MC / Location: TBD
Dates: May 29, 2019 to July 19, 2019
The project primarily focuses on implementing control methods for connected and autonomous vehicles in VISSIM or any other traffic simulator. The student will learn VISSIM, implement available control methodologies, and study their performance in multiple traffic scenarios developed in VISSIM.

Data analysis for Alzheimer’s

ENGR 498-41, Independent Study/Research/ 34421
Professor: Abhinav Bhushan
Day/Time: / TBD
Location: MC / Location: MC / Location: TBD
Dates: May 29, 2019 to July 19, 2019
There has been a rapid increase in the incidence of Alzheimer’s, a disease for which there is no diagnosis or cure. We have data from a prospective clinical study that has recorded hundreds of biomarkers with Alzheimer’s as the primary outcome. The goal of this class will be to develop or use existing algorithms to analyze this dataset.

Design of Pumped Hydro Energy Storage for Smart Grid Applications

ENGR 498-48, Independent Study/Research/ 34429
Professor: Donald Chmielewski
Day/Time: / TBD
Location: MC / Location: MC / Location: TBD
Dates: May 29, 2019 to July 19, 2019
The team will build a model of a pumped hydro energy storage system. This model will then be used to simulate the operation of the storage system in the context of dynamic electricity prices. Finally, the system design parameters will be optimized so as to maximize arbitrage opportunities. Familiarity with MATLAB is required, but proficiency is preferred. Students with an interest in optimization are encouraged to participate.

Design with Sensors, FPGA and Smart Phone

ENGR 598-04, Independent Study/Research/ 34447
Professor: Jafar Saniei
Day/Time: / TBD
Location: MC / Location: MC / Location: TBD
Dates: May 29, 2019 to July 19, 2019
For this course students join the research team at ECASP Research Laboratory (Embedded Computing and Signal Processing, http://ecasp.ece.iit.edu/) where they will have the opportunity to learn different digital hardware and software design platforms. Students will be organized into groups to propose solutions to various design problems including robotics and machine vision, working with computer network laboratory tools, sensor data collection and data management, audio filter design on FPGA, system-on-chip design using Zynq FPGA from Xilinx and ARM platform, body sensor networks, Internet of
Platform through Hardware/Software Co-design methods.

Both algorithms will be implemented on the Xilinx Zynq FPGA driver assistance applications. The system incorporates two major operations, traffic sign detection and classification. Students will study embedded system development with applications targeting computer vision. A case study would be developing a robust traffic sign recognition system for driver assistance applications. The system incorporates two major operations, traffic sign detection and classification. Both algorithms will be implemented on the Xilinx Zynq FPGA platform through Hardware/Software Co-design methods.

## Developing a new class of accessible microfluidics

**ENGR 498-44, Independent Study/Research/ 34427**

**Professor:** Abhinav Bhushan  
**Day/Time:** / TBD  
**Location:** MC /  
**Dates:** May 29, 2019 to July 19, 2019

Most microfluidic devices are closed, which can often be a limitation to generate organ on chip tissue models. The goal of this class will be to generate a new class of resealable and easily accessible microfluidic devices for organ on chip applications.

## Development of organ on chip tissue models

**ENGR 498-42, Independent Study/Research/ 34423**

**Professor:** Abhinav Bhushan  
**Day/Time:** / TBD  
**Location:** MC /  
**Dates:** May 29, 2019 to July 19, 2019

Our lab has created organ on chip modules for several tissue types including liver, adipose, and gut. We are increasing the complexity of these tissue models that can make them more physiological. The goal of this class will be to use microfluidics to generate advanced organ on chip tissue models.

## Electric Vehicles

**ENGR 499-16, Independent Study/Research/ 34435**

**Professor:** Mahesh Krishnamurthy  
**Day/Time:** / TBD  
**Location:** MC /  
**Dates:** May 29, 2019 to July 19, 2019

This research will focus on design and analysis of drivetrain components in electric vehicles. There are three main components- electric machine, power electronics and energy storage. Sample projects include high efficiency machine design for traction motors, extreme fast charging systems and thermal management of drivetrain components. Experience in hardware development will be a valuable skill and will be an important part this research.

## Embedded System Design for Computer Vision Applications

**ENGR 499-33, Independent Study/Research/ 34440**

**Professor:** Erdal Oruklu  
**Day/Time:** / TBD  
**Location:** MC /  
**Dates:** May 29, 2019 to July 19, 2019

Students will study embedded system development with applications targeting computer vision. A case study would be developing a robust traffic sign recognition system for driver assistance applications. The system incorporates two major operations, traffic sign detection and classification. Both algorithms will be implemented on the Xilinx Zynq FPGA platform through Hardware/Software Co-design methods.

## Eradicating Biofilms via Plant-Derived Compounds

**ENGR 499-35, Independent Study/Research/ 34442**

**Professor:** Seok Hoon Hong  
**Day/Time:** / TBD  
**Location:** MC /  
**Dates:** May 29, 2019 to July 19, 2019

Biofilms are sessile bacterial communities formed in aquatic environments by the secretion of extracellular polymeric substances. It is very difficult to eliminate biofilms using the conventional antibiotic or disinfectant treatments. Some plant-derived compounds help improve human immune responses and exhibit antimicrobial activities. Our lab has screened several candidate compounds that show promising anti-biofilm activities by inhibiting pathogenic biofilms. This research seeks to characterize and optimize anti-biofilm activities of those selected compounds toward various pathogens. Students will study biofilm problems in medical, environmental, and food processing areas, and learn hands on molecular biotechnology skills including culturing bacteria, sterilization, biofilm formation, quantification, and microscope operation.

## Large-scale medical imaging analysis

**ENGR 498-54, Independent Study/Research/ 34396**

**Professor:** Boris Gutman  
**Day/Time:** / TBD  
**Location:** MC /  
**Dates:** May 29, 2019 to July 19, 2019

The project is to develop a predictive model of Alzheimer’s disease using anatomical and diffusion MRI. We will use disease progression modeling, computational morphometry and dMRI connectivity in our model.

## Modeling Hazardous Air Emissions from Wastewater Treatment Operations

**ENGR 499-42, Independent Study/Research/ 34444**

**Professor:** Ali Oskouie  
**Day/Time:** / TBD  
**Location:** MC /  
**Dates:** May 29, 2019 to July 19, 2019

Majority of wastewater treatment plants receive combined sewer flow (municipal, commercial, and industrial) that brings hazardous industrial wastes to the treatment plants. The emissions of these hazardous chemicals in various stages of wastewater treatment processes needs to be calculated and the total emissions in many instances has to be reported to Environmental Protection Agency (EPA) of each state where the wastewater treatment plant is in operations. In this class, the instructor (senior wastewater scientist) will discuss fundamentals of emission of hazardous chemicals and methods of calculating such emissions to fully satisfy the reporting requirements for these emissions. The students will become familiar with overall wastewater treatment processes, significance of air emissions, and modeling approaches to determine the emissions. National and international Civil and environmental consultants as well as other energy industries (power plants, petroleum, renewable energy, etc.) are constantly looking for qualified graduates in this field.

## Pathway analysis using multidimensional omics data

**ENGR 498-40, Independent Study/Research/ 34420**

**Professor:** Abhinav Bhushan  
**Day/Time:** / TBD  
**Location:** MC /  
**Dates:** May 29, 2019 to July 19, 2019

We are living in the age of big data. Whereas different biological datasets are available, there is a lack of data that concurrently measure transcriptome and metabolome. We have generated unique experimental data to fill this gap. The goal of class will be to use this data to carry out pathway analysis that will help in finding new insights into metabolic diseases and finding new cures.
Peptide loaded nanoparticles for sustained delivery of peptide therapeutics
ENGR 499-34, Independent Study/Research/ 34441
Professor: Abhinav Bhushan
Day/Time: / TBD
Location: MC / 
Dates: May 29, 2019 to July 19, 2019
This project focuses on sustained co-delivery of anti-inflammatory and proangiogenic peptides delivered from nanoparticles for wound healing and infection control. Peptide release kinetics will be quantified as a function of nanoparticle crosslink density and the bioactivity of released peptides will be evaluated using in vitro culture models.

Point of care for biosensors for managing diabetes
ENGR 499-43, Independent Study/Research/ 34445
Professor: Abhinav Bhushan
Day/Time: / TBD
Location: MC / 
Dates: May 29, 2019 to July 19, 2019
There are currently over 30 million American’s with known diabetes. The current technology does a poor job of measuring periods of low/high insulin which can be fatal to the individual. The goal of this class will be to develop point of care biosensors that will make these diagnoses possible.

Reconfigurable Hardware Design for Signal Processing Applications
ENGR 498-48, Independent Study/Research/ 34430
Professor: Erdal Oruklu
Day/Time: / TBD
Location: MC / 
Dates: May 29, 2019 to July 19, 2019
During the initial phase of the work, students will learn about field programmable gate array devices (FPGAs) and complete several tutorials running on Xilinx FPGA boards. These tutorials include hardware/software co-design examples, custom peripheral interface design such as HDMI output and VHDL programming. After this initial exposure, students choose a topic such as ultrasonic flaw detection or video processing application and work on the hardware implementation, running on a reconfigurable platform.

Research in Internet of Things and Machine Vision System Design
ENGR 498-50, Independent Study/Research/ 34419
Professor: Jafar Saniie
Day/Time: / TBD
Location: MC / 
Dates: May 29, 2019 to July 19, 2019
For this course students join the research team at ECASP Research Laboratory (Embedded Computing and Signal Processing, http://ecasp.ece.iit.edu). Students will have the opportunity to employ a combination of signal and image processing design tools such as MatLab and OpenCV and will be organized into groups to propose solutions to various Internet of Things problems. Students’ projects will include Machine Vision, Robotics, Drone Navigation, Target Tracking Systems, Software Defined Radio, Wireless Health Monitoring Systems, and Audio Signal Processing using FPGA, Raspberry Pi, and Arduino Embedded Computing Systems.

Sustainable Solution for Mitigating Odors and Corrosion in Wastewater
ENGR 499-32, Independent Study/Research/ 34439
Professor: Ali Oskouie
Day/Time: / TBD
Location: MC / 
Dates: May 29, 2019 to July 19, 2019
About 600,000 miles of wastewater collection systems in US convey wastewater from municipal, commercial and industrial sources in addition to rain and snow melt runoff. The televised collection lines has shown that thousands of miles of these collection lines are already corroded and will require very large investment (billions of dollars) in the very near future that will put heavy burden on tax payers. Various methods to slow down the continuation of corrosion in wastewater conduits is explored by the instructor and other researchers and practitioners in the world. In this class, various methods of mitigating odors/corrosion in collection system will be discussed and potential sustainable solution based on actual field work will be explored. A tour of a collection system of a large wastewater treatment plant will be arranged by the instructor. The instructor is a professional with a major wastewater treatment plant in the Chicago area.

Synthetic Biology Approaches for Controlling Biofilms
ENGR 499-36, Independent Study/Research/ 34443
Professor: Seok Hoon Hong
Day/Time: / TBD
Location: MC / 
Dates: May 29, 2019 to July 19, 2019
Biofilms are sessile bacterial communities formed in aquatic environments by the secretion of extracellular polymeric substances. It is very difficult to eliminate bacterial biofilms using the conventional antibiotic or disinfectant treatments. Synthetic biology is the intersection of biology and engineering and has the potential to engineer beneficial bacteria for use as sensors, drug delivery devices, and microbial factories. We investigate synthetic biology approaches to develop novel strategies to combat persistent biofilms. This research will design, construct, and evaluate the engineered beneficial bacteria to inhibit target biofilm formation or induce biofilm disruption. Through this research, students will learn biofilm problems in various areas and experience synthetic biology tools to introduce new functions into the beneficial bacteria.

Synthetic biology sensors for modulating cell function to model diseases
ENGR 499-31, Independent Study/Research/ 34438
Professor: Abhinav Bhushan
Day/Time: / TBD
Location: MC / 
Dates: May 29, 2019 to July 19, 2019
The goal of this class will be to use synthetic biology principles to develop biosensors that can modulate the function of cells that can be used to model diseases.
The WELL Building Standard in Design and Operation
**ENGR 498-09, Independent Study/Research/ 34394**
Professor: David Arditi  
Day/Time: / TBD  
Location: MC /  
Dates: May 29, 2019 to July 19, 2019

This project involves understanding the WELL Building Standard certification system by focusing on the seven core concepts of the standard, namely, air, water, nourishment, light, fitness, comfort, and mind. The WELL Building Standard was developed in 2013 by the International WELL Building Institute (IWBI), a public benefit corporation that is leading the movement to promote health and wellness in buildings. The WELL Building Standard explores how design, operations and behaviors within the places where we live, work, learn and play can be optimized to advance human health and well-being. Applicants to the WELL Building Standard certification system can obtain silver, gold, or platinum certification. A project’s assessor grades each of the seven concepts independently on a numerical scale.

The objective of this research is to evaluate the condition of Alumni Memorial Hall on IIT’s campus vis-à-vis the WELL Building Standard. Alumni Memorial Hall was designed by Ludwig Mies Van der Rohe in 1945-46. Since its construction, Alumni Memorial Hall has undergone several minor renovations, but it is not clear how the building relates to the WELL Building Standard. The students who participate in this research are expected (1) to learn the importance and implications of the WELL Building Standard, (2) to assess the condition of Alumni Memorial Hall, (3) to come up with practical solutions to overcome the deficiencies detected, and (4) to explore synergies between the WELL Building Standard and the LEED green building certification system.

Wireless Network Architecture and Performance Analysis for Driverless Car
**ENGR 498-53, Independent Study/Research/ 34434**
Professor: Suresh Borkar  
Day/Time: / TBD  
Location: MC /  
Dates: May 29, 2019 to July 19, 2019

Driverless car is a super computer on wheels forming the Internet of Vehicles to Everything (V2X). One car is expected to create four Terabytes of data per day requiring processing and transmission by different entities, from the on-board computer to Road side computing and to cloud computing platforms. The project will focus primarily on simulation based performance analysis for the major constituents, the on-board computing, the roadside computing, the wireless network and the central infrastructure and cloud platforms.

Instrumentation and Measurement Laboratory
**BME 315-01, Lecture/Lab/ 34021**
Professor: Promila Dhar  
Day/Time: RF / 9:00 a.m. to 12:10 p.m.  
Location: MC /  
Dates: June 3, 2019 to July 27, 2019

Laboratory exercises stress instrumentation usage and data analysis used to determine physiological functions and variables and the relations to the physiological variability.

Advanced Reinforced Concrete
**CAE 518-01, Lecture/ 33701**
Professor:  
Day/Time: TR / 1:30 to 3:55 p.m.  
Location: MC /  
Dates: June 3, 2019 to July 27, 2019

Mechanical properties of hardened concrete, including creep phenomena. Ultimate strength of columns, beams and beam-columns. Introduction to limit analysis of frames and yield-line analysis of plates.

Advanced Reinforced Concrete
**CAE 518-02, Lecture/ 34307**
Professor:  
Day/Time: / TBD  
Location: MC /  
Dates: May 20, 2019 to August 10, 2019

Mechanical properties of hardened concrete, including creep phenomena. Ultimate strength of columns, beams and beam-columns. Introduction to limit analysis of frames and yield-line analysis of plates.

Computer Graphics for Non-Engineers
**EG 425-01, Lecture/Lab/ 31004**
Professor: William Briggs  
Day/Time: MW / 5:00 to 7:25 p.m.  
Location: MC /  
Dates: June 3, 2019 to July 27, 2019

Principles and applications of computer graphics in business and nontechnical fields. Study of computer graphics hardware and software systems. Use of computer in producing charts, graphs, and technical drawings. Use of PC-CAD in problem solving and design. Credit for this course is not applicable to an engineering degree. Requires junior standing.

Concrete and Foundation Design
**CAE 432-01, Lecture/ 34014**
Professor: A Longinow  
Day/Time: MW / 10:00 a.m. to 12:25 p.m.  
Location: MC /  
Dates: June 3, 2019 to July 27, 2019

Design of reinforced concrete building frames and continuous structures. Design of girders, slabs, columns, foundations, and retaining walls.

Concrete and Foundation Design
**CAE 432-02, Lecture/ 34015**
Professor: A Longinow  
Day/Time: / Internet  
Location: IN /  
Dates: June 3, 2019 to July 27, 2019

Design of reinforced concrete building frames and continuous structures. Design of girders, slabs, columns, foundations, and retaining walls.

Construction Claims Management
**CAE 578-01, Lecture/ 30315**
Professor: Raymond Lemming  
Day/Time: TR / 5:30 to 7:55 p.m.  
Location: MC /  
Dates: June 3, 2019 to July 27, 2019

This course provides a basic explanation of construction contract claims by types such as delays, acceleration, and scope issues, the underlying legal theories of the contract construction and claims, elements required for each claims type defenses to the claim, prophylactic claims measures. The claims process within the contract and extra-contractual basis’s for claims are examined. Resolution of claims by ADR techniques and the formal litigation process are explained. AIA, AGC, and federal claims provisions are described. In addition to construction contract claims other types of claims associated with construction projects are covered such as Surety bond claims and various insurance claims (CGL, Builder’s Risk, workers comp, etc).
Construction Claims Management

**CAE 578-02, Lecture/ 34068**
Professor: Raymond Lemming  
Day/Time: / Internet  
Location: IN  
Dates: June 3, 2019 to July 27, 2019

This course provides a basic explanation of construction contract claims by types such as delays, acceleration, and scope issues, the underlying legal theories of the contract construction and claims, elements required for each claims type defenses to the claim, prophylactic claims measures. The claims process within the contract and extra-contractual basis’s for claims are examined. Resolution of claims by ADR techniques and the formal litigation process are explained. AIA, AGC, and federal claims provisions are described. In addition to construction contract claims other types of claims associated with construction projects are covered such as Surety bond claims and various insurance claims (CGL, Builder’s Risk, workers comp, etc).

Construction Contract Administration

**CAE 473-01, Lecture/ 30312**
Professor: David Arditi  
Day/Time: MW / 6:25 to 8:50 p.m.  
Location: MC  
Dates: June 3, 2019 to July 27, 2019


Construction Contract Administration

**CAE 473-02, Lecture/ 32106**
Professor: David Arditi  
Day/Time: / Internet  
Location: IN  
Dates: June 3, 2019 to July 27, 2019


Construction Cost Accounting and Control

**CAE 572-01, Lecture/ 34308**
Professor: Raymond Lemming  
Day/Time: MWF / 6:25 to 7:15 p.m.  
Location: MC  
Dates: May 20, 2019 to June 29, 2019


Construction Management with Building Information Modeling

**CAE 573-01, Lecture/ 31709**
Professor: Julide Demirdoven  
Day/Time: TR / 6:25 to 8:55 p.m.  
Location: MC  
Dates: June 3, 2019 to July 27, 2019

Fundamentals and practical use of information technologies in the construction industry; basic concepts of building information modeling (BIM); review of software and technology available for BIM; practical use of BIM including design and clash detection; impact of BIM on construction management functions; construction scheduling and sequencing using BIM; cost estimating using BIM; facility management with BIM; integrated approach to navigate BIM as a multi-disciplinary design, analysis, construction, and facility management technology; class exercise to create a BIM model and to use it in scheduling, sequencing, cost estimating, management, and simulation of a construction project.
Fire Protection and Life Safety in Building Design

CAE 425-02, Lecture/ 33409
Professor: David DeBord
Day/Time: / Internet
Location: IN /
Dates: July 1, 2019 to August 10, 2019
Fundamentals of building design for fire and life safety. Emphasis on a systematic design approach. Basic considerations of building codes, fire loading, fire resistance, exit design, protective systems, and other fire protection systems.

Introduction to Building Information Modeling

EG 430-01, Lecture/ 32666
Professor: Julide Demirdoven
Day/Time: MW / 5:30 to 7:55 p.m.
Location: MC /
Dates: June 3, 2019 to July 27, 2019
Fundamentals and practical use of information technologies in design; basic concepts of building information modeling (BIM); review of software and technology available for BIM; practical use of BIM in design for creating a site, viewing a model, starting a project, working in the AutoDesk “Revit” Environment, adding basic building elements to a project, conceptual energy analysis, designing a preliminary layout, and presenting a project.

Introduction to Engineering Drawing and Design

CAE 100-01, Lecture/Lab/ 34384
Professor: Laurence Rohter
Day/Time: MW / 1:50 to 4:30 p.m.
Location: MC / RE 029
Dates: June 3, 2019 to July 27, 2019
Introduction to engineering graphics as a problem-solving tool. Basic traditional techniques of orthographic projection, multi-view, pictorial, auxiliary views, dimensioning and tolerance, sectioning, detail drawing. Use of ANSI standards; applications in civil and architectural engineering.

Introduction to Geotechnical Engineering

CAE 323-01, Lecture/ 33699
Professor: Jeff Budiman
Day/Time: MW / 1:30 to 3:35 p.m.
Location: MC /
Dates: May 20, 2019 to June 29, 2019
Physical and mechanical properties of soil; elementary principles of soil identification and testing. Principles of soil permeability and seepage, consolidation, failure theories, earth pressures, and bearing capacity. Laboratory included.

Mechanical Design Graphics

EG 405-01, Lecture/Lab/ 32775
Professor: James Novak
Day/Time: TR / 8:45 to 11:10 a.m.
Location: MC /
Dates: June 3, 2019 to July 27, 2019
Basic concepts of mechanical design and analysis. Advanced design layouts, details, assemblies, tolerance systems, surface finish control, materials, processes, ANSI drafting standards, engineering design processes, systems and procedures, application of computers to design, and CAD/CAM. Requires junior standing.

Nonlinear Finite Element Analysis

CAE 535-159, Lecture/ 34187
Professor: Mehdi Modares
Day/Time: / TBD
Location: MC /
Dates: June 3, 2019 to July 27, 2019
FEM as applied to nonlinear problems. Contact problems, the mechanics of large deformation, full and updated Lagrange formulations, review of plasticity, solution algorithms, Eulerian approaches, application to FEM to limit analysis. Same as MAE 539.

Sprinklers, Standpipes, Fire Pumps, Special Suppression, and Detection Systems

CAE 422-02, Lecture/ 34383
Professor: David DeBord
Day/Time: / Internet
Location: IN /
Dates: June 3, 2019 to July 27, 2019
Review and introduction to fluid dynamics applied to sprinklers, standpipes, fire pumps, and special suppression systems; hydraulic design criteria and procedures for sprinklers requirements, standpipes, fire pumps, special suppression systems; and detection and alarm systems using nationally recognized design (National Fire Protection Association) standards, water supply requirement systems and distributions.

Steel Design

CAE 431-01, Lecture/ 34086
Professor: Gongkang Fu
Day/Time: T / 5:00 to 9:45 p.m.
Location: MC /
Dates: June 3, 2019 to July 27, 2019
Design of steel beams, plate girders, and beam columns. Bolted and welded connections. Design of typical frame systems.

Steel Design

CAE 431-02, Lecture/ 34120
Professor: Gongkang Fu
Day/Time: / Internet
Location: IN /
Dates: June 3, 2019 to July 27, 2019
Design of steel beams, plate girders, and beam columns. Bolted and welded connections. Design of typical frame systems.

Structural Analysis I

CAE 304-01, Lecture/Lab/ 31101
Professor: Mehdi Modares
Day/Time: MW / 5:00 to 7:25 p.m.
Location: MC /
Dates: June 3, 2019 to July 27, 2019
Technical and Pictorial Illustration

EG 406-01, Lecture/Lab/ 32978
Professor: James Novak
Day/Time: / 
Location: MC / 
Dates: June 3, 2019 to July 27, 2019


Geodetic Science

CAE 105-01, Lecture/Lab/ 34385
Professor: Laurence Rohter
Day/Time: MWF / 10:00 a.m. to 12:40 p.m.
Location: MC / AM 120
Dates: June 3, 2019 to July 27, 2019

Measurement of distances and angles. Theory of errors. Study of leveling, traversing, topographic mapping, route surveying, earthwork computation, photometry, and boundary surveys. Practice in the use of tapes, levels, total stations, and PC-based methodology.

Laboratory

CAE 323-L01, Lab/ 33700
Professor: Jeff Budiman
Day/Time: TR / 1:30 to 4:40 p.m.
Location: MC / 
Dates: May 20, 2019 to June 29, 2019

Physical and mechanical properties of soil; elementary principles of soil identification and testing. Principles of soil permeability and seepage, consolidation, failure theories, earth pressures, and bearing capacity. Laboratory included.

Chemical and Biological Engineering Laboratory I

CHE 317-01, Lecture/Lab/ 30255
Professor: Nader Aderangi
Day/Time: MW / 5:00 to 8:10 p.m.
Location: MC / 
Dates: June 3, 2019 to July 27, 2019

Laboratory work in the unit operations of chemical engineering, fluid flow, heat transfer, and other selected topics.

Chemical and Biological Engineering Laboratory II

CHE 418-01, Lecture/Lab/ 30256
Professor: Nader Aderangi
Day/Time: TR / 5:00 to 8:10 p.m.
Location: MC / 
Dates: June 3, 2019 to July 27, 2019

Laboratory work in distillation, humidification, drying, gas absorption, filtration, and other areas.

Computational Techniques in Engineering

CHE 536-01, Lecture/ 34263
Professor: Dimitri Gidaspow
Day/Time: MW / 11:25 a.m. to 12:40 p.m.
Location: MC / 
Dates: May 20, 2019 to August 10, 2019


Computational Techniques in Engineering

CHE 536-02, Lecture/ 34264
Professor: Dimitri Gidaspow
Day/Time: / Internet
Location: IN / 
Dates: May 20, 2019 to August 10, 2019


Process Modeling and System Theory

CHE 433-01, Lecture/ 31398
Professor: Donald Chmielewski
Day/Time: MW / 12:10 to 2:35 p.m.
Location: MC / 
Dates: June 3, 2019 to July 27, 2019


Process Modeling and System Theory

CHE 433-02, Lecture/ 31612
Professor: Donald Chmielewski
Day/Time: / Internet
Location: IN / 
Dates: June 3, 2019 to July 27, 2019


Renewable Energy Technologies

CHE 541-01, Lecture/ 33568
Professor: Jai Prakash
Day/Time: MW / 12:10 to 3:20 p.m.
Location: MC / 
Dates: May 20, 2019 to June 29, 2019

The course will cover three topics related to renewable Energy Technologies. 1. Review of renewable energy sources; solar, wind, biomass, etc. 2. Energy storage and conversion with emphasis on batteries and fuel cells 3. Hydrogen as an energy carrier and the Hydrogen Economy.
Renewable Energy Technologies

CHE 541-02, Lecture/ 33569
Professor: Jai Prakash
Day/Time: / Internet
Location: IN /
Dates: May 20, 2019 to June 29, 2019

The course will cover three topics related to renewable Energy Technologies. 1. Review of renewable energy sources; solar, wind, biomass, etc. 2. Energy storage and conversion with emphasis on batteries and fuel cells 3. Hydrogen as an energy carrier and the Hydrogen Economy

Thermodynamics II

CHE 451-01, Lecture/ 33696
Professor: Victor Perez-Luna
Day/Time: TR / 1:20 to 2:35 p.m.
Location: MC /
Dates: June 3, 2019 to July 27, 2019

Second law analysis of cooling, separation, combustion, and other chemical processes. Chemical reaction equilibrium and processing applications.

Thermodynamics II

CHE 451-02, Lecture/ 33697
Professor: Victor Perez-Luna
Day/Time: / Internet
Location: IN /
Dates: June 3, 2019 to July 27, 2019

Second law analysis of cooling, separation, combustion, and other chemical processes. Chemical reaction equilibrium and processing applications.

Material Energy Balances

CHE 202-01, Lecture/ 33567
Professor: Satish Parulekar
Day/Time: / Internet
Location: IN /
Dates: June 3, 2019 to July 27, 2019

Material and energy balances for engineering systems subjected to chemical and physical transformations. Calculations on industrial processes.

Fluid Mechanics

CHE 301-02, Lecture/ 33724
Professor: Nader Aderangi
Day/Time: / Internet
Location: IN /
Dates: June 3, 2019 to July 27, 2019

Flow of fluids. Fundamentals of fluid flow design equations as applied to selected unit operations.

Analysis of Random Signals

ECE 511-01, Lecture/ 31744
Professor: Guillermo Atkin
Day/Time: MTW / 8:35 to 10:45 a.m.
Location: MC / WH 115
Dates: May 20, 2019 to June 29, 2019

Probability theory, including discrete and continuous random variables, functions and transformations of random variables. Random processes, including correlation and spectral analysis, the Gaussian process and the response of linear systems to random processes.
Communication Engineering Fundamentals

ECE 513-01, Lecture/ 34402
Professor: Chi Zhou
Day/Time: TWR / 11:00 to 11:50 a.m.
Location: IN /
Dates: July 1, 2019 to August 10, 2019
Review of probability and random processes. AM with noise, FM with noise. Introduction to digital communication. Source coding, signal space analysis, channel modulations, optimum receiver design, channel encoding.

Communication Engineering Fundamentals

ECE 513-02, Lecture/ 34406
Professor: Chi Zhou
Day/Time: / Internet
Location: IN /
Dates: July 1, 2019 to August 10, 2019
Review of probability and random processes. AM with noise, FM with noise. Introduction to digital communication. Source coding, signal space analysis, channel modulations, optimum receiver design, channel encoding.

Computer Organization and Design

ECE 485-02, Lecture/ 32000
Professor: Suresh Borkar
Day/Time: / Internet
Location: IN /
Dates: June 3, 2019 to July 27, 2019
This course covers basic concepts and state-of-the-art developments in computer architecture: computer technology, performance measures, instruction set design, computer arithmetic, controller and datapath design, memory systems, pipelining, array processing, parallel processing, multiprocessor, abstract analysis models, input-output systems, relationship between computer design and application requirements, and cost/performance tradeoffs. Students will complete a project implementing a version of multiple-cycle processor. Credit will be given for either ECE 485 or CS 470, but not both.

Computer Organization and Design

ECE 485-03, Lecture/ 32126
Professor: Suresh Borkar
Day/Time: / Internet
Location: IN /
Dates: June 3, 2019 to July 27, 2019
This course covers basic concepts and state-of-the-art developments in computer architecture: computer technology, performance measures, instruction set design, computer arithmetic, controller and datapath design, memory systems, pipelining, array processing, parallel processing, multiprocessor, abstract analysis models, input-output systems, relationship between computer design and application requirements, and cost/performance tradeoffs. Students will complete a project implementing a version of multiple-cycle processor. Credit will be given for either ECE 485 or CS 470, but not both.

Communication Engineering Fundamentals

ECE 513-03, Lecture/ 34407
Professor: Chi Zhou
Day/Time: / Internet
Location: IN /
Dates: July 1, 2019 to August 10, 2019
Review of probability and random processes. AM with noise, FM with noise. Introduction to digital communication. Source coding, signal space analysis, channel modulations, optimum receiver design, channel encoding.

Control Systems

ECE 438-01, Lecture/ 33661
Professor: Mohammad Hassan Modir Shanechi
Day/Time: TR / 1:00 to 3:25 p.m.
Location: MC / SB 212
Dates: June 3, 2019 to July 27, 2019

Control Systems

ECE 438-02, Lecture/ 33662
Professor: Mohammad Hassan Modir Shanechi
Day/Time: / Internet
Location: IN /
Dates: June 3, 2019 to July 27, 2019

Control Systems

ECE 438-03, Lecture/ 33663
Professor: Mohammad Hassan Modir Shanechi
Day/Time: / Internet
Location: IN /
Dates: June 3, 2019 to July 27, 2019

Digital System-on-Chip Design

ECE 742-01, Accelerated Course/ 34389
Professor: Jafar Saniie
Day/Time: FS / 9:00 a.m. to 4:00 p.m.
Location: MC / SB 212
Dates: May 31, 2019 to June 15, 2019
This short course covers digital design techniques and hardware/software realization concepts in embedded computing systems using VHDL. Topics include: basics principles of VHDL programming; designing with FPGA; design of arithmetic logic unit; VHDL models for memories and busses; CPU design; system-on-chip design; efficient hardware realizations of FFT, DCT, and DWT.

Digital System-on-Chip Design

ECE 742-01, Accelerated Course/ 34389
Professor: Jafar Saniie
Day/Time: S / 9:00 a.m. to 4:00 p.m.
Location: MC / SB 212
Dates: May 31, 2019 to June 15, 2019
This short course covers digital design techniques and hardware/software realization concepts in embedded computing systems using VHDL. Topics include: basics principles of VHDL programming; designing with FPGA; design of arithmetic logic unit; VHDL models for memories and busses; CPU design; system-on-chip design; efficient hardware realizations of FFT, DCT, and DWT.

150 summer.iit.edu
TDMA and CDMA systems are covered in detail. Digital cellular systems are discussed along with a review of the standards for the industry. In these transitions, and future generations of cellular systems, compatibility aspects of modulation formats, multi-user detection, smart antennas, technologies that are used. Topics included are speech and channel encoders, interleaving, encryption, equalization, modulation formats, multi-user detection, smart antennas, technologies that are used in these transitions, and future generations of cellular systems. Compatibility aspects of digital cellular systems are discussed along with a review of the standards for the industry. TDMA and CDMA systems are covered in detail.

Introduction to the Profession I

ECE 100-01, Lecture/Lab/ 34415
Professor: TBD
Day/Time: M / 3:15 to 6:30 p.m.
Location: RI /
Dates: May 20, 2019 to June 29, 2019
Introduces the student to the scope of the engineering profession and its role in society and develops a sense of professionalism in the student. Provides an overview of electrical engineering through a series of hands-on projects and computer exercises. Develops professional communication and teamwork skills.

Wireless Communication System Design

ECE 504-01, Lecture/ 34401
Professor: Chi Zhou
Day/Time: TWR / 10:00 to 10:50 a.m.
Location: MC /
Dates: July 1, 2019 to August 10, 2019
Fundamentals of first (1G), second (2G), third (3G), and future generation cellular communication systems. This course covers the transition from 1G to 3G systems. Topics included are speech and channel encoders, interleaving, encryption, equalization, modulation formats, multi-user detection, smart antennas, technologies that are used in these transitions, and future generations of cellular systems. Compatibility aspects of digital cellular systems are discussed along with a review of the standards for the industry. TDMA and CDMA systems are covered in detail.

Wireless Communication System Design

ECE 504-02, Lecture/ 34404
Professor: Chi Zhou
Day/Time: / Internet
Location: IN /
Dates: July 1, 2019 to August 10, 2019
Fundamentals of first (1G), second (2G), third (3G), and future generation cellular communication systems. This course covers the transition from 1G to 3G systems. Topics included are speech and channel encoders, interleaving, encryption, equalization, modulation formats, multi-user detection, smart antennas, technologies that are used in these transitions, and future generations of cellular systems. Compatibility aspects of digital cellular systems are discussed along with a review of the standards for the industry. TDMA and CDMA systems are covered in detail.

Advanced Dynamics

MMAE 541-155, Lecture/ 34240
Professor: Boris Pervan
Day/Time: /
Location: MC /
Dates: May 20, 2019 to June 29, 2019
Computational Mechanics
MMAE 350-01, Lecture/ 33973
Professor: Ghazi Malkawi
Day/Time: TR / 5:15 to 7:40 p.m.
Location: MC / 
Dates: July 1, 2019 to August 10, 2019
Explores the use of numerical methods to solve engineering problems in solid mechanics, fluid mechanics and heat transfer. Topics include matrix algebra, nonlinear equations of one variable, systems of linear algebraic equations, nonlinear equations of several variables, classification of partial differential equations in engineering, the finite difference method, and the finite element method. Same as MATH 350.

Computer-Aided Design
MMAE 445-01, Lecture/ 34378
Professor: Sayed Saghaian
Day/Time: TR / 4:00 to 6:05 p.m.
Location: MC / 
Dates: May 20, 2019 to June 29, 2019

Dynamics
MMAE 305-01, Lecture/ 32329
Professor: Samer Khanafseh
Day/Time: TR / 10:00 a.m. to 1:10 p.m.
Location: MC / 
Dates: May 20, 2019 to June 29, 2019

Introduction to Mechanics
MMAE 200-01, Lecture/ 31074
Professor: Bharat Thakkar
Day/Time: TR / 3:30 to 6:40 p.m.
Location: MC / 
Dates: May 20, 2019 to June 29, 2019

Introduction to the Profession
MMAE 100-01, Lecture/Lab/ 34413
Professor: 
Day/Time: M / 3:15 to 6:30 p.m.
Location: RI / 
Dates: May 20, 2019 to June 29, 2019
Introduces the student to the scope of the engineering profession and its role in society. develops a sense of professionalism in the student, confirms and reinforces the student’s career choices, and provides a mechanism for regular academic advising. Provides integration with other first-year courses. Applications of mathematics to engineering. Emphasis is placed on the development of professional communications and teamwork skills.

Mechanics of Solids
MMAE 202-01, Lecture/ 30352
Professor: John Cesarone
Day/Time: MW / 1:00 to 4:10 p.m.
Location: MC / 
Dates: May 20, 2019 to June 29, 2019
Stress and strain relations, mechanical properties. Axially loaded members. Torsion of circular shafts. Elementary bending theory; unsymmetric bending, normal and shear stresses in beams, beam deflection. Combined loading. Plane stress and strain, Mohr’s circle, stress transformation.

Systems Analysis and Control
MMAE 443-01, Lecture/ 32326
Professor: Cagatay Tanil
Day/Time: MW / 8:30 to 11:40 a.m.
Location: MC / 
Dates: May 20, 2019 to June 29, 2019

Thermodynamics
MMAE 320-01, Lecture/ 30355
Professor: Francisco Ruiz
Day/Time: MW / 9:30 a.m. to 12:40 p.m.
Location: MC / WH 315
Dates: May 20, 2019 to June 29, 2019
Introduction to thermodynamics including properties of matter; First Law of Thermodynamics and its use in analyzing open and closed systems; limitations of the Second Law of Thermodynamics; entropy.

Advanced Mechanics of Solids
MMAE 302-01, Lecture/ 34381
Professor: Aiman Shibli
Day/Time: MW / 4:30 to 7:15 p.m.
Location: MC / 
Dates: May 20, 2019 to June 29, 2019

Design of Machine Elements
MMAE 332-01, Lecture/ 34377
Professor: Sayed Saghaian
Day/Time: TR / 1:15 to 3:20 p.m.
Location: MC / 
Dates: May 20, 2019 to June 29, 2019
Students will gain an understanding of the basic elements used in machine design. These include the characteristics of gears, bearings, shafts, keys, couplings, fasteners, springs, electric motors, brakes and clutches, and flexible elements. Students will also learn mechanism types, linkage analysis, and kinematic synthesis.
**College of Architecture**

**Drawing From Travel**
**ARCH 468-01, Lab/ 30288**
Professor: Martin Majkrak  
Day/Time: /  
Location: IL /  
Dates: May 20, 2019 to June 29, 2019

A drawing topics course that develops the perceptual and technical skills critical to drawing in the field. Particular emphasis will be placed on the freehand travel sketch and its capacity to evoke both the physicality and character of a place. Production of a comprehensive drawn record of travels in the form of a journal/sketchbook is required. Various media will be explored.

**Special Projects: Computational Design and Fabrication**
**ARCH 497-02, Lecture/ 32966**
Professor: Brett Balogh  
Day/Time: TR / 9:00 a.m. to 12:10 p.m.  
Location: MC / CR 001  
Dates: May 20, 2019 to June 29, 2019

Independent study of projects and problems. Students must be advised and have consent of the instructor and approval of the dean.

**Special Projects: Fifth Year Studio: Design/Build Puerto Rico**
**ARCH 497-03, Studio/ 32738**
Professor: Frank Flury  
Day/Time: /  
Location: IL /  
Dates: May 20, 2019 to August 10, 2019

Independent study of projects and problems. Students must be advised and have consent of the instructor and approval of the dean.

**Special Projects: Reflective Recordings**
**ARCH 497-01, Lecture/ 31205**
Professor: Catherine Wetzel  
Day/Time: /  
Location: IL /  
Dates: June 3, 2019 to July 27, 2019

Independent study of projects and problems. Students must be advised and have consent of the instructor and approval of the dean.

**Topics in Advanced Technology**
**ARCH 509-02, Lecture/ 34314**
Professor: Maria Clarke  
Day/Time: /  
Location: MC /  
Dates: May 20, 2019 to June 29, 2019

This research seminar examines advances in the technologies that affect the practice of architecture. The course examines leading technologies, processes, and applications, and their role in building design and production. The course will navigate the broad and varied materials related to advanced technologies in architecture by focusing on specific applications for specific projects. Students may select between varying and diverse topics offered by the faculty that may include building envelopes, architectural materials, building and environmental systems, advanced structural design, energy and sustainability, architectural acoustics and lighting, fabrication, and computer-aided design technologies.

**Topics in Drawing From Travel**
**ARCH 468-02, Lab/ 34313**
Professor: John DeSalvo  
Day/Time: /  
Location: IL /  
Dates: May 20, 2019 to June 29, 2019

A drawing topics course that develops the perceptual and technical skills critical to drawing in the field. Particular emphasis will be placed on the freehand travel sketch and its capacity to evoke both the physicality and character of a place. Production of a comprehensive drawn record of travels in the form of a journal/sketchbook is required. Various media will be explored.

**Topics in Furniture Design/Build**
**ARCH 448-01, Lecture/Lab/ 33708**
Professor: Frank Flury  
Day/Time: /  
Location: IL /  
Dates: May 20, 2019 to August 10, 2019

This topics course will introduce students to the use of traditional furniture building techniques including the use of hand and power tools. Students will investigate furniture built of solid wood, composite wood, plastics, and metals and learn to build furniture with a limited number of basic tools and on a budget. A series of exercises will train students to do the physical connection; a series of lectures and presentations will show production and finishing techniques.

**Topics in Modernism: Advanced History Elective**
**ARCH 456-01, Lecture/ 33652**
Professor: Colleen Humer  
Day/Time: /  
Location: IL /  
Dates: May 20, 2019 to June 29, 2019

This class is devoted to the close observation, description, and analysis of works of architecture from 1900 to the present. We will read exemplary texts of architectural criticism and history. Conducted as a seminar, this course studies writings and buildings through research papers, presentations, and other projects.
Advanced Modeling
ARCH 436-01, Lab/ 32679
Professor: Alphonso Peluso
Day/Time: TR / 10:00 a.m. to 1:10 p.m.
Location: MC / TN 110
Dates: May 20, 2019 to June 29, 2019
This course will focus on 3D modeling of complex geometric components in architecture and design. Concepts explored will concentrate on the advancement of digital design as an iterative process. Various modeling types covered are (1) Explicit Modeling, (2) Nurbs Surface Modeling, (3) Parametric Modeling, and (4) Generative Components and Response Modeling. Output will utilize digital fabrication methods as support of the iterative design process.

Design Visualization
ARCH 438-01, Lecture/Lab/ 33856
Professor: Alphonso Peluso
Day/Time: MW / 10:00 a.m. to 1:10 p.m.
Location: MC / TN 110
Dates: May 20, 2019 to June 29, 2019
This course is an in-depth exploration of new visualization techniques to support and express architectural design through 3D rendering. Topics covered will include 3D modeling, cameras, lighting, material mapping, and rendering output. Presentation concepts covered include storytelling, rendering style, visual mood, and image composition.

Politeia: Recordings/Projection
ARCH 497-06, Lecture/ 34387
Professor: Leslie Johnson
Day/Time: / 
Location: MC / 
Dates: June 3, 2019 to July 27, 2019
Independent study of projects and problems. Students must be advised and have consent of the instructor and approval of the dean.

Calculus I
MATH 151-01, Lecture/Lab/ 34261
Professor: Fred Weening
Day/Time: MW / 10:00 to 10:55 a.m.
Location: MC / 
Dates: June 3, 2019 to July 27, 2019

Calculus II
MATH 152-01, Lecture/Lab/ 30225
Professor: David Maslanka
Day/Time: MW / 11:05 a.m. to 12:20 p.m.
Location: MC / 
Dates: June 3, 2019 to July 27, 2019

Calculus II
MATH 152-01, Lecture/Lab/ 30225
Professor: David Maslanka
Day/Time: TR / 10:00 a.m. to 12:20 p.m.
Location: MC / 
Dates: June 3, 2019 to July 27, 2019

Calculus II
MATH 152-01, Lecture/Lab/ 30225
Professor: David Maslanka
Day/Time: MW / 10:00 a.m. to 12:20 p.m.
Location: MC / 
Dates: June 3, 2019 to July 27, 2019

Case Studies and Project Design in Applied Mathematics
MATH 523-01, Lecture/ 32290
Professor: Charles Tier
Day/Time: MW / 11:05 a.m. to 12:15 p.m.
Location: MC / 
Dates: June 3, 2019 to July 27, 2019
The goal of the course is for students to learn how to use applied mathematics methods and skills to analyze real-world problems and to communicate their results in a non-academic setting. Students will work in groups of 2 or 3 to study and analyze problems and then provide useful information to a potential client. The time distribution is flexible and includes discussions of problems, presentation of needed background material and the required reports, and presentations by the teams. Several small projects will be examined and reported on.
Case Studies and Project Design in Applied Mathematics  
**MATH 523-01, Lecture/ 32290**  
Professor: Charles Tier  
Day/Time: MW / 12:45 to 3:30 p.m.  
Location: MC /  
Dates: June 3, 2019 to July 27, 2019  
The goal of the course is for students to learn how to use applied mathematics methods and skills to analyze real-world problems and to communicate their results in a non-academic setting. Students will work in groups of 2 or 3 to study and analyze problems and then provide useful information to a potential client. The time distribution is flexible and includes discussions of problems, presentation of needed background material and the required reports, and presentations by the teams. Several small projects will be examined and reported on.  

Matrix Algebra and Complex Variables  
**MATH 333-01, Lecture/ 34262**  
Professor: Arthur Lubin  
Day/Time: MW / 12:50 to 3:15 p.m.  
Location: MC /  
Dates: June 3, 2019 to July 27, 2019  
Vectors and matrices; matrix operations, transpose, rank, inverse; determinants; solution of linear systems; eigenvalues and eigenvectors. The complex plane; analytic functions; contour integrals; Laurent series expansions; singularities and residues.  

Multivariate and Vector Calculus  
**MATH 251-01, Lecture/ 30226**  
Professor: Andre Adler  
Day/Time: MWR / 10:00 a.m. to 12:05 p.m.  
Location: MC /  
Dates: June 3, 2019 to July 27, 2019  

Probability and Statistics  
**MATH 474-01, Lecture/ 30229**  
Professor: Arthur Lubin  
Day/Time: MW / 10:00 a.m. to 12:25 p.m.  
Location: MC /  
Dates: June 3, 2019 to July 27, 2019  
Elementary probability theory including discrete and continuous distributions, sampling, estimation, confidence intervals, hypothesis testing, and linear regression. Credit not granted for both MATH 474 and MATH 475.  

Probability and Statistics  
**MATH 474-02, Lecture/ 33912**  
Professor: Arthur Lubin  
Day/Time: /  
Location: Internet (India)/  
Dates: June 3, 2019 to July 27, 2019  
Elementary probability theory including discrete and continuous distributions, sampling, estimation, confidence intervals, hypothesis testing, and linear regression. Credit not granted for both MATH 474 and MATH 475.  

Biochemistry  
**BIOL 403-02, Lecture/ 34414**  
Professor: Andrew Howard  
Day/Time: / Internet  
Location: IN /  
Dates: July 1, 2019 to August 10, 2019  
Molecular organization of cell structures and cell membranes. Proteins, nucleic acids, carbohydrates and lipids, their molecular structure, characterization and chemical reactions. Enzymes and enzyme-catalyzed reactions and metabolism. Does not satisfy biochemistry requirement for Biology, Biochemistry, or Molecular Biochemistry and Biophysics majors.  

Human Biology  
**BIOL 115-01, Lecture/ 34019**  
Professor: Tanya Bekyarova  
Day/Time: MW / 10:00 a.m. to 1:10 p.m.  
Location: MC /  
Dates: May 20, 2019 to June 29, 2019  
This course covers selected topics in biology of particular relevance to humans and to human health and disease. Topics include biology of human cells and selected organ systems; neurobiology including psychoactive drugs and drug addiction; development and birth defects; genetics and genetic diseases; toxicology; the immune system and immunologic diseases such as AIDS; human nutrition and nutritional effects; microbial human diseases. BIOL 107 plus BIOL 115 constitutes a one-year sequence in biology. Acceptable as part of science component of the General Education Program.  

Colloids and Colloid Analysis  
**CHEM 544-01, Lecture/ 34431**  
Professor:  
Day/Time: / Internet  
Location: IN /  
Dates: June 3, 2019 to July 27, 2019  
This course will begin a general overview of colloid science. This part of the course will introduce various types of colloids, touch on factors and conditions leading to their stability or instability, consider their evolution and will include a very limited discussion of the conditions under which they can form. The second part of the course will consist of a series of discussions of specific analytical techniques used to characterize colloidal systems, with particular emphasis on the physical characterization of the dispersed phase.  

Introduction to Research  
**CHEM 450-105, Lab/ 32904**  
Professor: James Kaduk  
Day/Time: /  
Location: MC /  
Dates: June 3, 2019 to July 27, 2019  
Required for chemistry majors. Designed to give research experience in a faculty research laboratory.  

Introduction to Research  
**CHEM 450-147, Lab/ 32772**  
Professor: David Minh  
Day/Time: /  
Location: MC /  
Dates: June 3, 2019 to July 27, 2019  
Required for chemistry majors. Designed to give research experience in a faculty research laboratory.
Introduction to Research
CHEM 450-162, Lab/ 32776
Professor: Rong Wang
Day/Time: /
Location: MC /
Dates: June 3, 2019 to July 27, 2019
Required for chemistry majors. Designed to give research experience in a faculty research laboratory.

Introduction to Research
CHEM 450-173, Lab/ 32879
Professor: Andrey Rogachev
Day/Time: /
Location: MC /
Dates: June 3, 2019 to July 27, 2019
Required for chemistry majors. Designed to give research experience in a faculty research laboratory.

Organic Chemistry I
CHEM 237-01, Lecture/ 33959
Professor: Katherine Leight
Day/Time: MW / 9:00 to 11:25 a.m.
Location: MC /
Dates: June 3, 2019 to July 27, 2019
The constitution and properties of the selected classes of organic compounds with considerable attention to stereochemistry and reaction mechanisms. The laboratory work involves the preparation of simple organic compounds using basic synthetic techniques.

Organic Chemistry II
CHEM 239-01, Lecture/ 33961
Professor: Jonathan Brekan
Day/Time: TR / 9:00 to 11:25 a.m.
Location: MC /
Dates: June 3, 2019 to July 27, 2019
Sequel to Organic Chemistry I with more emphasis on structure and reactivity of several classes of organic compounds including introductory discussion on common spectroscopic techniques.

Practical Laboratory for Analytical Chemistry
CHEM 700-01, Accelerated Course/ 34266
Professor: Lee Polite
Day/Time: MTWR / 9:00 a.m. to 5:00 p.m.
Location: MC /
Dates: June 3, 2019 to July 27, 2019
In this one-week intensive course, students will gain hands-on experience using analytical instruments. A brief review of theory of instrumentation will be covered. Students will carry out practical problems and will present their findings.

Principles of Chemistry I with Laboratory
CHEM 124-01, Lecture/ 33953
Professor: Somdev Banerjee
Day/Time: TR / 9:00 to 11:25 a.m.
Location: MC /
Dates: June 3, 2019 to July 27, 2019
An introduction to the foundations of chemistry, including: atoms and molecules; stoichiometry of chemical reactions; thermodynamics; properties of gases; states of matter, chemical solutions; the molecular basis for chemical reactivity; atomic structure; periodicity; and chemical bonding.

Principles of Chemistry I without Laboratory
CHEM 122-01, Lecture/ 33952
Professor: Somdev Banerjee
Day/Time: TR / 9:00 to 11:25 a.m.
Location: MC /
Dates: June 3, 2019 to July 27, 2019
An introduction to the foundations of chemistry, including: atoms and molecules; stoichiometry of chemical reactions; thermodynamics; properties of gases; states of matter, chemical solutions; the molecular basis for chemical reactivity; atomic structure; periodicity; and chemical bonding.

Principles of Chemistry II with Laboratory
CHEM 125-01, Lecture/ 33955
Professor: Somdev Banerjee
Day/Time: MW / 9:00 to 11:25 a.m.
Location: MC /
Dates: June 3, 2019 to July 27, 2019
A continuing introduction to the foundations of chemistry, including: chemical equilibria; the chemistry of acids and bases; solubility and precipitation reactions; kinetics; thermodynamics; electrochemistry; nuclear chemistry; and the basics of organic chemistry.

Principles of Chemistry II Without Laboratory
CHEM 126-01, Lecture/ 33957
Professor: Somdev Banerjee
Day/Time: MW / 9:00 to 11:25 a.m.
Location: MC /
Dates: June 3, 2019 to July 27, 2019
Same as CHEM 125 except without the laboratory.

Laboratory
CHEM 124-L01, Lab/ 33954
Professor: Somdev Banerjee
Day/Time: TR / 1:30 to 3:55 p.m.
Location: MC / WH 212
Dates: June 3, 2019 to July 27, 2019
An introduction to the foundations of chemistry, including: atoms and molecules; stoichiometry of chemical reactions; thermodynamics; properties of gases; states of matter, chemical solutions; the molecular basis for chemical reactivity; atomic structure; periodicity; and chemical bonding.
Laboratory
CHEM 125-L01, Lab/ 33956
Professor: Somdev Banerjee
Day/Time: MW / 1:30 to 3:55 p.m.
Location: MC / WH 212
Dates: June 3, 2019 to July 27, 2019
A continuing introduction to the foundations of chemistry, including: chemical equilibria; the chemistry of acids and bases; solubility and precipitation reactions; kinetics; thermodynamics; electrochemistry; nuclear chemistry; and the basics of organic chemistry.

Organic Chemistry I-Lecture
CHEM 235-01, Lecture/ 33958
Professor: Katherine Leight
Day/Time: MW / 9:00 to 11:25 a.m.
Location: MC /
Dates: June 3, 2019 to July 27, 2019
The constitution and properties of the different classes of organic compounds with considerable attention to stereochemistry and reaction mechanisms.

Laboratory
CHEM 237-L01, Lab/ 33960
Professor: Katherine Leight
Day/Time: MW / 1:00 to 4:10 p.m.
Location: MC / WH 213
Dates: June 3, 2019 to July 27, 2019
The constitution and properties of the selected classes of organic compounds with considerable attention to stereochemistry and reaction mechanisms. The laboratory work involves the preparation of simple organic compounds using basic synthetic techniques.

Advanced Database Organization
CS 525-01, Lecture/ 33095
Professor: Yousef Elmehdwi
Day/Time: / Location: Internet (India)/
Dates: May 20, 2019 to June 29, 2019
Comprehensive coverage of the problems involved in database system implementation and an in-depth examination of contemporary structures and techniques used in modern database management systems. Teaches advanced skills appropriate for DBMS architects and developers, database specialists, and the designers and developers of client/server and distributed systems. Focus is on transaction management, database structures and distributed processing.

Computer Networks I: Fundamentals
CS 542-01, Lecture/ 31309
Professor: Edward Chlebus
Day/Time: TR / 8:50 a.m. to Noon
Location: MC /
Dates: May 20, 2019 to June 29, 2019
This course focuses on the engineering and analysis of network protocols and architecture in terms of the Internet. Topics include content distribution, peer-to-peer networking, congestion control, unicast and multicast routing, router design, mobility, multimedia networking, quality of service, security and policy-based networking.

Computer Organization and Assembly Language Programming
CS 350-01, Lecture/ 33083
Professor: Michael Choi
Day/Time: MW / 5:00 to 8:10 p.m.
Location: MC /
Dates: May 20, 2019 to June 29, 2019
Introduction to the internal architecture of computer systems, including micro-, mini-, and mainframe computer architectures. Focuses on the relationship among a computer’s hardware, its native instruction set, and the implementation of high-level languages on that machine. Uses a set of assembly language programming exercises to explore and analyze a microcomputer architecture. Credit will not be granted for both CS 350 and ECE 242.

Data Communications
CS 455-01, Lecture/ 31091
Professor: Edward Chlebus
Day/Time: MW / 8:50 a.m. to Noon
Location: MC /
Dates: May 20, 2019 to June 29, 2019
Introduction to data communication concepts and facilities with an emphasis on protocols and interface specifications. Focuses on the lower four layers of the ISO-OSI reference model.
Data Communications

**CS 455-02, Lecture/ 31092**
Professor: Edward Chlebus  
Day/Time: / Internet  
Location: IN /  
Dates: May 20, 2019 to June 29, 2019  
Introduction to data communication concepts and facilities with an emphasis on protocols and interface specifications. Focuses on the lower four layers of the ISO-OSI reference model.

Data Communications

**CS 455-03, Lecture/ 31093**
Professor: Edward Chlebus  
Day/Time: /  
Location: Internet (India)/  
Dates: May 20, 2019 to June 29, 2019  
Introduction to data communication concepts and facilities with an emphasis on protocols and interface specifications. Focuses on the lower four layers of the ISO-OSI reference model.

Data Structures and Algorithms

**CS 331-01, Lecture/ 32269**
Professor: Michael Choi  
Day/Time: TR / 5:00 to 8:10 p.m.  
Location: MC /  
Dates: May 20, 2019 to June 29, 2019  
Implementation and application of the essential data structures used in computer science. Analysis of basic sorting and searching algorithms and their relationship to these data structures. Particular emphasis is given to the use of object-oriented design and data abstraction in the creation and application of data structures.

Database Organization

**CS 425-01, Lecture/ 33974**
Professor: Yousef Elmehdwi  
Day/Time: TR / 1:00 to 4:10 p.m.  
Location: MC /  
Dates: May 20, 2019 to June 29, 2019  
Overview of database architectures, including the Relational, Hierarchical, Network, and Object Models. Database interfaces, including the SQL query language. Database design using the Entity-Relationship Model. Issues such as security, integrity, and query optimization.

Database Organization

**CS 425-02, Lecture/ 33975**
Professor: Yousef Elmehdwi  
Day/Time: / Internet  
Location: IN /  
Dates: May 20, 2019 to June 29, 2019  
Overview of database architectures, including the Relational, Hierarchical, Network, and Object Models. Database interfaces, including the SQL query language. Database design using the Entity-Relationship Model. Issues such as security, integrity, and query optimization.

Information Retrieval

**CS 429-01, Lecture/ 34269**
Professor: John Korah  
Day/Time: MW / 1:00 to 4:10 p.m.  
Location: MC /  
Dates: July 1, 2019 to August 10, 2019  
Overview of fundamental issues of information retrieval with theoretical foundations. The information-retrieval techniques and theory, covering both effectiveness and run-time performance of information-retrieval systems are covered. The focus is on algorithms and heuristics used to find documents relevant to the user request and to find them fast. The course covers the architecture and components of the search engine such as parser, stemmer, index builder, and query processor. The students learn the material by building a prototype of such a search engine. Requires strong programming knowledge.

Information Retrieval

**CS 429-03, Lecture/ 34271**
Professor: John Korah  
Day/Time: /  
Location: Internet (India)/  
Dates: July 1, 2019 to August 10, 2019  
Overview of fundamental issues of information retrieval with theoretical foundations. The information-retrieval techniques and theory, covering both effectiveness and run-time performance of information-retrieval systems are covered. The focus is on algorithms and heuristics used to find documents relevant to the user request and to find them fast. The course covers the architecture and components of the search engine such as parser, stemmer, index builder, and query processor. The students learn the material by building a prototype of such a search engine. Requires strong programming knowledge.

Introduction to Advanced Studies I

**CS 401-01, Lecture/ 32270**
Professor: Michael Choi  
Day/Time: TR / 5:00 to 8:10 p.m.  
Location: MC /  
Dates: May 20, 2019 to June 29, 2019  
First course in a two-course sequence that is designed to prepare students for graduate study in computer science. Explores the implementation and application of fundamental data structures and algorithms with an emphasis on object-oriented programming in Java. Examines the relationship between these elements and the mathematical structures that form the foundation of computer science. This course does not apply toward M. S./Ph. D. credit in Computer Science.
Introduction to Advanced Studies I

**CS 401-02, Lecture/Lab/ 33244**
Professor: Michael Choi  
Day/Time: / Internet  
Location: IN /  
Dates: May 20, 2019 to June 29, 2019

First course in a two-course sequence that is designed to prepare students for graduate study in computer science. The course covers fundamental data structures and algorithms, including basic data structures and algorithms with an emphasis on object-oriented programming in Java. Examines the relationship between these elements and the mathematical structures that form the foundation of computer science. This course does not apply toward M. S./Ph. D. credit in Computer Science.

Introduction to Advanced Studies I

**CS 401-03, Lecture/Lab/ 33841**
Professor: Michael Choi  
Day/Time: /  
Location: Internet (India)/  
Dates: May 20, 2019 to June 29, 2019

First course in a two-course sequence that is designed to prepare students for graduate study in computer science. The course covers fundamental data structures and algorithms, including basic data structures and algorithms with an emphasis on object-oriented programming in Java. Examines the relationship between these elements and the mathematical structures that form the foundation of computer science. This course does not apply toward M. S./Ph. D. credit in Computer Science.

Introduction to Advanced Studies II

**CS 402-01, Lecture/ 33087**
Professor: Michael Choi  
Day/Time: MW / 5:00 to 8:10 p.m.  
Location: MC /  
Dates: May 20, 2019 to June 29, 2019

Second course in a two-course sequence that is designed to prepare students for graduate study in computer science. This course covers the development of the multiple layers of software that comprise a sophisticated software system, from device drivers to application interfaces to user interfaces. Examines how computer architecture influences software development. Emphasizes the design and implementation of interrupt-driven/event-driven software.

Introduction to Algorithms

**CS 430-01, Lecture/Lab/ 33603**
Professor: Matthew Bauer  
Day/Time: MW / 8:50 a.m. to Noon  
Location: MC /  
Dates: May 20, 2019 to June 29, 2019

Introduction to the design, behavior, and analysis of computer algorithms. Searching, sorting, and combinatorial algorithms are emphasized. Worst case, amortized, and expected bounds on time and space usage.

Introduction to Computer Programming

**CS 105-01, Lecture/ 30164**
Professor: Jon Hanrath  
Day/Time: TR / 8:50 to 10:55 p.m.  
Location: MC /  
Dates: May 20, 2019 to June 29, 2019

Introduces the use of high-level programming language as a problem-solving tool, including basic data structures and algorithms, structured programming techniques, and software documentation. Designed for students who have had little or no prior experience with computer programming. Students should only take one of these courses (CS 104, CS 105, CS 110, CS 115).

Introduction to Computer Programming for Engineers

**CS 104-01, Lecture/ 34267**
Professor: Jon Hanrath  
Day/Time: TR / 8:50 to 10:55 p.m.  
Location: MC /  
Dates: May 20, 2019 to June 29, 2019

Introduces the use of high-level programming language as a problem-solving tool in engineering including basic data structures and algorithms, structured programming techniques, and software documentation. Designed for students who have had little or no prior experience with computer programming. Students should only take one of these courses (CS 104, CS 105, CS 110, CS 115).

Object-Oriented Analysis and Design

**CS 521-01, Lecture/ 32272**
Professor: Atif Bader  
Day/Time: TR / 6:00 to 9:10 p.m.  
Location: MC /  
Dates: May 20, 2019 to June 29, 2019

This course describes a methodology that covers a wide range of software engineering techniques used in system analysis, modeling and design. These techniques integrate well with software process management techniques and provide a framework for software engineers to collaborate in the design and development process. The methodology features the integration of concepts, including software reusability, frame works, design patterns, software architecture, software component design, use-case analysis, event-flow analysis, event-message analysis, behavioral-life cycle analysis, feature, multi-product, risk and rule analysis, and automatic code generation. (Credit will not be given for CS 521 if CS751 is taken).

Object-Oriented Analysis and Design

**CS 521-03, Lecture/ 32274**
Professor: Atif Bader  
Day/Time: /  
Location: Internet (India)/  
Dates: May 20, 2019 to June 29, 2019

This course describes a methodology that covers a wide range of software engineering techniques used in system analysis, modeling and design. These techniques integrate well with software process management techniques and provide a framework for software engineers to collaborate in the design and development process. The methodology features the integration of concepts, including software reusability, frame works, design patterns, software architecture, software component design, use-case analysis, event-flow analysis, event-message analysis, behavioral-life cycle analysis, feature, multi-product, risk and rule analysis, and automatic code generation. (Credit will not be given for CS 521 if CS751 is taken).

Object-Oriented Programming I

**CS 115-01, Lecture/ 31087**
Professor: Jon Hanrath  
Day/Time: TR / 1:00 to 3:05 p.m.  
Location: MC /  
Dates: May 20, 2019 to June 29, 2019

Introduces the use of a high-level object-oriented programming language as a problem-solving tool, including basic data structures and algorithms, object-oriented programming techniques, and software documentation. Designed for students who have had little or no prior experience with computer programming. For students in CS and CS-related degree programs. Students should only take one of these courses (CS 104, CS 105, CS 110, CS 115).
Object-Oriented Programming II

**CS 116-01, Lecture/Lab/ 30165**
Professor: John Korah
Day/Time: TR / 1:00 to 4:10 p.m.
Location: MC /
Dates: July 1, 2019 to August 10, 2019

Introduces more advanced elements of object-oriented programming, including dynamic data structures, recursion, searching and sorting, and advanced object-oriented programming techniques. For students in CS and CS-related degree programs.

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Operating Systems

**CS 450-01, Lecture/ 34272**
Professor: Michael Saelee
Day/Time: MW / 1:00 to 4:10 p.m.
Location: MC /
Dates: May 20, 2019 to June 29, 2019

Introduction to operating system concepts-including system organization for uniprocessors and multiprocessors, scheduling algorithms, process management, deadlocks, paging and segmentation, files and protection, and process coordination and communication.

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Operating Systems

**CS 450-02, Lecture/ 34273**
Professor: Michael Saelee
Day/Time: / Internet
Location: IN /
Dates: May 20, 2019 to June 29, 2019

Introduction to operating system concepts-including system organization for uniprocessors and multiprocessors, scheduling algorithms, process management, deadlocks, paging and segmentation, files and protection, and process coordination and communication.

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Operating Systems

**CS 450-03, Lecture/ 34274**
Professor: Michael Saelee
Day/Time: / Internet (India)/
Location: IN /
Dates: May 20, 2019 to June 29, 2019

Introduction to operating system concepts-including system organization for uniprocessors and multiprocessors, scheduling algorithms, process management, deadlocks, paging and segmentation, files and protection, and process coordination and communication.

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Software Engineering I

**CS 487-02, Lecture/ 30198**
Professor: Dennis Hood
Day/Time: / Internet
Location: IN /
Dates: July 1, 2019 to August 10, 2019

Study of the principles and practices of software engineering. Topics include software quality concepts, process models, software requirements analysis, design methodologies, software testing and software maintenance. Hands-on experience building a software system using the waterfall life cycle model. Students work in teams to develop all life cycle deliverables: requirements document, specification and design documents, system code, test plan, and user manuals.

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Software Engineering I

**CS 487-03, Lecture/ 30648**
Professor: Dennis Hood
Day/Time: / Internet (India)/
Location: IN /
Dates: July 1, 2019 to August 10, 2019

Study of the principles and practices of software engineering. Topics include software quality concepts, process models, software requirements analysis, design methodologies, software testing and software maintenance. Hands-on experience building a software system using the waterfall life cycle model. Students work in teams to develop all life cycle deliverables: requirements document, specification and design documents, system code, test plan, and user manuals.

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Software Project Management

**CS 587-02, Lecture/ 30213**
Professor: Atef Bader
Day/Time: / Internet
Location: IN /
Dates: July 1, 2019 to August 10, 2019

Concepts of software product and process quality. Role of TQM in software project management. Use of metrics, feasibility studies, cost and effort estimates. Discussion of project planning and scheduling. The project team and leadership issues. The Capability Maturity Model: basic tenets and application of process evaluation.

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Software Project Management

**CS 587-03, Lecture/ 30676**
Professor: Atef Bader
Day/Time: / Internet (India)/
Location: IN /
Dates: July 1, 2019 to August 10, 2019

Concepts of software product and process quality. Role of TQM in software project management. Use of metrics, feasibility studies, cost and effort estimates. Discussion of project planning and scheduling. The project team and leadership issues. The Capability Maturity Model: basic tenets and application of process evaluation.

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Systems Programming

**CS 351-01, Lecture/ 30168**
Professor: Michael Saelee
Day/Time: MW / 8:30 to 11:40 a.m.
Location: MC /
Dates: May 20, 2019 to June 29, 2019

Examines the components of sophisticated multilayer software systems, including device drivers, systems software, applications interfaces, and user interfaces. Explores the design and development of interrupt-driven and event-driven software.
Topics in Computer Science
CS 495-01, Lecture/ 34276
Professor: Ioan Raicu
Day/Time: TR / 10:00 a.m. to 12:25 p.m.
Location: MC / 
Dates: June 3, 2019 to July 27, 2019
This course will treat a specific topic, varying from semester to semester, in which there is particular student or staff interest.

Topics in Computer Science
CS 595-01, Lecture/ 34275
Professor: Ioan Raicu
Day/Time: TR / 10:00 a.m. to 12:25 p.m.
Location: MC / 
Dates: June 3, 2019 to July 27, 2019
This course will treat a specific topic, varying from semester to semester, in which there is a particular student or staff interest. May be taken more than once.

Laboratory
CS 104-L01, Lab/ 34268
Professor: Jon Hanrath
Day/Time: TR / 11:00 a.m. to 12:05 p.m.
Location: MC / 
Dates: May 20, 2019 to June 29, 2019
Introduces the use of high-level programming language as a problem-solving tool in engineering including basic data structures and algorithms, structured programming techniques, and software documentation. Designed for students who have had little or no prior experience with computer programming. Students should only take one of these courses (CS 104, CS 105, CS 110, CS 115).

Laboratory
CS 105-L01, Lab/ 31608
Professor: Jon Hanrath
Day/Time: TR / 11:00 a.m. to 12:05 p.m.
Location: MC / 
Dates: May 20, 2019 to June 29, 2019
Introduces the use of high-level programming language as a problem-solving tool, including basic data structures and algorithms, structured programming techniques, and software documentation. Designed for students who have had little or no prior experience with computer programming. Students should only take one of these courses (CS 104, CS 105, CS 110, CS 115).

Laboratory
CS 115-L01, Lab/ 33079
Professor: Jon Hanrath
Day/Time: TR / 3:10 to 4:15 p.m.
Location: MC / 
Dates: May 20, 2019 to June 29, 2019
Introduces the use of a high-level object-oriented programming language as a problem-solving tool, including basic data structures and algorithms, object-oriented programming techniques, and software documentation. Designed for students who have had little or no prior experience with computer programming. For students in CS and CS-related degree programs. Students should only take one of these courses (CS 104, CS 105, CS 110, CS 115).

Laboratory
CS 331-L01, Lab/ 33082
Professor: Michael Choi
Day/Time: TR / 8:20 to 9:25 p.m.
Location: MC / 
Dates: May 20, 2019 to June 29, 2019
Implementation and application of the essential data structures used in computer science. Analysis of basic sorting and searching algorithms and their relationship to these data structures. Particular emphasis is given to the use of object-oriented design and data abstraction in the creation and application of data structures.

Laboratory
CS 351-L01, Lab/ 33085
Professor: Michael Saelee
Day/Time: MW / 11:50 a.m. to 12:55 p.m.
Location: MC / 
Dates: May 20, 2019 to June 29, 2019
Examines the components of sophisticated multilayer software systems, including device drivers, systems software, applications interfaces, and user interfaces. Explores the design and development of interrupt-driven and event-driven software.

Laboratory
CS 401-L01, Lab/ 33086
Professor: Michael Choi
Day/Time: TR / 8:20 to 9:25 p.m.
Location: MC / 
Dates: May 20, 2019 to June 29, 2019
First course in a two-course sequence that is designed to prepare students for graduate study in computer science. Explores the implementation and application of fundamental data structures and algorithms with an emphasis on object-oriented programming in Java. Examines the relationship between these elements and the mathematical structures that form the foundation of computer science. This course does not apply toward M. S./Ph. D. credit in Computer Science.

Laboratory
CS 402-L01, Lab/ 33088
Professor: Michael Choi
Day/Time: MW / 8:20 to 9:25 p.m.
Location: MC / 
Dates: May 20, 2019 to June 29, 2019
Second course in a two-course sequence that is designed to prepare students for graduate study in computer science. Explores the development of the multiple layers of software that form a sophisticated software system, from device drivers to application interfaces to user interfaces. Examines how computer architecture influences software development. Emphasizes the design and implementation of interrupt-driven/event-driven software.

Data Science Practicum
CSP 572-01, Practicum/ 32278
Professor: Shlomo Argamon
Day/Time: TR / 1:00 to 4:10 p.m.
Location: MC / 
Dates: May 20, 2019 to August 10, 2019
Students will work in small groups to solve real-world data analysis problems for actual scientific or industrial clients. Innovation and clarity of presentation will be key elements of evaluation. Students will also have an option to fulfill course requirements through a data analytics internship with an industry partner.
**Public Engagement for Scientists**  
**SCI 522-01, Lecture/ 32469**  
Professor: James Maciukenas  
Day/Time: / Internet  
Location: IN /  
Dates: May 20, 2019 to August 10, 2019  
This course presents strategies for scientists to use when engaging a variety of audiences with scientific information. Students will learn to communicate their knowledge through correspondence, formal reports, and presentations. Students will practice document preparation using report appropriate formatting, style, and graphics. Written assignments, discussion questions, and communication exercises will provide students with a better understanding of the relationship between scientists and their audiences whether in the workplace, laboratory, etc.

**Project Management**  
**SCI 511-01, Lecture/ 32632**  
Professor: Kelly Cherwin  
Day/Time: / Internet  
Location: IN /  
Dates: June 3, 2019 to July 27, 2019  
Successful project management links the basic metrics of schedule adherence, budget adherence, and project quality. But, it also includes the ‘people components’ of customer satisfaction and effective management of people whether it is leading a project team or successfully building relationships with co-workers. Through course lectures, assigned readings, and case studies, the basic components of leading, defining, planning, organizing, controlling, and closing a project will be discussed. Such topics include project definition, team building, budgeting, scheduling, risk management and control, evaluation, and project closeout.

**Astronomy**  
**PHYS 120-01, Lecture/ 34277**  
Professor: David Gidalevitz  
Day/Time: MW / 8:50 to 11:15 a.m.  
Location: MC /  
Dates: June 3, 2019 to July 27, 2019  
A descriptive survey of observational astronomy, the solar system, stellar evolution, pulsars, black holes, galaxies, quasars, the origin and fate of the universe.

**General Physics I: Mechanics**  
**PHYS 123-01, Lecture/ 33968**  
Professor: David Gidalevitz  
Day/Time: MW / 8:50 to 11:15 a.m.  
Location: MC /  
Dates: June 3, 2019 to July 27, 2019  

**General Physics II: Electricity and Magnetism**  
**PHYS 221-01, Lecture/ 30002**  
Professor: Yurii Shylnov  
Day/Time: MW / 1:10 to 3:35 p.m.  
Location: MC /  
Dates: June 3, 2019 to July 27, 2019  

**Instrumentation for Health Physics**  
**PHYS 550-01, Lecture/Lab/ 33911**  
Professor: Steven Butala  
Day/Time: MTWR / 1:00 to 2:30 p.m.  
Location: MC /  
Dates: June 10, 2019 to June 16, 2019  
Dates: June 10, 2019 to June 16, 2019  
Detecting and measuring radioactive material and radiation levels depends upon many types of detectors and instrumentation. Theory of detectors ranging from chambers operating in pulse and current producing modes to solid state detectors is applied to measuring and monitoring systems. Electronics ranging from simple rate meters and scalers to high speed multi-channel analyzers are used. Computer-linked instrumentation and computer-based applications are applied to practical problems.

**Instrumentation for Health Physics**  
**PHYS 550-01, Lecture/Lab/ 33911**  
Professor: Steven Butala  
Day/Time: MTWR / 1:00 to 2:30 p.m.  
Location: MC /  
Dates: June 10, 2019 to June 16, 2019  
Detecting and measuring radioactive material and radiation levels depends upon many types of detectors and instrumentation. Theory of detectors ranging from chambers operating in pulse and current producing modes to solid state detectors is applied to measuring and monitoring systems. Electronics ranging from simple rate meters and scalers to high speed multi-channel analyzers are used. Computer-linked instrumentation and computer-based applications are applied to practical problems.

**Instrumentation for Health Physics**  
**PHYS 550-01, Lecture/Lab/ 33911**  
Professor: Steven Butala  
Day/Time: MTWR / 8:00 to 9:30 a.m.  
Location: MC /  
Dates: June 10, 2019 to June 16, 2019  
Detecting and measuring radioactive material and radiation levels depends upon many types of detectors and instrumentation. Theory of detectors ranging from chambers operating in pulse and current producing modes to solid state detectors is applied to measuring and monitoring systems. Electronics ranging from simple rate meters and scalers to high speed multi-channel analyzers are used. Computer-linked instrumentation and computer-based applications are applied to practical problems.

**Instrumentation for Health Physics**  
**PHYS 550-01, Lecture/Lab/ 33911**  
Professor: Steven Butala  
Day/Time: F / 8:00 a.m. to Noon  
Location: MC /  
Dates: June 10, 2019 to June 16, 2019  
Detecting and measuring radioactive material and radiation levels depends upon many types of detectors and instrumentation. Theory of detectors ranging from chambers operating in pulse and current producing modes to solid state detectors is applied to measuring and monitoring systems. Electronics ranging from simple rate meters and scalers to high speed multi-channel analyzers are used. Computer-linked instrumentation and computer-based applications are applied to practical problems.
Detecting and measuring radioactive material and radiation levels depends upon many types of detectors and instrumentation. Theory of detectors ranging from chambers operating in pulse and current producing modes to solid state detectors is applied to measuring and monitoring systems. Electronics ranging from simple rate meters and scalers to high speed multi-channel analyzers are used. Computer-linked instrumentation and computer-based applications are applied to practical problems.
LEWIS COLLEGE OF HUMAN SCIENCE

Introduction to Linguistics
COM 301-01, Lecture/ 34165
Professor: Matthew Bauer
Day/Time: /
Location: International Program
Dates: July 7, 2019 to August 3, 2019
An introduction to the systematic study of language. Focus on the core areas of linguistics, such as sound patterns of language (phonology), form (syntax, morphology), and meaning (semantics, pragmatics), as well as applied areas, such as language, variation, language acquisition, psychology of language, and the origin of language.

Persuasion
COM 371-01, Lecture/ 34292
Professor: Gregory Pulliam
Day/Time: TR / 2:00 to 4:40 p.m.
Location: MC /
Dates: June 3, 2019 to July 27, 2019
The study of covert and overt persuasion and their influences on society and individuals.

Persuasion
COM 571-01, Lecture/ 34293
Professor: Gregory Pulliam
Day/Time: TR / 2:00 to 4:40 p.m.
Location: MC /
Dates: July 1, 2019 to August 10, 2019
The study of covert and overt persuasion and their influences on society and individuals.

Short Fiction
LIT 309-01, Lecture/ 34297
Professor: Catherine Ramsden
Day/Time: MW / 9:00 a.m. to 12:10 p.m.
Location: MC /
Dates: May 20, 2019 to June 29, 2019
A formal and thematic analysis of a diverse selection of works of short fiction. The selection will be announced by the instructor when the course is scheduled.

Technical Communication
COM 421-01, Lecture/ 30075
Professor: Katerina Ilievska
Day/Time: / Internet
Location: IN /
Dates: May 20, 2019 to August 10, 2019
Principles and practice in the communication of technical materials. Students work on the design, writing, and revising of reports, articles, manuals, procedures, proposals, including the use of graphics. Works by modern writers are analyzed.

Topics in Humanities
HUM 380-02, Lecture/ 34296
Professor: Carly Kocurek
Day/Time: /
Location: IL /
Dates: July 1, 2019 to August 10, 2019
An investigation into a topic of current or enduring interest in the humanities, which does not fit neatly into standard categories.

Topics in Humanities: Science Fiction and Pop Culture
HUM 200-01, Lecture/ 32636
Professor: Andrew Roback
Day/Time: MW / 1:00 to 4:10 p.m.
Location: MC /
Dates: July 1, 2019 to August 10, 2019
One-time or initial versions of course topics equivalent to HUM 202, 204, 206, and 208. Topics will introduce students to the humanities at IIT and to provide intensive instruction in writing.

Topics in Philosophy
PHIL 380-01, Lecture/ 34121
Professor: J.D. Trout
Day/Time: / Internet
Location: IN /
Dates: May 20, 2019 to June 29, 2019
An investigation into a topic of current interest in philosophy; which will be announced by the instructor when the course is scheduled.

Topics in Philosophy
PHIL 380-02, Lecture/ 34298
Professor: Tobias Fuchs
Day/Time: MWF / 10:00 a.m. to 12:10 p.m.
Location: MC /
Dates: July 1, 2019 to August 10, 2019
An investigation into a topic of current interest in philosophy; which will be announced by the instructor when the course is scheduled.

Ethics and Professional Issues I
PSYC 508-01, Lecture/ 30276
Professor: Gregory Chasson
Day/Time: MW / 9:00 to 10:35 a.m.
Location: MC /
Dates: June 3, 2019 to July 27, 2019
This is an introductory course designed around ethical issues confronting clinical psychologists. It is offered to incoming first year clinical students to allow them to think about ethical issues in treatment, assessment, and professional behavior. Using the APA ethics code as a guide, students present and respond to ethical dilemmas that they may face as they embark upon their career as clinical psychologists. Other professional issues are also discussed including the transition to graduate school, course selection decisions, and any other general graduate school questions that may arise.
Indoor Psychology Internship I

**PSYC 558-01, Internship/ 30279**

Professor: Roya Ayman  
Day/Time: /  
Location: MC /  
Dates: June 3, 2019 to July 27, 2019

Supervised experience in psychological practices in an industrial setting. (Credit: variable)

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**PSYC 559-01, Internship/ 30280**

Professor: Roya Ayman  
Day/Time: /  
Location: MC /  
Dates: June 3, 2019 to July 27, 2019

Supervised experience in psychological practices in an industrial setting. (Credit: variable)

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**Pre-Practicum in Rehabilitation and Mental Health Counseling**

**PSYC 557-01, Lecture/ 34184**

Professor: Kelly Kazuakauskas  
Day/Time: TR / 1:50 to 4:30 p.m.  
Location: MC /  
Dates: May 20, 2019 to June 29, 2019

Study of the counseling process within a multicultural society. Includes essential interviewing and counseling techniques, counselor characteristics and behaviors, and ethical considerations in counseling with an orientation toward wellness and empowerment.

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Rehabilitation and Mental Health Counseling Internship II

**PSYC 579-01, Internship/ 33657**

Professor: Kelly Kazuakauskas  
Day/Time: T / 5:00 to 9:45 p.m.  
Location: MC /  
Dates: June 3, 2019 to July 27, 2019

Supervised experience in rehabilitation and mental health counseling, which is intended to reflect the comprehensive work experience of a professional counselor. Students are provided the opportunity to become familiar with a variety of professional activities and resources in addition to direct service (e.g., record keeping, assessment instruments, supervision, information and referral, in-service, and staff meetings).

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Research Methods

**PSYC 540-01, Lecture/ 34030**

Professor: Alissa Haedt Matt  
Day/Time: MW / 1:50 to 4:15 p.m.  
Location: MC /  
Dates: June 3, 2019 to July 27, 2019

This course prepares students for designing and interpreting empirical research. The collection of meaningful data, appropriate use of data analytic techniques, and the interpretation of data results are presented.

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**Topics in Psychology: Sports Psychology**

**PSYC 380-01, Lecture/ 32591**

Professor: Kelly Kazuakauskas  
Day/Time: TR / 9:00 a.m. to 12:10 p.m.  
Location: MC /  
Dates: May 20, 2019 to June 29, 2019

An investigation into a topic of current interest in psychology. The specific topic will be announced by the instructor when the course is scheduled.

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**Clinical Internship**

**PSYC 599-01, Internship/ 32113**

Professor: Joyce Hopkins  
Day/Time: /  
Location: MC /  
Dates: June 3, 2019 to July 27, 2019

Ph.D. Comprehensive Exam Participation in full-time internship accredited by the American Psychological Association, or, in exceptional cases, approved by the clinical Psychology program. Approval of dissertation proposal and instructor permission required.

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**Introduction to the Sociology of Space**

**SOC 211-01, Lecture/ 32320**

Professor: Ullica Segerstrale  
Day/Time: MW / 5:30 to 8:40 p.m.  
Location: MC /  
Dates: May 20, 2019 to June 29, 2019

This introductory sociology course deals with people’s general experience of space and how space and spatial arrangements affect people, social interaction, and the sense of community. It is designed to develop knowledge and understanding as well as analytical and perceptive skills. Our experiences of the spatial dimension of reality will be examined from various perspectives: emotional; cognitive; functional; symbolic; and cross-cultural. Our study objects range from everyday experiences to questions of community and city planning. Basic sociological concepts and research methods will be introduced and related to the topics covered. This course is required for SOC 311 (Social Use of Space).

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**Introduction to the Sociology of Space**

**SOC 211-02, Lecture/ 34285**

Professor:  
Day/Time: /  
Location: MC /  
Dates: May 20, 2019 to June 29, 2019

This introductory sociology course deals with people’s general experience of space and how space and spatial arrangements affect people, social interaction, and the sense of community. It is designed to develop knowledge and understanding as well as analytical and perceptive skills. Our experiences of the spatial dimension of reality will be examined from various perspectives: emotional; cognitive; functional; symbolic; and cross-cultural. Our study objects range from everyday experiences to questions of community and city planning. Basic sociological concepts and research methods will be introduced and related to the topics covered. This course is required for SOC 311 (Social Use of Space).

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**Politics of Science and Technology**

**PS 332-01, Lecture/ 33099**

Professor: Matthew Shapiro  
Day/Time: MW / 9:00 a.m. to 12:10 p.m.  
Location: MC /  
Dates: July 1, 2019 to August 10, 2019

Explores the complex interrelationships among science, technology, and politics, with emphasis on the political issues created by contemporary scientific advances. The course gives roughly equal attention to the politics of scientific discovery; the development of organizations providing scientific advice to government; the impact of industrialized science and advanced technology on the economy and society; and the growing debate over the social implications of science and technology and how they can be predicted, measured, and controlled.
Topics: Global Cities Osaka

SSCI 385-01, Lecture/ 34289
Professor: Rebecca Steffenson
Day/Time: TR / 10:00 to 11:15 a.m.
Location: MC /
Dates: May 20, 2019 to June 29, 2019
Investigates an interdisciplinary topic of current interest in the social sciences. Course may be taken multiple times provided the topic is different each time.

Topics: Global Cities: Osaka

SSCI 285-01, Lecture/ 34287
Professor: Rebecca Steffenson
Day/Time: TR / 10:00 to 11:15 a.m.
Location: MC /
Dates: May 20, 2019 to June 29, 2019
Investigates a topic of current interest at the introductory level. Course may be taken multiple times provided the topic is different each time.

Topics: Scottish Politics and Society (Brexit!)

SSCI 385-02, Lecture/ 34290
Professor: Rebecca Steffenson
Day/Time: MW / 10:00 to 11:15 a.m.
Location: MC /
Dates: July 1, 2019 to August 10, 2019
Investigates an interdisciplinary topic of current interest in the social sciences. Course may be taken multiple times provided the topic is different each time.

Special Problems in Philosophy

PHIL 597-125, Independent Study/Research/ 33469
Professor: John Snapper
Day/Time: / 
Location: MC /
Dates: June 3, 2019 to July 27, 2019
Advanced topics in the study of philosophy, in which there is special student and faculty interest. Variable Credit: 1-6 <br/><b>Prerequisite: </b>Instructor permission required.

Global Health

SSCI 318-01, Lecture/ 33102
Professor: Patrick Ireland
Day/Time: TR / 9:00 a.m. to 12:10 p.m.
Location: MC /
Dates: July 1, 2019 to August 10, 2019
Multidisciplinary course that addresses the most critical issues and initiatives in global health, covering the history of the field and its basic principles and goals, the determinants of health and its links with development, competing perspectives on global health challenges and ways to meet them, the most important causes of disease and death, and the organizations and governance mechanisms that are endeavoring to improve outcomes. The course is geared toward developing theories and methods to understand the social, economic, political, and environmental causes of health outcomes with a focus on disadvantaged communities and health inequalities.

Urban Policy

SSCI 354-01, Lecture/ 34022
Professor: Daniel Bliss
Day/Time: MW / 1:50 to 5:00 p.m.
Location: MC /
Dates: May 20, 2019 to June 29, 2019
Explores major dilemmas facing cities today including changing economic and tax bases, fiscal stresses, immigration, marginalized populations, new forms of consumption, and adaptation to structural change. Responses of politicians to pressures to develop new policies and leverage the productive capacity of the city and the impact of citizen preferences are analyzed.

Public Service Internship

SSCI 493-01, Internship/ 32589
Professor: Jonathan Rosenberg
Day/Time: / 
Location: MC /
Dates: June 3, 2019 to July 27, 2019
This course is designed to give students the opportunity to combine classroom theory with practical application through job-related experiences. Students will complete a 120-hour internship with an approved industry, government, or non-profit organization with a work focus which relates to their academic training and career objectives. Instructor permission is required.

Public Service Internship

SSCI 493-02, Internship/ 34291
Professor: Jonathan Rosenberg
Day/Time: TR / 8:35 to 9:50 a.m.
Location: MC /
Dates: June 3, 2019 to July 27, 2019
This course is designed to give students the opportunity to combine classroom theory with practical application through job-related experiences. Students will complete a 120-hour internship with an approved industry, government, or non-profit organization with a work focus which relates to their academic training and career objectives. Instructor permission is required.

Introduction to Programming with Java

IT 811-01, Lecture/Lab/ 34379
Professor: Katherine Papademas
Day/Time: MW / 4:30 to 7:40 p.m.
Location: MC /
Dates: June 3, 2019 to July 27, 2019
A broad introduction to object-oriented programming and the related knowledge necessary to program in a contemporary programming language. This would include coverage of an application development kit, a standard integrated development environment, and the use of GUI components.

Introduction to Programming with Java

IT 811-02, Lecture/Lab/ 34351
Professor: Sheikh Shamsuddin
Day/Time: / Internet
Location: IN /
Dates: June 3, 2019 to July 27, 2019
A broad introduction to object-oriented programming and the related knowledge necessary to program in a contemporary programming language. This would include coverage of an application development kit, a standard integrated development environment, and the use of GUI components.
Network+ Certification Training I

**IT-O 840-01, Lecture/ 34363**
Professor: Louis McHugh  
Day/Time: W / 6:25 to 8:50 p.m.  
Location: MC /  
Dates: June 3, 2019 to July 27, 2019

This course covers current and evolving data network technologies, protocols, network components, and the networks that use them, focusing on the Internet and related LANs. The state of worldwide networking and its evolution will be discussed. This course covers the Internet architecture, organization, and protocols including Ethernet, 802.11, routing, the TCP/UDP/IP suite, DNS, Bluetooth, SNMP, DHCP, and more. Participants will be presented with Internet-specific networking tools for searching, testing, debugging, and configuring networks and network-connected host computers. There will be opportunities for network configuration and hands-on use of tools.

Network+ Certification Training I

**IT-O 840-02, Lecture/ 34364**
Professor: Louis McHugh  
Day/Time: / Internet  
Location: IN /  
Dates: June 3, 2019 to July 27, 2019

This course covers current and evolving data network technologies, protocols, network components, and the networks that use them, focusing on the Internet and related LANs. The state of worldwide networking and its evolution will be discussed. This course covers the Internet architecture, organization, and protocols including Ethernet, 802.11, routing, the TCP/UDP/IP suite, DNS, Bluetooth, SNMP, DHCP, and more. Participants will be presented with Internet-specific networking tools for searching, testing, debugging, and configuring networks and network-connected host computers. There will be opportunities for network configuration and hands-on use of tools.

Network+ Certification Training I

**IT-O 840-03, Lecture/ 34365**
Professor: Louis McHugh  
Day/Time: / Internet  
Location: IN /  
Dates: June 3, 2019 to July 27, 2019

This course covers current and evolving data network technologies, protocols, network components, and the networks that use them, focusing on the Internet and related LANs. The state of worldwide networking and its evolution will be discussed. This course covers the Internet architecture, organization, and protocols including Ethernet, 802.11, routing, the TCP/UDP/IP suite, DNS, Bluetooth, SNMP, DHCP, and more. Participants will be presented with Internet-specific networking tools for searching, testing, debugging, and configuring networks and network-connected host computers. There will be opportunities for network configuration and hands-on use of tools.

Network+ Certification Training I

**IT-O 840-04, Lecture/ 34366**
Professor: Louis McHugh  
Day/Time: /  
Location: Internet (India)/  
Dates: June 3, 2019 to July 27, 2019

This course covers current and evolving data network technologies, protocols, network components, and the networks that use them, focusing on the Internet and related LANs. The state of worldwide networking and its evolution will be discussed. This course covers the Internet architecture, organization, and protocols including Ethernet, 802.11, routing, the TCP/UDP/IP suite, DNS, Bluetooth, SNMP, DHCP, and more. Participants will be presented with Internet-specific networking tools for searching, testing, debugging, and configuring networks and network-connected host computers. There will be opportunities for network configuration and hands-on use of tools.
Topics in Software Development

**IT-D 819-02, Lecture/ 34355**  
Professor: Witt Hawkins  
Day/Time: / Internet  
Location: IN /  
Dates: June 3, 2019 to July 27, 2019  
This course will cover a particular topic in software development, varying from semester to semester, in which there is particular participant or staff interest.

**A+ Certification Training**  
**IT 801-01, Lecture/Lab/ 34350**  
Professor: Vasilios Pappademetriou  
Day/Time: /  
Location: MC /  
Dates: June 3, 2019 to July 27, 2019  
Participants study the basics of computer architecture and learn to use a contemporary operating system. Hardware requirements, hardware components, software compatibility, and system installation topics are covered along with post-installation, storage, security and system diagnosis, and repair. Topics also include discussion of current and future technology industry trends.

Open Source Programming  
**IT-D 813-01, Lecture/ 34352**  
Professor: James Papademas  
Day/Time: MW / 6:25 to 8:50 p.m.  
Location: MC / SB 107  
Dates: May 20, 2019 to August 10, 2019  
Contemporary open-source programming languages and frameworks are presented. The participant considers design and development topics in system, graphical user interface, network, and web programming. Dynamic scripting languages are covered using object-oriented, concurrent, and functional programming paradigms. Concepts gained throughout the course are reinforced with numerous exercises which will culminate in an open-source programming project.

Open Source Programming  
**IT-D 813-02, Lecture/ 34353**  
Professor: James Papademas  
Day/Time: / Internet  
Location: IN /  
Dates: June 3, 2019 to July 27, 2019  
Contemporary open-source programming languages and frameworks are presented. The participant considers design and development topics in system, graphical user interface, network, and web programming. Dynamic scripting languages are covered using object-oriented, concurrent, and functional programming paradigms. Concepts gained throughout the course are reinforced with numerous exercises which will culminate in an open-source programming project.

Data Analytics  
**IT-D 827-01, Lecture/ 34358**  
Professor: Yong Zheng  
Day/Time: TR / 9:30 a.m. to 12:45 p.m.  
Location: MC /  
Dates: July 1, 2019 to August 10, 2019  
This is a hands-on course that focuses on the creation, maintenance, and analysis of large informatics databases. Concepts such as data modeling, probability, linear regression, and statistical data analysis are covered in depth. In addition, this course will use large simulated equities, healthcare, insurance, and banking database systems. The participant is expected to have a working understanding of relational database concepts as well as SQL.

Data Analytics  
**IT-D 827-02, Lecture/ 34359**  
Professor: Yong Zheng  
Day/Time: / Internet  
Location: IN /  
Dates: July 1, 2019 to August 10, 2019  
This is a hands-on course that focuses on the creation, maintenance, and analysis of large informatics databases. Concepts such as data modeling, probability, linear regression, and statistical data analysis are covered in depth. In addition, this course will use large simulated equities, healthcare, insurance, and banking database systems. The participant is expected to have a working understanding of relational database concepts as well as SQL.

CISA Certification Preparation  
**IT-M 886-01, Lecture/ 34362**  
Professor: Bonnie Goins  
Day/Time: / Internet  
Location: IN /  
Dates: May 20, 2019 to June 29, 2019  
Industry standard practices and standards in the auditing of information technology in an organization are addressed, with a particular emphasis on examination of IT governance, assets, controls, and control techniques. Specific areas covered will include the audit process, IT governance, systems and infrastructure life cycle management, IT service delivery and support, protection of information assets, and business continuity and disaster recovery. Participants will examine case studies and complete hands-on exercises.

Introduction to Cyber Warfare  
**IT-S 857-01, Lecture/ 34367**  
Professor: Louis McHugh  
Day/Time: TR / 6:25 to 8:50 p.m.  
Location: MC /  
Dates: June 3, 2019 to July 27, 2019  
Cyber warfare is defined as “warfare waged in cyberspace,” which can include defending information and computer networks and detering information attacks as well as denying an adversary’s ability to do the same. It can include offensive information operations mounted against an adversary or even dominating information on the battlefield. Students participating in this discussion-based course will explore the current state of cyber security from national and international perspectives and consider cyber-based operations through the lens of a government pursuing strategic goals. How might their actions impact the industry’s ability to conduct business operations? What does the current threat environment look like? The course will include extensive discussions and student presentations.

Introduction to Cyber Warfare  
**IT-S 857-02, Lecture/ 34368**  
Professor: Louis McHugh  
Day/Time: /  
Location: Internet (India)/  
Dates: June 3, 2019 to July 27, 2019  
Cyber warfare is defined as “warfare waged in cyberspace,” which can include defending information and computer networks and deterring information attacks as well as denying an adversary’s ability to do the same. It can include offensive information operations mounted against an adversary or even dominating information on the battlefield. Students participating in this discussion-based course will explore the current state of cyber security from national and international perspectives and consider cyber-based operations through the lens of a government pursuing strategic goals. How might their actions impact the industry’s ability to conduct business operations? What does the current threat environment look like? The course will include extensive discussions and student presentations.
Cyber Security Management

IT-S 878-01, Lecture/ 34369
Professor: Raymond Trygstad
Day/Time: TR / 10:00 a.m. to 12:25 p.m.
Location: MC /
Dates: June 3, 2019 to July 27, 2019

In-depth examination of topics in the management of information technology security including access control systems and methodology, business continuity and disaster recovery planning, legal issues in information system security, ethics, computer operations security, physical security and security architecture, and models using current standards and models.

Internship

PD 899-01, Internship/ 34416
Professor: Steven Szmurlo
Day/Time: / 
Location: MC /
Dates: May 20, 2019 to June 29, 2019

A six-week placement in an American company, business, or organization. Students will be expected to submit weekly timesheets. A final essay of their experiences must be submitted to the Internship Manager. The grade is dependent upon the essay and the internship supervisor’s evaluation of the student.

Advanced Pronunciation

IEP 028-01, Lecture/ 34332
Professor: 
Day/Time: WF / 3:15 to 4:30 p.m.
Location: MC /
Dates: May 20, 2019 to August 10, 2019

Advanced Pronunciation (IEP 028) is an advanced pronunciation course in which students focus on stress, rhythm, and intonation. Consonants and vowels are briefly reviewed, and practice is assigned based on individual needs. Students will practice pronouncing advanced and academic vocabulary, as well as longer and more complex exchanges and passages. In addition to correctly imitating the pronunciation used in various recordings, students will be asked to produce mini-speeches with self analysis and corrections. Students will also give one longer in-class presentation on an academic topic to show their proficiency in the material covered in the course. Placement in this course is based on placement exam results and/or the successful completion of Pronunciation (IEP 026).

IEP Listening and Speaking Level I

IEP 021-01, Lecture/ 34329
Professor: TBD
Day/Time: TR / 1:50 to 4:30 p.m.
Location: MC /
Dates: May 20, 2019 to August 10, 2019

IEP Listening and Speaking Level I (IEP 021) focuses on developing basic conversation and discussion skills. The speaking component focuses on developing basic conversation and discussion skills. Placement in this course is based on placement exam results.

IEP Listening and Speaking Level III

IEP 023-01, Lecture/ 34334
Professor: TBD
Day/Time: TR / 1:50 to 4:30 p.m.
Location: MC /
Dates: May 20, 2019 to August 10, 2019

IEP Listening and Speaking Level III (IEP 023) develops more advanced listening and note taking skills as well as more complex oral skills in presentations, interviewing, and discussions. The goal of the course is to prepare the students to enter into the academic environment of a U.S. university. Placement in this course is based on placement exam results and/or the successful completion of IEP Listening and Speaking Level II (IEP 022).

IEP Listening and Speaking Level IV

IEP 024-01, Lecture/ 34330
Professor: TBD
Day/Time: WF / 10:00 a.m. to 12:40 p.m.
Location: MC /
Dates: May 20, 2019 to August 10, 2019

IEP Listening and Speaking Level IV (IEP 024) continues the development of high level academic speaking and listening skills of the advanced students. One goal of the course is to further listening skills as they relate to comprehending and analyzing multiple listening excerpts and applying the material to academic tasks. A variety of speaking skills will be practiced with specific attention to understanding and communicating statistical data, results, trends, techniques, methods and differences of opinion. Placement in this course is based on placement exam results and/or the successful completion of IEP Listening and Speaking Level III (IEP 023).

IEP Reading and Writing Level I

IEP 041-01, Lecture/ 34328
Professor: TBD
Day/Time: WF / 10:00 a.m. to 12:40 p.m.
Location: MC /
Dates: May 20, 2019 to August 10, 2019

IEP Reading and Writing Level I (IEP 041) focuses on the basics of reading and writing in English. The course introduces reading skills of identifying main ideas and supporting details along with strategies for using context clues. The writing component focuses on producing correct sentences and basic paragraphs. Placement in this course is based on placement exam results.

IEP Reading and Writing Level II

IEP 042-01, Lecture/ 34327
Professor: TBD
Day/Time: TR / 1:50 to 4:30 p.m.
Location: MC /
Dates: May 20, 2019 to August 10, 2019

IEP Reading and Writing Level II (IEP 042) expands on the reading and writing skills introduced in level one. In this course, students learn to classify and organize information from the reading as well as identify the tone, purpose, and audience. The writing component focuses on correctly using a variety of sentences, writing more developed paragraphs, as well as longer responses. Placement in this course is based on placement exam results and/or the successful completion of IEP Reading and Writing Level I (IEP 041).
IEP Reading and Writing Level III
IEP 043-01, Lecture/ 34326
Professor: TBD
Day/Time: WF / 10:00 a.m. to 12:40 p.m.
Location: MC / Dates: May 20, 2019 to August 10, 2019

IEP Reading and Writing Level III (IEP 043) expands on the core reading and writing concepts developed in Level II. In this level, students will annotate, analyze, and use content from readings in order to write well developed responses. Additionally, students will focus on writing a well-developed essay. Placement in this course is based on placement exam results and/or the successful completion of IEP Reading and Writing Level II (IEP 042).

IEP Reading and Writing Level IV
IEP 044-01, Lecture/ 34325
Professor: TBD
Day/Time: TR / 1:50 to 4:30 p.m.
Location: MC / Dates: May 20, 2019 to August 10, 2019

IEP Reading and Writing Level IV (IEP 044) focuses on advanced academic skills in reading and writing. The reading component focuses on analyzing multiple articles for similarities, differences, and strategies used to support the claim in an article. The writing component will culminate in writing a researched APA style essay. Placement in this course is based on placement exam results and/or the successful completion of IEP Reading and Writing Level III (IEP 043).

Pronunciation
IEP 026-01, Lecture/ 34331
Professor: TBD
Day/Time: WF / 3:15 to 4:30 p.m.
Location: MC / Dates: May 20, 2019 to August 10, 2019

Pronunciation (IEP 026) is designed to raise the students’ awareness of the pronunciation problems affecting everyday communication, and it focuses on the basic building blocks of correct pronunciation. Students will learn and practice the correct pronunciation of consonants and vowels, paying special attention to the difference in meaning caused by changing individual sounds. The course and/or instructor will also focus on the importance of syllables, word stress, and basic intonation patterns. Students will learn how to use a dictionary to look up correct pronunciation. They will also work on monitoring their speech for pronunciation errors. The practice will be conducted on basic words, everyday conversations and speech acts, and short speeches similar to what students are expected to produce at this level of their language development. Placement in this course is based on placement exam results.

Intensive English Placeholder
IEP 000-01, Lecture/ 34046
Professor: TBD Tracey McGee
Day/Time: / Location: MC / Dates: May 20, 2019 to August 10, 2019

Placeholder course for students admitted into the Intensive English Program (IEP).

IEP Grammar Level I
IEP 061-01, Lecture/ 34324
Professor: TBD
Day/Time: TR / 11:25 a.m. to 12:40 p.m.
Location: MC / Dates: May 20, 2019 to August 10, 2019

IEP Grammar Level I (IEP 061) acts as the foundation of the grammar series. This level focuses on the basic grammatical structures and verb tenses that students will encounter in written and spoken English. Placement in this course is based on placement exam results.

IEP Grammar Level II
IEP 062-01, Lecture/ 34056
Professor: TBD
Day/Time: TR / 10:00 to 11:15 a.m.
Location: MC / Dates: May 20, 2019 to August 10, 2019

IEP Grammar Level II (IEP 062) builds upon the skills covered in Level I. In this level, students will practice intermediate grammatical structures and verb tenses they will encounter in written and spoken English. Placement in this course is based on placement exam results and/or the successful completion of IEP Grammar Level I (IEP 061).

IEP Grammar Level III
IEP 063-01, Lecture/ 33728
Professor: TBD
Day/Time: TR / 11:25 a.m. to 12:40 p.m.
Location: MC / Dates: May 20, 2019 to August 10, 2019

IEP Grammar Level III (IEP 063) is a continuation of Level II and builds on the previously acquired skill. This level focuses on developing high-intermediate grammar skills in order to communicate accurately in written and spoken English. Placement in this course is based on placement exam results and/or the successful completion of the IEP Grammar Level II (IEP 062).

IEP Grammar Level IV
IEP 064-01, Lecture/ 34057
Professor: TBD
Day/Time: TR / 10:00 to 11:15 a.m.
Location: MC / Dates: May 20, 2019 to August 10, 2019

IEP Grammar Level IV (IEP 064) focuses on effective use of advanced grammar in writing and speaking and understanding complex grammatical structures in academic reading. The grammar points are presented in academic contexts and students practice editing their writing for effective and correct language use as well as practice controlling language accuracy in speaking. Placement in this course is based on placement exam results and/or the successful completion of IEP Grammar Level III (IEP 063).
Advanced Topics in Food Chemistry
FDSN 620-188, Independent Study/Research/ 34203
Professor: Amandeep Sandhu
Day/Time: / 
Location: MF / 
Dates: June 3, 2019 to July 27, 2019
This course can be used as credits towards candidate for a Ph.D. degree in Food Science and Nutrition. This course is expected to cover advanced knowledge in the chemistry of the components of foods, their physicochemical properties and chemical interactions, and the chemical changes that occur during processing, storage, and packaging. Students are expected to work on evidence derived from original research literature, interpretation of research findings, and problem solving based on the scientific principles of food chemistry. This advanced program is open to individuals who hold undergraduate degrees in chemistry, food science, or related disciplines. Students who have completed the FDSN 524 Fundamentals of Food Science and Technology and FDSN 507 Food Analysis courses with a B or higher may also apply. Upon successful completion of this course, students are expected to be able to translate theory and research into practice.

Advanced Topics in Food Microbiology
FDSN 610-110, Independent Study/Research/ 34202
Professor: Alvin Lee
Day/Time: / 
Location: MF / 
Dates: June 3, 2019 to July 27, 2019
This course is an advanced course in food safety microbiology covering the latest development and trends in food safety related microbiology, including emerging foodborne pathogens of public health significance, as well as the use of the latest technologies for the detection and control of these microbial food safety hazards. This course can be used as credits towards candidate for a Ph.D. degree in Food Safety and Technology/Food Science and Nutrition.

Advanced Topics in Food Process Engineering
FDSN 640-171, Independent Study/Research/ 34205
Professor: Kathiravan Krishnamurthy
Day/Time: / 
Location: MF / 
Dates: June 3, 2019 to July 27, 2019
This course covers recent advancements and developments in food engineering and food processing including novel and emerging processing technologies, advanced thermal process calculations, modeling, simulation, sustainable food processing, process controls and automation and kinetics of food transformations, energy reduction, and food rheology. This course can be used towards candidate for a Ph.D. degree in Food Safety and Technology/Food Science and Nutrition.

Food Biotechnology
FDSN 504-01, Lecture/ 34066
Professor: Wei Zhang
Day/Time: MW / 10:00 a.m. to 12:25 p.m. 
Location: MC / 
Dates: June 3, 2019 to July 27, 2019
Introduction of biotechnology in the food industry including genetic engineering of microorganisms. Fundamentals of microbial genomics and proteomics. Practice of a variety of software and bioinformatics tools including database search, sequence alignment, phylogenetic and cluster analyses, gene production, genomic map construction, and structural and functional prediction of proteins. Applications of DNA fingerprinting techniques in food safety and public health.

Food Biotechnology
FDSN 504-02, Lecture/ 34067
Professor: Wei Zhang
Day/Time: / Internet 
Location: IN / 
Dates: June 3, 2019 to July 27, 2019
Introduction of biotechnology in the food industry including genetic engineering of microorganisms. Fundamentals of microbial genomics and proteomics. Practice of a variety of software and bioinformatics tools including database search, sequence alignment, phylogenetic and cluster analyses, gene production, genomic map construction, and structural and functional prediction of proteins. Applications of DNA fingerprinting techniques in food safety and public health.

Food Law and Regulations
FDSN 511-01, Lecture/ 33150
Professor: Richard Schell
Day/Time: TR / 10:00 a.m. to 12:25 p.m. 
Location: MC / 
Dates: June 3, 2019 to July 27, 2019
Legal and scientific issues in regulating the nation’s food supply and nutritional status. Roles of regulatory agencies; Federal Food, Drug and Cosmetic Act; definitions and standards for food and adulterated foods. Manufacturing processed foods in compliance with regulations.

Food Law and Regulations
FDSN 511-02, Lecture/ 33151
Professor: Richard Schell
Day/Time: / Internet 
Location: IN / 
Dates: June 3, 2019 to July 27, 2019
Legal and scientific issues in regulating the nation’s food supply and nutritional status. Roles of regulatory agencies; Federal Food, Drug and Cosmetic Act; definitions and standards for food and adulterated foods. Manufacturing processed foods in compliance with regulations.

Contract Administration for Construction Projects
INTM 413-01, Lecture/ 30223
Professor: David Arditi
Day/Time: MW / 6:25 to 8:50 p.m. 
Location: MC / 
Dates: June 3, 2019 to July 27, 2019
This course covers fundamentals of project administration and characteristics of the construction industry. Pre-construction discussion includes technical and economic feasibility, project delivery systems, documents, bonding, and bidding. Duties and liabilities of parties at pre-contract stage and during contract administration to include scheduling and time extensions, payments, retainage, substantial and final completion, change orders, suspension of work, contract termination, and dispute resolution. Labor law, labor relations, safety, and general management of a construction company.
programs. Includes case studies on businesses that have developed successful sustainability in power generation, construction, architecture, logistics, and environmental quality. Coverage will discuss as well as strategies for developing sustainable practices in manufacturing, indicators of the need for improvements in sustainability. Industrial ecology will be examined as a strategy for developing sustainable practices in manufacturing, power generation, construction, architecture, logistics, and environmental quality. Coverage includes case studies on businesses that have developed successful sustainability programs.

Issues in Industrial Sustainability

**INTM 459-01, Lecture/ 34301**
Professor: TBD
Day/Time: MW / 6:25 to 9:05 p.m.
Location: IN / Internet
Dates: June 3, 2019 to July 27, 2019

Examines the concept of sustainability and its application in the industrial environment. Identifies underlying stresses on natural and human environments and the resultant problems for business and society including legal, ethical, and political issues related to sustainability. Global warming, peak oil, and commodity pricing are considered as indicators of the need for improvements in sustainability. Industrial ecology will be examined as well as strategies for developing sustainable practices in manufacturing, power generation, construction, architecture, logistics, and environmental quality. Coverage includes case studies on businesses that have developed successful sustainability programs.

Issues in Industrial Sustainability

**INTM 459-02, Lecture/ 34299**
Professor: TBD
Day/Time: / Internet
Location: IN / Internet
Dates: June 3, 2019 to July 27, 2019

Examines the concept of sustainability and its application in the industrial environment. Identifies underlying stresses on natural and human environments and the resultant problems for business and society including legal, ethical, and political issues related to sustainability. Global warming, peak oil, and commodity pricing are considered as indicators of the need for improvements in sustainability. Industrial ecology will be examined as well as strategies for developing sustainable practices in manufacturing, power generation, construction, architecture, logistics, and environmental quality. Coverage includes case studies on businesses that have developed successful sustainability programs.

Issues in Industrial Sustainability

**INTM 559-01, Lecture/ 34300**
Professor: TBD
Day/Time: MW / 6:25 to 9:05 p.m.
Location: MC / Internet
Dates: June 3, 2019 to July 27, 2019

Examines the concept of sustainability and its application in the industrial environment. Identifies underlying stresses on natural and human environments and the resultant problems for business and society including legal, ethical, and political issues related to sustainability. Global warming, peak oil, and commodity pricing are considered as indicators of the need for improvements in sustainability. Industrial ecology will be examined as well as strategies for developing sustainable practices in manufacturing, power generation, construction, architecture, logistics, and environmental quality. Coverage includes case studies on businesses that have developed successful sustainability programs.
Cyber Security Management
**ITMS 478-01, Lecture/ 33646**
Professor: Raymond Trygstad
Day/Time: TR / 10:00 a.m. to 12:25 p.m.
Location: IN /
Dates: June 3, 2019 to July 27, 2019
In-depth examination of topics in the management of information technology security including access control systems and methodology, business continuity and disaster recovery planning, legal issues in information system security, ethics, computer operations security, physical security and security architecture and models using current standards and models.

Cyber Security Management
**ITMS 478-02, Lecture/ 33647**
Professor: Raymond Trygstad
Day/Time: TR / 10:00 a.m. to 12:25 p.m.
Location: IN /
Dates: June 3, 2019 to July 27, 2019
In-depth examination of topics in the management of information technology security including access control systems and methodology, business continuity and disaster recovery planning, legal issues in information system security, ethics, computer operations security, physical security and security architecture and models using current standards and models.

Cyber Security Management
**ITMS 578-01, Lecture/ 33649**
Professor: Raymond Trygstad
Day/Time: TR / 10:00 a.m. to 12:25 p.m.
Location: MC /
Dates: June 3, 2019 to July 27, 2019
In-depth examination of topics in the management of information technology security including access control systems and methodology, business continuity and disaster recovery planning, legal issues in information system security, ethics, computer operations security, physical security and security architecture and models using current standards and models.

Cyber Security Management
**ITMS 578-02, Lecture/ 33650**
Professor: Raymond Trygstad
Day/Time: TR / 10:00 a.m. to 12:25 p.m.
Location: IN /
Dates: June 3, 2019 to July 27, 2019
In-depth examination of topics in the management of information technology security including access control systems and methodology, business continuity and disaster recovery planning, legal issues in information system security, ethics, computer operations security, physical security and security architecture and models using current standards and models.

Cyber Security Management
**ITMS 578-03, Lecture/ 33651**
Professor: Raymond Trygstad
Day/Time: TR / 10:00 a.m. to 12:25 p.m.
Location: Internet (India)/
Dates: June 3, 2019 to July 27, 2019
In-depth examination of topics in the management of information technology security including access control systems and methodology, business continuity and disaster recovery planning, legal issues in information system security, ethics, computer operations security, physical security and security architecture and models using current standards and models.

Cyber Security Technologies
**ITMS 548-01, Lecture/Lab/ 34399**
Professor: Maurice Dawson
Day/Time: TR / 6:25 to 9:05 p.m.
Location: MC /
Dates: June 3, 2019 to July 27, 2019
Prepares students for a role as a network security administrator and analyst. Topics include viruses, worms, other attack mechanisms, vulnerabilities and countermeasures, network security protocols, encryption, identity and authentication, scanning, firewalls, security tools, and organizations addressing security. A component of this course is a self-contained team project that, if the student wishes, can be extended into a full operational security system in a follow-course.

Cyber Security Technologies
**ITMS 548-02, Lecture/Lab/ 34403**
Professor: Maurice Dawson
Day/Time: TR / 6:25 to 9:05 p.m.
Location: MC /
Dates: June 3, 2019 to July 27, 2019
Prepares students for a role as a network security administrator and analyst. Topics include viruses, worms, other attack mechanisms, vulnerabilities and countermeasures, network security protocols, encryption, identity and authentication, scanning, firewalls, security tools, and organizations addressing security. A component of this course is a self-contained team project that, if the student wishes, can be extended into a full operational security system in a follow-course.

Data Analytics
**ITMD 527-01, Lecture/ 34340**
Professor: Yong Zheng
Day/Time: TR / 9:30 a.m. to 12:45 p.m.
Location: MC /
Dates: June 3, 2019 to July 27, 2019
Prepares students for a role as a network security administrator and analyst. Topics include viruses, worms, other attack mechanisms, vulnerabilities and countermeasures, network security protocols, encryption, identity and authentication, scanning, firewalls, security tools, and organizations addressing security. A component of this course is a self-contained team project that, if the student wishes, can be extended into a full operational security system in a follow-course.

Data Analytics
**ITMD 527-02, Lecture/ 34345**
Professor: Yong Zheng
Day/Time: TR / 9:30 a.m. to 12:45 p.m.
Location: MC /
Dates: July 1, 2019 to August 10, 2019
Prepares students for a role as a network security administrator and analyst. Topics include viruses, worms, other attack mechanisms, vulnerabilities and countermeasures, network security protocols, encryption, identity and authentication, scanning, firewalls, security tools, and organizations addressing security. A component of this course is a self-contained team project that, if the student wishes, can be extended into a full operational security system in a follow-course.

Data Analytics
**ITMD 527-02, Lecture/ 34345**
Professor: Yong Zheng
Day/Time: TR / 9:30 a.m. to 12:45 p.m.
Location: MC /
Dates: July 1, 2019 to August 10, 2019
This is a hands-on course that focuses on the creation, maintenance, and analysis of large informatics databases. Concepts such as data modeling, probability, linear regression, and statistical data analysis are covered in depth. In addition, this course will use large simulated equities, healthcare, insurance, and banking database systems. The student is expected to have a working understanding of relational database concepts as well as SQL.

Data Analytics
**ITMD 527-02, Lecture/ 34345**
Professor: Yong Zheng
Day/Time: TR / 9:30 a.m. to 12:45 p.m.
Location: MC /
Dates: July 1, 2019 to August 10, 2019
This is a hands-on course that focuses on the creation, maintenance, and analysis of large informatics databases. Concepts such as data modeling, probability, linear regression, and statistical data analysis are covered in depth. In addition, this course will use large simulated equities, healthcare, insurance, and banking database systems. The student is expected to have a working understanding of relational database concepts as well as SQL.
Data Analytics
ITMD 527-03, Lecture/ 34346
Professor: Yong Zheng
Day/Time: / 
Location: Internet (India)/ 
Dates: July 1, 2019 to August 10, 2019
This is a hands-on course that focuses on the creation, maintenance, and analysis of large databases. Concepts such as data modeling, probability, linear regression, and statistical data analysis are covered in depth. In addition, this course will use large simulated equities, healthcare, insurance, and banking database systems. The student is expected to have a working understanding of relational database concepts as well as SQL.

Introduction to Contemporary Operating Systems and Hardware I
ITM 301-01, Lecture/Lab/ 32638
Professor: Vasilios Pappademetriou
Day/Time: W / 5:30 to 8:40 p.m. 
Location: MC / TS 2033 
Dates: June 3, 2019 to July 27, 2019
Hybrid Course: Students are required to attend Monday lecture class online via Blackboard and Wednesday class on Mies Campus.

Information Technology Auditing
ITMM 586-01, Lecture/ 34348
Professor: Bonnie Goins
Day/Time: / Internet 
Location: IN / 
Dates: May 20, 2019 to June 29, 2019
Industry standard practices and standards in the auditing of information technology in an organization are addressed, with a particular emphasis on examination of IT governance, assets, controls, and control techniques. Specific areas covered will include the audit process, IT governance, systems and infrastructure life cycle management, IT service delivery and support, protection of information assets, and business continuity and disaster recovery. Students will examine case studies and complete hands-on exercises.

Information Technology Auditing
ITMM 586-02, Lecture/ 34349
Professor: Bonnie Goins
Day/Time: / Internet 
Location: IN / 
Dates: May 20, 2019 to June 29, 2019
Industry standard practices and standards in the auditing of information technology in an organization are addressed, with a particular emphasis on examination of IT governance, assets, controls, and control techniques. Specific areas covered will include the audit process, IT governance, systems and infrastructure life cycle management, IT service delivery and support, protection of information assets, and business continuity and disaster recovery. Students will examine case studies and complete hands-on exercises.

Introduction to Contemporary Operating Systems and Hardware I
ITM 301-01, Lecture/Lab/ 32638
Professor: Vasilios Pappademetriou
Day/Time: / 
Location: Internet (India)/ 
Dates: June 3, 2019 to July 27, 2019
Hybrid Course: Students are required to attend Monday lecture class online via Blackboard and Wednesday lab class live on Mies Campus.

Introduction to Contemporary Operating Systems and Hardware I
ITM 301-01, Lecture/Lab/ 32638
Professor: Vasilios Pappademetriou
Day/Time: / Internet 
Location: IN / 
Dates: June 3, 2019 to July 27, 2019
Hybrid Course: Students are required to attend Monday class is online via Blackboard and Wednesday class on Mies Campus.

Information Technology Auditing
ITMM 586-01, Lecture/ 34348
Professor: Vasilios Pappademetriou
Day/Time: W / 5:30 to 8:40 p.m. 
Location: MC / TS 2033 
Dates: June 3, 2019 to July 27, 2019
Hybrid Course: Students are required to attend Monday class is online via Blackboard and Wednesday class on Mies Campus.

Information Technology Auditing
ITMM 586-02, Lecture/ 34349
Professor: Vasilios Pappademetriou
Day/Time: / Internet 
Location: IN / 
Dates: June 3, 2019 to July 27, 2019
Hybrid Course: Students are required to attend Monday class is online via Blackboard and Wednesday class on Mies Campus.

Introduction to Data Networks and the Internet
ITMO 540-01, Lecture/ 33641
Professor: Louis McHugh
Day/Time: / Internet 
Location: IN / 
Dates: June 3, 2019 to July 27, 2019
Hybrid Course: Students are required to attend Monday class is online via Blackboard and Wednesday class on Mies Campus.

Introduction to Data Networks and the Internet
ITMO 540-02, Lecture/ 33642
Professor: Louis McHugh
Day/Time: / Internet 
Location: IN / 
Dates: June 3, 2019 to July 27, 2019
Hybrid Course: Students are required to attend Monday class is online via Blackboard and Wednesday class on Mies Campus.

Introduction to Data Networks and the Internet
ITMO 540-01, Lecture/ 33643
Professor: Louis McHugh
Day/Time: / Internet 
Location: IN / 
Dates: June 3, 2019 to July 27, 2019
Hybrid Course: Students are required to attend Monday class is online via Blackboard and Wednesday class on Mies Campus.

Introduction to Data Networks and the Internet
ITMO 540-02, Lecture/ 33644
Professor: Louis McHugh
Day/Time: / Internet 
Location: IN / 
Dates: June 3, 2019 to July 27, 2019
This course covers current and evolving data network technologies, protocols, network components, and the networks that use them, focusing on the Internet and related LANs. The state of worldwide networking and its evolution will be discussed. This course covers the Internet architecture, organization, and protocols including Ethernet, 802.11, routing, the TCP/UDP/IP suite, DNS, SNMP, DHCP, and more. Students will be presented with Internet-specific networking tools for searching, testing, debugging, and configuring networks and network-connected host computers. There will be opportunities for network configuration and hands-on use of tools.
Introduction to Data Networks and the Internet

**ITMO 540-03, Lecture/ 33645**
Professor: Louis McHugh
Day/Time: / 
Location: Internet (India)/
Dates: June 3, 2019 to July 27, 2019

This course covers current and evolving data network technologies, protocols, network components, and the networks that use them, focusing on the Internet and related LANs. The state of worldwide networking and its evolution will be discussed. This course covers the Internet architecture, organization, and protocols including Ethernet, 802.11, routing, the TCP/UDP/IP suite, DNS, SNMP, DHCP, and more. Students will be presented with Internet-specific networking tools for searching, testing, debugging, and configuring networks and network-connected host computers. There will be opportunities for network configuration and hands-on use of tools.

Introduction to Social Commerce

**TECH 485-01, Lecture/ 34342**
Professor: Bruce Mueller
Day/Time: TR / 9:30 a.m. to 12:45 p.m.
Location: MC / 
Dates: May 20, 2019 to June 29, 2019

Provides an introduction and basic knowledge of social commerce to help students develop a practical understanding of the design, construction, market readiness, and synergistic integration of a business mobile application. The course will provide a practitioner focus that will benefit students in a start-up or company/corporate setting.

Introduction to Social Commerce

**TECH 565-01, Lecture/ 34341**
Professor: Bruce Mueller
Day/Time: TR / 9:30 a.m. to 12:45 p.m.
Location: MC / 
Dates: May 20, 2019 to June 29, 2019

Provides an introduction and basic knowledge of social commerce to help students develop a practical understanding of the design, construction, market readiness, and synergistic integration of a business mobile application. The course will provide a practitioner focus that will benefit students in a start-up or company/corporate setting.

Introduction to Software Development

**ITM 311-01, Lecture/Lab/ 31667**
Professor: Katherine Papademas
Day/Time: MW / 4:30 to 7:40 p.m.
Location: MC / 
Dates: June 3, 2019 to July 27, 2019

A broad introduction to object-oriented programming and the related knowledge necessary to program in a contemporary programming language. This would include coverage of an Application Development Kit, a standard integrated Development environment, and the use of GUI components.

Open Source Programming

**ITMD 413-01, Lecture/ 33631**
Professor: James Papademas
Day/Time: MW / 6:25 to 8:50 p.m.
Location: MC / 
Dates: June 3, 2019 to July 27, 2019

Contemporary open-source programming languages and frameworks are presented. The student considers design and development topics in system, graphical user interface, network, and web programming. Dynamic scripting languages are covered using object-oriented, concurrent, and functional programming paradigms. Concepts gained throughout the course are reinforced with numerous exercises which will culminate in an open-source programming project.
Basic principles of project management are taught with a particular focus on project planning for information technology hardware, software and networking project implementation. Management of application development and major Web development projects will also be addressed.

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This course will cover a particular topic in application development, varying from semester to semester, in which there is particular student or staff interest. This course may be taken more than once but only 9 hours of ITMD 469/569 credit may be applied to a degree.

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This course will cover a particular topic in application development, varying from semester to semester, in which there is a particular student or staff interest. This course may be taken more than once but only 9 hours of ITMD 569 credit may be applied to a degree.

This course will cover a particular topic in application development, varying from semester to semester, in which there is a particular student or staff interest. This course may be taken more than once but only 9 hours of ITMD 569 credit may be applied to a degree.
Topics in Information Technology
ITMT 495-01, Lecture/ 34335
Professor: Jeremy Hajek
Day/Time: MW / 9:00 a.m. to 12:10 p.m.
Location: MC / TS 2030
Dates: June 3, 2019 to July 27, 2019
This course will cover a particular topic varying from semester to semester in which there is particular student or staff interest.

Topics in Information Technology
ITMT 495-02, Lecture/ 34337
Professor: Jeremy Hajek
Day/Time: / Internet
Location: IN /
Dates: June 3, 2019 to July 27, 2019
This course will cover a particular topic varying from semester to semester in which there is particular student or staff interest.

Topics in Information Technology
ITMT 495-05, Lecture/ 34398
Professor: Maurice Dawson
Day/Time: MW / 6:25 to 9:05 p.m.
Location: MC /
Dates: June 3, 2019 to July 27, 2019
This course will cover a particular topic varying from semester to semester in which there is particular student or staff interest.

Topics in IT
ITMT 595-01, Lecture/ 34336
Professor: Jeremy Hajek
Day/Time: MW / 9:00 a.m. to 12:10 p.m.
Location: MC / TS 2030
Dates: June 3, 2019 to July 27, 2019
This course will cover a particular topic, varying from semester to semester, in which there is particular student or staff interest.

Topics in IT
ITMT 595-02, Lecture/ 34338
Professor: Jeremy Hajek
Day/Time: / Internet
Location: IN /
Dates: June 3, 2019 to July 27, 2019
This course will cover a particular topic, varying from semester to semester, in which there is particular student or staff interest.

Topics in Software Development: Introduction to Angular JavaScript
ITMD 419-01, Lecture/ 33981
Professor: Witt Hawkins
Day/Time: MW / 4:30 to 6:55 p.m.
Location: MC /
Dates: June 3, 2019 to July 27, 2019
This course will cover a particular topic in software development, varying from semester to semester, in which there is particular student or staff interest. This course may be taken more than once but only 9 hours of ITMD 419/519 credit may be applied to a degree.

Topics in Software Development: Introduction to Angular JavaScript
ITMD 419-02, Lecture/ 33982
Professor: Witt Hawkins
Day/Time: / Internet
Location: IN /
Dates: June 3, 2019 to July 27, 2019
This course will cover a particular topic in software development, varying from semester to semester, in which there is particular student or staff interest. This course may be taken more than once but only 9 hours of ITMD 419/519 credit may be applied to a degree.

Topics in Software Development: Introduction to Angular JavaScript
ITMD 519-01, Lecture/ 33986
Professor: Witt Hawkins
Day/Time: MW / 4:30 to 6:55 p.m.
Location: MC /
Dates: June 3, 2019 to July 27, 2019
This course will cover a particular topic in software development varying from semester to semester in which there is particular student or staff interest. The course may be taken more than once but only 9 hours of ITMD 419/519 credit may be applied to a degree.

Topics in Software Development: Introduction to Angular JavaScript
ITMD 519-02, Lecture/ 33987
Professor: Witt Hawkins
Day/Time: / Internet
Location: IN /
Dates: June 3, 2019 to July 27, 2019
This course will cover a particular topic in software development varying from semester to semester in which there is particular student or staff interest. The course may be taken more than once but only 9 hours of ITMD 419/519 credit may be applied to a degree.

Topics in Software Development: Introduction to Angular JavaScript
ITMD 519-03, Lecture/ 33988
Professor: Witt Hawkins
Day/Time: / Internet (India)/
Location: Internet (India)/
Dates: June 3, 2019 to July 27, 2019
This course will cover a particular topic in software development varying from semester to semester in which there is particular student or staff interest. The course may be taken more than once but only 9 hours of ITMD 419/519 credit may be applied to a degree.

Introduction to Cyber Warfare
ITMS 557-01, Lecture/ 33648
Professor: Louis McHugh
Day/Time: TR / 6:25 to 8:50 p.m.
Location: MC /
Dates: June 3, 2019 to July 27, 2019
Cyber warfare is defined as “warfare waged in cyberspace,” which can include defending information and computer networks and deterring information attacks as well as denying an adversary’s ability to do the same. It can include offensive information operations mounted against an adversary or even dominating information on the battlefield. Students participating in this discussion-based course will explore the current state of cyber security from national and international perspectives and consider cyber-based operations through the lens of a government pursuing strategic goals. How might their actions impact the industry’s ability to conduct business operations? What does the current threat environment look like? The course will include extensive discussions and student presentations.
**STUART SCHOOL OF BUSINESS**

**Equity and Equity Derivatives Trading**

**MSF 584-01, Lecture/ 34027**
Professor: Jawahar Panchal  
Day/Time: MW / 6:00 to 8:30 p.m.  
Location: DT / DC 401  
Dates: June 3, 2019 to July 27, 2019  

This course will provide students with an opportunity to learn the latest Equity Trading Strategies used by large banks, brokerages and hedge funds. The instructor will present strategies on equity option trading, pairs trading, program and basket trading, risk arbitrage trading, structured product trading, and dispersion trading (time permitting). Equity trading theory and practical examples will be discussed. Students will be required to structure and adapt equity trading positions based on a range of actual and theoretical market conditions. In addition, students will collaborate with each other and the course instructor to analyze and evaluate the implementation of the above-mentioned strategies.

**Integrative Practicum for Effective Leadership in Public and Nonprofit Organizations**

**PA 599-108, Lecture/ 34373**
Professor: Joanne Howard  
Day/Time: TR / 1:00 to 3:30 p.m.  
Location: DT / DC 403  
Dates: June 3, 2019 to July 27, 2019  

PA 599 is a capstone course where students apply concepts and theories they have studied to analyze an organizational or policy problem and deliver a report that normally specifies the problem or task, defines alternatives, and proposes recommended course of action. The recommendation will be supported by reasons and evidence. PA 599 should be taken in the student’s last semester.
Operations and Technology Management

**MBA 513-101, Lecture/ 31412**
Professor: Joel Goldhar
Day/Time: S / 1:00 to 3:30 p.m.
Location: DT /
Dates: May 20, 2019 to August 10, 2019

The course seeks to help the student develop an understanding of the concepts and skills needed for the design and control of operations in both services and manufacturing organizations. Students will take a strategic and general management approach to the design of an operating system and its supporting organizational structure and infrastructure including information systems, human resource management, and financial policies. The focus is on the strategic role of operations and technology decisions as a source of competitive advantage for the firm with an emphasis on the integration of R and D/Design/Engineering, operations and marketing within the context of the business unit’s strategy, and the organizational structure and skills needed to execute and manage the operating system. The overall goal is to create, achieve, and sustain operational effectiveness. The course will emphasize the analytical tools and techniques that are useful in making decisions about projection facilities and capacity, choices of technology and equipment, task and process design, organizational architecture, human resources policies, and the physical and managerial control of operations. Students will gain an understanding of the economics of operations including trade-offs between fixed and variable costs, optimization, and productivity measurements for both capital and labor. Case studies will provide opportunities for students to develop their skills in process design and choice, process mapping, critical thinking, identification of problems versus symptoms, process improvement, and capacity measurement in the context of the business strategy while the simulations will provide an opportunity to practice the management of a particular operating system. Students will also gain an understanding of how human behavior and organizational design, along with quantitative optimization, forms the theoretical underpinning of operations management.

Qualitative and Survey Research Methods in Business

**MAX 521-01, Lecture/ 33623**
Professor: Michael Solheim
Day/Time: TR / 6:00 to 8:30 p.m.
Location: DT /
Dates: June 3, 2019 to July 27, 2019

This is an introductory course in qualitative and survey methods relevant to basic and applied research problems in businesses (with a focus on marketing). Although this is an introductory course, students should be prepared to engage seriously in how qualitative research is conceived, conducted, implemented, and interpreted in business contexts. The course does not emphasize statistical methods, and ability to quickly acquire working knowledge of basic statistics is assumed. The instructor will make an effort to work with students to cover essentials. Students will also require a good understanding of substantive business contexts. In short, while the course accomplishes several objectives, it will focus on the skills required to design and conduct research studies using qualitative and/or survey methods.

Special Topic: Crisis Management and Emergency Planning

**PA 597-01, Lecture/ 34026**
Professor: Michael Fagel
Day/Time: S / 10:00 a.m. to 4:00 p.m.
Location: DT /
Dates: June 3, 2019 to July 27, 2019

The subject matter of this course will vary with the interests and the background of the students and the instructor, and the course may be taken more than once. Instructor permission is required.

The General Manager

**MBA 522-101, Lecture/ 34197**
Professor: Joel Goldhar
Day/Time: S / 9:30 a.m. to Noon
Location: DT /
Dates: May 20, 2019 to August 10, 2019

This course is about general management, general managers, and the challenges of creating and sustaining competitive advantage by maintaining the fit between industry competitive structure, strategy, organization structure, tactics, and activities (execution) at both the corporate and the business unit levels. Students will be concerned with both the problem of choosing what businesses the firm wants to engage in (the portfolio and diversification of risks) and the task of maximizing profits in the specific businesses the corporation has chosen to enter. In some of the case discussions and the CAPSIM game, students will take the choice of business as a given and focus on how to create a strategy and the network of activities or value chain that implements/executes the strategy of the strategic business unit (SBU), taking into account the interactions and trade-offs among marketing, production, finance, engineering, and human resources decisions as the industry structure changes over time and in the context of active competitors. Students will also be looking at the corporate level choices of entering, growing, or exiting various businesses/markets, the tactics/activities used to execute corporate strategy, the organization structure issues of very large multi-business firms, and the relationships among SBUs and between corporate headquarters and the strategic business units. Completion of program core or instructor permission is required.
Questions?

Undergraduate-Level Courses
Contact Breigha Adeyemo, Senior Transfer Admission Counselor at badeyemo@iit.edu or call 312.567.3027.

Graduate-Level Courses and Certificates
Contact Nathan Robbins, Assistant Director at nrobbins@iit.edu.