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?
Contact the Illinois Tech One Stop
Phone: 312.567.3810
Email: onestop@iit.edu
WE HAVE GREAT CLASSES TO CHOOSE FROM, TAKE A LOOK:

Please note that this course list is an abbreviated list of our summer classes. Access to our entire offerings can be found online at summer.iit.edu. Schedules and course offerings are subject to change.

Please check https://my105.iit.edu/coursestatusreport for updates to time/location and additional classes.

INTERDISCIPLINARY STUDIES

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 / IT 7D3-1
Dates: May 21 to June 30, 2018

Interprofessional projects allow students to learn teamwork, leadership and project management skills, while working in multidisciplinary teams on projects involving technical, ethical, environmental, economic, public policy, and legal issues. IPRO project teams are typically comprised of 10-12 students from sophomore through graduate level and from all disciplines that can contribute to a project. Every effort will be made to accommodate students’ first choices; however, it may be necessary to balance students across all projects scheduled for the semester or to consolidate students into fewer projects to meet minimum team requirement. Specific rules about selection of IPRO projects may apply to certain degree programs. Some projects may carry Humanities or Social Science credit. Students are encouraged to consult the lead faculty member for the project and their faculty advisor before registering for a project.

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 / 1:30 to 4:30 p.m.
MC / GR-001
June 4 to July 28, 2018

Interprofessional projects allow students to learn teamwork, leadership and project management skills, while working in multidisciplinary teams on projects involving technical, ethical, environmental, economic, public policy, and legal issues. IPRO project teams are typically comprised of 10-12 students from sophomore through graduate level and from all disciplines that can contribute to a project. Every effort will be made to accommodate students’ first choices; however, it may be necessary to balance students across all projects scheduled for the semester or to consolidate students into fewer projects to meet minimum team requirement. Specific rules about selection of IPRO projects may apply to certain degree programs. Some projects may carry Humanities or Social Science credit. Students are encouraged to consult the lead faculty member for the project and their faculty advisor before registering for a project.

Interprofessional Project (IPRO): Made in USA: Creating the New Professional Knowledge Worker

IPRO 497-303, Lecture/Lab/34076
Professor: Limia Shunia
Day/Time: TR / 1:50 to 4:15 p.m.
Location: MC / IT 7D3-1
Dates: June 4 to July 28, 2018

Interprofessional projects allow students to learn teamwork, leadership and project management skills, while working in multidisciplinary teams on projects involving technical, ethical, environmental, economic, public policy, and legal issues. IPRO project teams are typically comprised of 10-12 students from sophomore through graduate level and from all disciplines that can contribute to a project. Every effort will be made to accommodate students’ first choices; however, it may be necessary to balance students across all projects scheduled for the semester or to consolidate students into fewer projects to meet minimum team requirement. Specific rules about selection of IPRO projects may apply to certain degree programs. Some projects may carry Humanities or Social Science credit. Students are encouraged to consult the lead faculty member for the project and their faculty advisor before registering for a project.

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 / IT 7D3-1
Dates: June 4 to July 28, 2018

Interprofessional projects allow students to learn teamwork, leadership and project management skills, while working in multidisciplinary teams on projects involving technical, ethical, environmental, economic, public policy, and legal issues. IPRO project teams are typically comprised of 10-12 students from sophomore through graduate level and from all disciplines that can contribute to a project. Every effort will be made to accommodate students’ first choices; however, it may be necessary to balance students across all projects scheduled for the semester or to consolidate students into fewer projects to meet minimum team requirement. Specific rules about selection of IPRO projects may apply to certain degree programs. Some projects may carry Humanities or Social Science credit. Students are encouraged to consult the lead faculty member for the project and their faculty advisor before registering for a project.
Interprofessional Project (IPRO): Dragon Slayer (Designing Your Future)

**IPRO 497-314, Lecture/Lab/34077**  
**Professor: Jeremy Alexis**  
**Day/Time:** MW / 10:00 a.m. to 12:40 p.m.  
**Location:** MC / IT 100W  
**Dates:** June 4 to July 28, 2018

Interprofessional projects allow students to learn teamwork, leadership and project management skills, while working in multidisciplinary teams on projects involving technical, ethical, environmental, economic, public policy, and legal issues. IPRO project teams are typically comprised of 10-12 students from sophomore through graduate level and from all disciplines that can contribute to a project. Every effort will be made to accommodate students’ first choices; however, it may be necessary to balance students across all projects scheduled for the semester or to consolidate students into fewer projects to meet minimum team requirement. Specific rules about selection of IPRO projects may apply to certain degree programs. Some projects may carry Humanities or Social Science credit. Students are encouraged to consult the lead faculty member for the project and their faculty advisor before registering for a project.

Interprofessional Project: Using Big Data to Visualize and Communicate Complex Social-Tech Issues

**IPRO 497-318, Lecture/Lab/33395**  
**Professor: Daniel Chichestre**  
**Day/Time:** TR / 1:50 to 4:15 p.m.  
**Location:** MC / IT 7D3-1  
**Dates:** June 4 to July 28, 2018

Interprofessional projects allow students to learn teamwork, leadership and project management skills, while working in multidisciplinary teams on projects involving technical, ethical, environmental, economic, public policy, and legal issues. IPRO project teams are typically comprised of 10-12 students from sophomore through graduate level and from all disciplines that can contribute to a project. Every effort will be made to accommodate students’ first choices; however, it may be necessary to balance students across all projects scheduled for the semester or to consolidate students into fewer projects to meet minimum team requirement. Specific rules about selection of IPRO projects may apply to certain degree programs. Some projects may carry Humanities or Social Science credit. Students are encouraged to consult the lead faculty member for the project and their faculty advisor before registering for a project.

Interprofessional Project (IPRO): Urban Activators: Engagement Continued

**IPRO 497-321, Lecture/Lab/32387**  
**Professor: Monica Chadha**  
**Day/Time:** TR / 5:00 to 7:25 p.m.  
**Location:** MC / IT 7D3-1  
**Dates:** June 4 to July 28, 2018

Interprofessional projects allow students to learn teamwork, leadership and project management skills, while working in multidisciplinary teams on projects involving technical, ethical, environmental, economic, public policy, and legal issues. IPRO project teams are typically comprised of 10-12 students from sophomore through graduate level and from all disciplines that can contribute to a project. Every effort will be made to accommodate students’ first choices; however, it may be necessary to balance students across all projects scheduled for the semester or to consolidate students into fewer projects to meet minimum team requirement. Specific rules about selection of IPRO projects may apply to certain degree programs. Some projects may carry Humanities or Social Science credit. Students are encouraged to consult the lead faculty member for the project and their faculty advisor before registering for a project.

**ARMOUR COLLEGE OF ENGINEERING**

**Soft-sensor application for predicting information in water resource engineering**

**ENGR 498-01, Independent Study/Research/34032**  
**Professor: Junjie Zhu**  
**Day/Time:** TBD / TBD  
**Location:** MC / TBD  
**Dates:** May 21 to July 13, 2018

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 selects 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.

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

**ENGR 498-03, Independent Study/Research/33765**  
**Professor: Julide Demirdoven**  
**Day/Time:** TBD / TBD  
**Location:** MC / TBD  
**Dates:** May 21 to July 13, 2018

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 selects 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.

**Transportation Engineering**

**ENGR 498-04, Independent Study/Research/33767**  
**Professor: Zongzhi Li**  
**Day/Time:** TBD / TBD  
**Location:** MC / TBD  
**Dates:** May 21 to July 13, 2018

Students will learn about the magnitude, variety, and complexity of transportation as a human activity and as an engineering discipline; identify and distinguish the key attributes of land-based transportation modes; identify and distinguish the planning, design, and operations phases of a transportation project; Design simple transportation components, including: 1) a traffic signal system with progression; 2) a Geographic Information System (GIS) database for vehicle crash data processing, storage, analysis, and display; Evaluate alternatives, using appropriate measures of merit; and demonstrate the capacity for critical thought, resourceful study, and effective communication.
Economic Issues in Green Building Design, Construction and Operation

**ENGR 498-08, Independent Study/Research/33771**

Professor: David Arditi  
Day/Time: TBD / TBD  
Location: MC / TBD  
Dates: May 21 to July 13, 2018

This project involves understanding the impact and implications of the LEED (Leadership in Energy and Environmental Design) certification system by focusing in one of the more important categories of LEED in the context of the renovation of an existing building. LEED was created by the US Green Building Council (USGBC) to help building owners and operators to be sustainable and environmentally responsible. The LEED certification system is composed of eight categories. Four of these categories, namely (1) Location and Transportation, (2) Sustainable Sites, (3) Water Efficiency, and (4) Innovation, are important in that they can fetch up to 43 points, accounting for 39% of the points one can obtain towards full certification. The objective of this research is to evaluate the condition of Alumni Memorial Hall on IIT’s campus, relative to credits related to these four categories in the LEED certification system. Alumni Memorial Hall was designed by Ludwig Mies Van der Rohe in 1945-46, at a time when issues about energy and atmosphere were not well understood and such considerations were rarely used in the design of buildings. Since its construction, Alumni Memorial Hall has undergone several minor repairs and renovations, but it is not clear how many of the maximum 43 points Alumni Memorial Hall could fetch in the credits related to the selected four categories. The students who participate in this research are expected (1) to learn the importance and implications of LEED, (2) to understand the importance and implications of the four categories selected for this research, (3) to survey Alumni Memorial Hall by recording the conditions in each and every space in the building, and (4) to perform a thorough assessment of the deficiencies in this building relative to these four categories in LEED certification.

The WELL Building Standard in Design and Operation

**ENGR 498-09, Independent Study/Research/34033**

Professor: David Arditi  
Day/Time: TBD / TBD  
Location: MC / TBD  
Dates: May 21 to July 13, 2018

This project involves understanding the WELL Building Standard certification system by focusing on the seven core concepts of the standard, namely, air, 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. 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. Project’s assessor grades each of the seven concepts independently on a numerical scale.

Unmanned Aerial Vehicles (UAVs or Drones) and Construction Projects

**ENGR 498-11, Independent Study/Research/33774**

Professor: Ivan Mutis Sin  
Day/Time: TBD / TBD  
Location: MC / TBD  
Dates: May 21 to July 13, 2018

Participants will formulate research questions and design plans to collect, analyze and draw conclusions from data and share experimental results – or answers to their proposed questions – with their peers and faculty. They will have access to a University-provided UAV – equipped with an advanced, high-definition video camera; data communication platform; and positioning sensors – to capture a physical environment and register telemetry data related to their projects.

Physical Layer and Access Technologies for 5G and Future Generations Wireless Communications

**ENGR 498-13, Independent Study/Research/33777**

Professor: Guillermo Atkin  
Day/Time: TBD / TBD  
Location: MC / TBD  
Dates: May 21 to July 13, 2018

Future generation of wireless communications systems will require significant throughput increases in the transmission of information. This will require the redesign of the Radio Access Network (RAN) and new coding a modulation strategies need to be researched. Non-Orthogonal Multiple Access (NOMA) techniques increase capacity but allow controlled interference between users. Decoders that deal with this “added” interference need to decode the information without significant degradation. NOMA encoders as Sparse Code Multiple Access (SCMA), Pattern Division Multiple Access (PDMA) need to be generalized to allow variable overload factors. Multi-dimensional codes enable high rate transmission of information for multiple users in fading and interference channels. These codes provide better diversity and are more robust than conventional techniques. The use of these multidimensional codes inherently causes expansions in the signal constellations. Solutions for these expansions need to be addressed. The main thrust of this research is to find designs that allow multi-user capabilities with interference, bandwidth and energy constraints. Transformations that allow transmission of multiple users and their embedded structures, will be investigated. Modulation formats that are bandwidth-energy efficient need to be considered. The new designs need to be studied, generalized and evaluated in different channel and interference conditions. This research has both theoretical and practical goals.

Electric Vehicle Powertrain: Power Electronics, Motors and Batteries

**ENGR 498-16, Independent Study/Research/33780**

Professor: Maheesh Krishnamurthy  
Day/Time: TBD / TBD  
Location: MC / TBD  
Dates: May 21 to July 13, 2018

Students will join a research team to work on the design and analysis of power electronic converters and electric machine designs for electric and hybrid electric vehicle powertrains. Sample project includes modeling and analysis of electric machines used in Honda, Nissan and Toyota vehicles using finite element analysis, energy storage in UAVs and powertrain design for personal mobility.

Research in Digital Signal Processing and Applications

**ENGR 498-18, Independent Study/Research/33783**

Professor: Jafar Saniee  
Day/Time: TBD / TBD  
Location: MC / TBD  
Dates: May 21 to July 13, 2018

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 digital signal processing problems. Students’ projects will include Machine Vision, Robotics, Drone Navigation, Target Tracking Systems, Software Defined Radio, Signal Modulation and Error Correction, Wireless Health Monitoring Systems, and Audio Signal Processing using Matlab software and FPGA hardware.
<table>
<thead>
<tr>
<th>Course Title</th>
<th>Course Code</th>
<th>Professor</th>
<th>Day/Time:</th>
<th>Location:</th>
<th>Dates:</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advanced Automotive Projects</td>
<td>ENGR 498-21</td>
<td>Francisco Ruiz</td>
<td>TBD / TBD</td>
<td>MC / TBD</td>
<td>May 21 to July 13, 2018</td>
<td>We will continue the development of two advanced vehicles: 1. Magnetically Levitating Car, using induction on a metal floor: we will continue simulating the levitation coils, and hopefully translating the knowledge acquired into a prototype. 2. Adaptive Cycle Engine: we are simulating the performance of this advanced engine, where compression and expansion phases are detached from each other; we will also begin designing an actual engine, as a modification of an existing internal combustion engine.</td>
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<tr>
<td>Materials Characterization of Intermetallics</td>
<td>ENGR 498-22</td>
<td>Philip Nash</td>
<td>TBD / TBD</td>
<td>MC / TBD</td>
<td>May 21 to July 13, 2018</td>
<td>Intermetallics have many uses in both structural and functional materials applications. In this project team members will synthesize and characterize several little studied intermetallic compounds and determine some of their properties. Students will gain hands on experience of a range of materials characterization techniques including SEM, EDS, XRD, and DSC as well as synthesis and processing techniques. Partial phase diagrams will be developed and the results are expected to be published.</td>
</tr>
<tr>
<td>Virtual Design Construction (VDC)</td>
<td>ENGR 498-23</td>
<td>Ivan Mutis Sin</td>
<td>TBD / TBD</td>
<td>MC / TBD</td>
<td>May 21 to July 13, 2018</td>
<td>VDC addresses the challenges associated with collaborative design and construction. Students will be introduced to practical technology applications and techniques for design and construction, as well as the concept of VDC. By developing, implementing and reflecting on a virtual world and the use of available technology to enhance communication on projects, participants will formulate research questions and design plans to collect, analyze and draw conclusions from data and share experimental results — or answers to their proposed questions — with their peers and faculty. Students will have access to modeling software for design, virtual and augmented reality development tools, point cloud applications, and advanced sensing devices, such as thermal cameras and laser scanning devices. Specific research topics under this title include: 1. Information Modelling. 2. Augmented Reality (AR). 3. Virtual Reality. 4. Human-Computer Interaction. 5. Building Information Modelling (BIM). 6. Point cloud data processing. Objectives of the course include the understanding of existing technologies to create virtual and augmented reality models and designing of action plans that incorporate the use of sensing devices to solve Civil and Construction Management problems.</td>
</tr>
<tr>
<td>Non-Destructive Evaluation of Pipelines</td>
<td>ENGR 498-25</td>
<td>Philip Nash</td>
<td>TBD / TBD</td>
<td>MC / TBD</td>
<td>May 21 to July 13, 2018</td>
<td>Non-destructive evaluation of pipelines is of critical importance to maintaining infrastructure and preventing costly environmental problems. In this project students will develop a novel method for NDE of steel pipes involving the use of magnetic properties to determine failure risk prior to actual fracture. Students will learn about NDE techniques, build electromagnetic sensors and apply them during mechanical testing to determine critical electromagnetic signals indicating imminent failure.</td>
</tr>
<tr>
<td>Spreadsheet Modeling and NextGen Project Risk Management</td>
<td>ENGR 498-27</td>
<td>Prasad Kodukula</td>
<td>TBD / TBD</td>
<td>MC / TBD</td>
<td>May 21 to July 13, 2018</td>
<td>This course focuses on next generation (NextGen) risk management in project management. It involves quantitative methods and spreadsheet modeling to understand and analyze uncertainty and risk. You will build spreadsheet models involving Monte Carlo simulations for project schedule and cost risk analysis. You will learn how to integrate Microsoft Project into your own models. Furthermore, you will develop discounted cash flow, decision tree, and optimization models for selecting the right projects for project portfolios.</td>
</tr>
<tr>
<td>Design of a Liquid-Liquid Extraction Unit to Separate Aromatic Hydrocarbons from Paraffinic Hydrocar</td>
<td>ENGR 499-02</td>
<td>Nader Aderangi</td>
<td>TBD / TBD</td>
<td>MC / TBD</td>
<td>May 21 to July 13, 2018</td>
<td>Separation of aromatics from paraffinic hydrocarbons is industrially important. These compounds drastically affect properties of automotive fuels and solvents. Currently our lab has a liquid-liquid extraction unit that is using a non-related system. Student will modify the system to increase efficiency of separation. Gas chromatography will be used to analyze the product. Also, a distillation unit will be used to separate the extraction solvent from the product.</td>
</tr>
</tbody>
</table>
**Blood Flow and Vascular Permeability Mapping in Diabetic Retinopathy**

**ENGR 499-03, Independent Study/Research/33795**

Professor: Kenneth Tichauer  
Day/Time: TBD / TBD  
Location: MC / TBD  
Dates: May 21 to July 13, 2018

In this undergraduate research immersion-individual based course, students will be exposed to modern aspects of dynamic contrast enhanced imaging: including an introduction to technological advancements in system development, image reconstruction, and data analysis. There will be an emphasis on quantitative hemodynamic and vascular permeability imaging approaches based on tracer kinetic modeling of molecularly targeted imaging agents. Based on these principles, in summer 2015, the student will be asked to develop and implement a methodology of estimating choroidal blood flow in the eye. The back of the eye is made up of two layers: the retina and the choroid. Conventional fluorescein based dynamic contrast enhanced ophthalmology can provide information only about the shallow retina layer; however, use of indocyanine green, which fluoresces at a more tissue penetrating wavelength, can offer insight into the hemodynamics of the deeper choroid layer. The student will specifically explore an approach to extract choroidal information out of indocyanine green data by accounting for retinal artifacts with conventional fluorescein maps.

**Kinetic Model Optimization in Cancer Molecular Imaging**

**ENGR 499-04, Independent Study/Research/33796**

Professor: Kenneth Tichauer  
Day/Time: TBD / TBD  
Location: MC / TBD  
Dates: May 21 to July 13, 2018

In this undergraduate research immersion-team based course, students will be exposed to modern aspects of molecular imaging in cancer: including an introduction to technological advancements in system development, image reconstruction, and data analysis. There will be an emphasis on quantitative molecular imaging approaches based on tracer kinetic modeling of molecularly targeted imaging agents. Based on these principles, in summer 2015, the student will be asked to explore the effect of biomolecule-imaging agent saturation on estimations of biomolecule concentration. The student will develop mathematical models to describe this and compare to preclinical data collected in mouse models of human cancer.

**Design with Sensors, FPGA and Smart Phones**

**ENGR 499-10, Independent Study/Research/33804**

Professor: Jafar Saniei  
Day/Time: TBD / TBD  
Location: MC / TBD  
Dates: May 21 to July 13, 2018

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 automated sorting machine using robotic arm 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, design and construction of an ECG sensor using an ARM platform, design for collection of data from different sensors through a Smartphone, and the transmission of data to an online database.

**Modulation of Matrix Properties and Adhesion Ligand Composition to Direct Mesenchymal Stem Cell**

**ENGR 499-15, Independent Study/Research/33847**

Professor: Georgia Papavasiliou  
Day/Time: TBD / TBD  
Location: MC / TBD  
Dates: May 21 to July 13, 2018

The goal of this research is to engineer hydrogels that support mesenchymal stem cell (MSC) viability and proliferation and to determine the effects of elastic modulus, degradation and integrin-specific adhesion ligands on MSC differentiation in 3D culture. Students will be required to synthesize and characterize the properties of these materials and perform 3D culture studies to characterize cell responses to matrix properties including differentiation into osteogenic and chondrogenic phenotypes.

**Electric Vehicle Powertrain: Power Electronics, Motors and Batteries**

**ENGR 499-16, Independent Study/Research/33793**

Professor: Mahesh Krishnamurthy  
Day/Time: TBD / TBD  
Location: MC / TBD  
Dates: May 21 to July 13, 2018

Students will join a research lab to work on the design and analysis of power electronic converters and electric machine designs for electric and hybrid electric vehicle powertrains. Sample project includes modeling and analysis of electric machines used in Honda, Nissan and Toyota vehicles using finite element analysis, motor controller design and converters for fast chargers.

**Visualization and Implementation of Control Methods in Multiple Autonomous Vehicles**

**ENGR 499-18, Independent Study/Research/33798**

Professor: Baisravan HomChaudhuri  
Day/Time: TBD / TBD  
Location: MC / TBD  
Dates: May 21 to July 13, 2018

In this project, the student would first focus on 3D visualization of multiple autonomous vehicle navigation and control by integrating both open source and commercially available software. This would be followed by a comparative study of different control methods in terms of their real-time applicability, fuel and energy efficiency, and collision avoidance capabilities. Knowledge of multiple programming languages such as MATLAB, python, C++, C#, and would be helpful for this project.

**Prediction of Odors and Corrosion in Wastewater Treatment Collection Systems**

**ENGR 499-21, Independent Study/Research/33801**

Professor: Ali Oskouie  
Day/Time: TBD / TBD  
Location: MC / TBD  
Dates: May 21 to July 13, 2018

The wastewater collection systems are underground infrastructure that require constant costly rehabilitation. The cost for analysis of the underlying wastewater quality parameters that contribute to emission of reduced sulfur compounds could amount to hundreds of thousands of dollars for only one mile stretch of wastewater conduit. To reduce the cost of such chemical analysis predictive tools are developed. In this class, fundamentals of generation of odorous compounds in wastewater collection systems will be discussed and few predictive models will be evaluated using actual field data.
Effect of Individual and Combined Gradients on Scaffold Neovascularization

ENGR 599-01, Independent Study/Research/33918
Professor: Georgia Papavasiliou
Day/Time: TBD / TBD
Location: MC / TBD
Dates: May 21 to July 13, 2018

The goal of this research is to characterize neovascularization in response to spatiotemporal gradients of diffusible and immobilized adhesion ligands over a range scaffold modulus values representative of different types of tissues. The students will be responsible for characterization of these materials once they are fabricated as well as developing transport models to quantify the spatiotemporal release of diffusible inductive factors within the scaffold.

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 4 to July 28, 2018

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

Thermal-Fluids Engineering I
CAE 208-01, Lecture/31478
Professor: Mark Snyder
Day/Time: / 
Location: IN /
Dates: May 21 to June 30, 2018

Basic principles of thermodynamics applied to engineering systems using pure substances and mixtures as working fluids. Direct application of the laws of thermodynamics to analysis of closed and open systems, mass and energy flow. Extensive analysis of isentropic processes in cycles, analysis of gas mixtures and psychrometrics in heating and cooling systems. Introduction to fluid mechanics and analysis of fluid statics problems.

Theory and Concept of Structural Mechanics
CAE 286-01, Lecture/34013
Professor: Jeff Budiman
Day/Time: TR / 1:30 to 4:40 p.m.
Location: MC / AM 222
Dates: May 21 to June 30, 2018


Structural Analysis I
CAE 304-01, Lecture/Lab/31101
Professor: Mehdi Modares
Day/Time: MW / 5:00 to 7:25 p.m.
Location: MC / SB 112F
Dates: June 4 to July 28, 2018


Engineering Systems Analysis
CAE 312-01, Lecture/34069
Professor: Mark Snyder
Day/Time: / 
Location: IN /
Dates: June 4 to July 28, 2018

Systems concept process, interest rate, present and future worth values, evaluation of alternatives, and elements of microeconomics. Theory of probability, laws of probabilities, random variables and distribution functions, functions of random variables, statistical estimations of data, mean and standard deviation, correlation, and regression analysis.

Introduction to Geotechnical Engineering
CAE 322-01, Lecture/33699
Professor: Jeff Budiman
Day/Time: MW / 1:30 to 3:35 p.m.
Location: MC / AM 222
Dates: May 21 to June 30, 2018

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.

Fire Protection and Life Safety in Building Design
CAE 425-01, Lecture/31727
Professor: David DeBord
Day/Time: TR / 5:00 to 7:25 p.m.
Location: MC /
Dates: June 4 to July 28, 2018

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.

Fire Protection and Life Safety in Building Design
CAE 425-02, Lecture/33409
Professor: David DeBord
Day/Time: / 
Location: IN /
Dates: June 4 to July 28, 2018

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.

Steel Design
CAE 431-01, Lecture/34086
Professor: Gongkang Fu
Day/Time: T / 5:00 to 9:45 p.m.
Location: MC /
Dates: June 4 to July 28, 2018

Design of steel beams, plate girders, and beam columns. Bolted and welded connections. Design of typical frame systems.
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 4 to July 28, 2018

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

Design of Masonry and Timber Structures

**CAE 436-01, Lecture/30639**
Professor: Domingo Carreira
Day/Time: TR / 5:25 to 7:50 p.m.
Location: MC /
Dates: June 4 to July 28, 2018

Design of unreinforced and reinforced masonry structural elements and structures. Serviceability and ultimate capacity design. Seismic response, resistance, and design. Design of wood columns and bending members. Mechanical fasteners and connectors. Instructor’s consent may be granted to students who do not meet the prerequisite.

Construction Contract Administration

**CAE 473-02, Lecture/32106**
Professor: David Arditi
Day/Time: / 
Location: IN /
Dates: June 4 to July 28, 2018


Prestressed Concrete

**CAE 551-01, Lecture/32670**
Professor: Tongyan Pan
Day/Time: MWR / 6:25 to 8:00 p.m.
Location: MC /
Dates: June 4 to July 28, 2018

Theory and design of prestressed concrete members and structure. Applications to both simple and continuous girder and frames subjected to stationary or moving loads. Prestressed cylindrical shells.

Prestressed Concrete

**CAE 551-02, Lecture/32652**
Professor: Tongyan Pan
Day/Time: / 
Location: IN /
Dates: June 4 to July 28, 2018

Theory and design of prestressed concrete members and structure. Applications to both simple and continuous girder and frames subjected to stationary or moving loads. Prestressed cylindrical shells.

Engineering Behavior of Soil

**CAE 562-01, Lecture/34016**
Professor: Jeff Budiman
Day/Time: MTW / 9:00 to 11:50 a.m.
Location: MC /
Dates: May 21 to June 30, 2018

Soil mineralogy and soil fabric, soil-water electrolyte system, dispersive clay, stress and strain analyses, elastic equilibrium in soil masses, plastic equilibrium in soil masses, in situ and laboratory stress paths, shear strength of sands and clays, thermal properties of soils, critical state soil mechanics principles, nonlinear pseudo elastic and elastoplastic constitutive models.
Advanced Soil Mechanics Laboratory
CAE 563-01, Lecture/Lab/34017
Professor: Jeff Budiman
Day/Time: F / 9:00 a.m. to 5:20 p.m.
Location: MC /
Dates: May 21 to June 30, 2018

Advanced aspects of soil property measurement with application to design and analysis, system characteristics on soil sediment, pinhole test for identifying dispersive clays, consolidation, triaxial compression and triaxial extension with porewater measurement, cyclic triaxial test, permeability with back pressure, determination of critical void ratio.

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 / AM 218
Dates: June 4 to July 28, 2018

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.

Construction Claims Management
CAE 578-01, Lecture/30315
Professor: Raymond Lemming
Day/Time: TR / 5:30 p.m. to 7:55 p.m.
Location: MC /
Dates: June 4 to July 28, 2018

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: / 
Location: IN /
Dates: June 4 to July 28, 2018

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).

Engineering Graphics for Non-Engineers
EG 225-01, Lecture/Lab/32774
Professor: James Novak
Day/Time: MW / 8:45 to 11:10 a.m.
Location: MC / RE 029
Dates: June 4 to July 28, 2018

Designed for students in business, liberal arts and non-technical programs. Basic drafting techniques and applications, lettering, geometric constructions, charts and graphs, technical sketching, multiview projection, pictorial drawings, dimensioning, blueprint reading and working drawings. Introduction to computer graphics. Credit for this course is not applicable to an engineering degree.

Mechanical Design Graphics
EG 405-01, Lecture/Lab/32775
Professor: James Novak
Day/Time: TR / 8:45 to 11:10 a.m.
Location: MC / RE 029
Dates: June 4 to July 28, 2018

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.

Technical and Pictorial Illustration
EG 406-01, Lecture/Lab/32978
Professor: James Novak
Day/Time: / 
Location: MC /
Dates: June 4 to July 28, 2018


Computer Graphics in Engineering
EG 419-01, Lecture/Lab/31003
Professor: William Briggs
Day/Time: MW / 5:00 to 7:25 p.m.
Location: MC / RE 029
Dates: June 4 to July 28, 2018

Techniques of PC-based (AutoCAD) computer-aided drawing and design. Study of computer graphic hardware and software systems through demonstrations and use. Both 2D and 3D representation of components and assemblies from various engineering disciplines. Requires junior standing.
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 / RE 029  
Dates: June 4 to July 28, 2018

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.

Design of Environmental Engineering Processes

**ENVE 561-01, Lecture/33705**  
Professor: Junjie Zhu  
Day/Time: MR / 5:30 p.m. to 7:55 p.m.  
Location: MC / AM 222  
Dates: June 4 to July 28, 2018

Design of water and wastewater treatment systems. System economics and optimal design principles.

Material Energy Balances

**CHE 202-01, Lecture/33567**  
Professor: Satish Parulekar  
Day/Time: /  
Location: IN /  
Dates: June 4 to July 28, 2018

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

Fluid Mechanics

**CHE 301-01, Lecture/33723**  
Professor: Nader Aderangi  
Day/Time: MF / 10:00 a.m. to 12:25 p.m.  
Location: MC /  
Dates: June 4 to July 28, 2018

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

**CHE 301-02, Lecture/33724**  
Professor: Nader Aderangi  
Day/Time: /  
Location: IN /  
Dates: June 4 to July 28, 2018

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

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 4 to July 28, 2018

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

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 4 to July 28, 2018


**CHE 433-02, Lecture/31612**  
Professor: Donald Chmielewski  
Day/Time: /  
Location: IN /  
Dates: June 4 to July 28, 2018


Thermodynamics II

**CHE 451-01, Lecture/33696**  
Professor: Victor Perez-Luna  
Day/Time: TR / 12:10 to 2:35 p.m.  
Location: MC /  
Dates: June 4 to July 28, 2018

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

Computational Techniques in Engineering

**CHE 536-01, Lecture/34009**  
Professor: Dimitri Gidaspow  
Day/Time: MW / 12:00 to 3:10 p.m.  
Location: MC /  
Dates: May 21 to June 30, 2018

Computational Techniques in Engineering

**CHE 536-02, Lecture/34010**  
Professor: Dimitri Gidaspow  
Day/Time: /  
Location: IN  
Dates: May 21 to June 30, 2018


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 21 to June 30, 2018

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

**CHE 541-02, Lecture/33569**  
Professor: Jai Prakash  
Day/Time: /  
Location: IN  
Dates: May 21 to June 30, 2018

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

Circuit Analysis II

**ECE 213-01, Lecture/30339**  
Professor: Mohammad Hassan Modir Shanechi  
Day/Time: TR / 5:00 to 7:25 p.m.  
Location: MC  
Dates: June 4 to July 28, 2018

Sinusoidal excitation and phasors. AC steady-state circuit analysis using phasors. Complex frequency, network functions, pole-zero analysis, frequency response, and resonance. Two-port networks, transformers, mutual inductance, AC steady-state power, RMS values, introduction to three-phase systems and Fourier series. Design-oriented experiments include counters, finite state machines, sequential logic design, impedances in AC steady-state, resonant circuits, two-port networks, and filters. A final project incorporating concepts from analog and digital circuit design will be required. Prerequisites: ECE 211 with a grade C or better.

**ECE 213-L01, Lab/33373**

**ECE 216-01, Lecture/30341**

**Control Systems**

**ECE 438-02, Lecture/33662**

**Laboratory**

**ECE 213-L01, Lab/33373**  
Professor: Mohammad Hassan Modir Shanechi  
Day/Time: TR: 5:00 to 7:25 p.m.  
Location: MC / SH 311  
Dates: June 4 to July 28, 2018

Sinusoidal excitation and phasors. AC steady-state circuit analysis using phasors. Complex frequency, network functions, pole-zero analysis, frequency response, and resonance. Two-port networks, transformers, mutual inductance, AC steady-state power, RMS values, introduction to three-phase systems and Fourier series. Design-oriented experiments include counters, finite state machines, sequential logic design, impedances in AC steady-state, resonant circuits, two-port networks, and filters. A final project incorporating concepts from analog and digital circuit design will be required. Prerequisites: ECE 211 with a grade C or better.

**ECE 216-01, Lecture/30341**  
Professor: Mohammad Hassan Modir Shanechi  
Day/Time: TR / 5:00 to 7:25 p.m.  
Location: MC / SH 311  
Dates: June 4 to July 28, 2018

Sinusoidal excitation and phasors. AC steady-state circuit analysis using phasors. Complex frequency, network functions, pole-zero analysis, frequency response, and resonance. Two-port networks, transformers, mutual inductance, AC steady-state power, RMS values, introduction to three-phase systems and Fourier series. Design-oriented experiments include counters, finite state machines, sequential logic design, impedances in AC steady-state, resonant circuits, two-port networks, and filters. A final project incorporating concepts from analog and digital circuit design will be required. Prerequisites: ECE 211 with a grade C or better.

**ECE 208-01, Lecture/33967**  
Professor: Suresh Borkar  
Day/Time: TR / 1:50 to 4:15 p.m.  
Location: MC / SH 311  
Dates: June 4 to July 28, 2018

Time and frequency domain representation of continuous and discrete time signals. Introduction to sampling and sampling theorem. Time and frequency domain analysis of continuous and discrete linear systems. Fourier series convolution, transfer functions. Fourier transforms, Laplace transforms, and Z-transforms.

**ECE 438-02, Lecture/33662**

**Signals and Systems**

**ECE 308-01, Lecture/33967**  
Professor: Suresh Borkar  
Day/Time: TR / 1:50 to 4:15 p.m.  
Location: MC / SH 311  
Dates: June 4 to July 28, 2018

Time and frequency domain representation of continuous and discrete time signals. Introduction to sampling and sampling theorem. Time and frequency domain analysis of continuous and discrete linear systems. Fourier series convolution, transfer functions. Fourier transforms, Laplace transforms, and Z-transforms.

**ECE 438-02, Lecture/33662**  
Professor: Mohammad Hassan Modir Shanechi  
Day/Time: TR / 5:00 to 7:25 p.m.  
Location: MC / SH 311  
Dates: June 4 to July 28, 2018

Sinusoidal excitation and phasors. AC steady-state circuit analysis using phasors. Complex frequency, network functions, pole-zero analysis, frequency response, and resonance. Two-port networks, transformers, mutual inductance, AC steady-state power, RMS values, introduction to three-phase systems and Fourier series. Design-oriented experiments include counters, finite state machines, sequential logic design, impedances in AC steady-state, resonant circuits, two-port networks, and filters. A final project incorporating concepts from analog and digital circuit design will be required. Prerequisites: ECE 211 with a grade C or better.

Control Systems

ECE 438-03, Lecture/33663
Professor: Mohammad Hassan Modir Shanechi
Day/Time: / 
Location: II / 
Dates: June 4 to July 28, 2018


Computer Organization and Design

ECE 485-01, Lecture/31999
Professor: Suresh Borkar
Day/Time: TR / 5:00 to 7:25 p.m.
Location: MC / 
Dates: June 4 to July 28, 2018

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, multiprocessing, 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.

Analysis of Random Signals

ECE 511-02, Lecture/32127
Professor: Guillermo Atkin
Day/Time: / 
Location: IN / 
Dates: May 21 to June 30, 2018

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.

Analysis of Random Signals

ECE 511-03, Lecture/32128
Professor: Guillermo Atkin
Day/Time: / 
Location: II / 
Dates: May 21 to June 30, 2018

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.

Analysis of Random Signals

ECE 511-04, Lecture/32129
Professor: Guillermo Atkin
Day/Time: / 
Location: II / 
Dates: May 21 to June 30, 2018

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.

Digital System-on-Chip Design

ECE 742-01, Accelerated Course/33980
Professor: Jafar Saniie
Day/Time: F / 9:00 a.m. to 4:00 p.m.
Location: MC / 
Dates: May 25 to June 8, 2018

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.

Introduction to Mechanics

MMAE 200-01, Lecture/31074
Professor: John Cesarone
Day/Time: MW / 1:00 to 4:10 p.m.
Location: MC / 
Dates: May 21 to June 30, 2018


Introduction to Mechanics

MMAE 200-02, Lecture/33839
Professor: John Cesarone
Day/Time: / 
Location: IN / 
Dates: May 21 to June 30, 2018

Mechanics of Solids  
**MMAE 202-01, Lecture/30352**  
Professor: Bharat Thakkar  
Day/Time: TR / 2:30 to 5:40 p.m.  
Location: MC /  
Dates: May 21 to June 30, 2018  


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 21 to June 30, 2018  


Thermodynamics  
**MMAE 320-01, Lecture/30355**  
Professor: Francisco Ruiz  
Day/Time: MW / 9:30 a.m. to 12:40 p.m.  
Location: MC /  
Dates: May 21 to June 30, 2018  

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.

Computational Mechanics  
**MMAE 350-01, Lecture/33973**  
Professor: Ghazi Malkawi  
Day/Time: TR / 8:15 to 8:25 p.m.  
Location: MC /  
Dates: July 2 to August 11, 2018  

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 a MATH 350.

Introduction to Finite Element Analysis  
**MMAE 704-01, Accelerated Course/34045**  
Professor: Ghazi Malkawi  
Day/Time: S / 8:30 a.m. to 5:30 p.m.  
Location: MC /  
Dates: June 2 to June 16, 2018  

This course provides a comprehensive overview of the theory and practice of the finite element method by combining lectures with selected laboratory experiences . Lectures cover the fundamentals of linear finite element analysis, with special emphasis on problems in solid mechanics and heat transfer. Topics include the direct stiffness method, the Galerkin method, isoperimetric finite elements, equation solvers, bandwidth of linear algebraic equations and other computational issues. Lab sessions provide experience in solving practical engineering problems using commercial finite element software. Special emphasis is given to mesh design and results interpretation using commercially available pre- and post-processing software.

Risk Mgt-Patient Safety-DePaul  
**LAW 187-01, Lecture/33884**  
Professor: Law Faculty TBA  
Day/Time: /  
Location: DT / DC 100  
Dates: May 21 to July 18, 2018  

Evidence and Art of Advocacy  
**LAW 207-81, Lecture/33755**  
Professor: Charles Prochaska  
Day/Time: MW / 6:00 to 8:25 p.m.  
Location: DT / DC 100  
Dates: May 21 to July 18, 2018  

Evidence  
**LAW 273-81, Lecture/33830**  
Professor: Richard Kling  
Day/Time: TR / 6:00 to 8:25 p.m.  
Location: DT / DC 210  
Dates: May 21 to July 18, 2018  

A study of the rules of evidence and the reasons underlying those rules, with particular emphasis on the Federal Rules of Evidence. Among the topics included are: competency and examination of witnesses, including impeachment; relevancy ; the hearsay rule and its exceptions; privileges; writings; opinion, expertise, and experts; notice; scientific and demonstrative evidence; and other issues.
Remedies

**LAW 280-81, Lecture/33746**  
Professor: Steven Harris  
Day/Time: MW / 6:00 to 8:25 p.m.  
Location: DT / DC 270  
Dates: May 21 to July 18, 2018

The course addresses the forms of relief available through the judicial process. Among the topics covered are equitable remedies such as injunctions and specific performance; damages; restitution; remedies for injuries to tangible and intangible property, personal injuries, breach of contract, and invasions of civil rights.

Negotiations

**LAW 429-81, Lecture/33747**  
Professor: Evan Brown  
Day/Time: M / 6:00 to 9:25 p.m.  
Location: DT / DC C25  
Dates: May 21 to July 18, 2018

This course examines the negotiation process engaged in by lawyers. It is intended to increase a students’ understanding of that process and to develop skills as a negotiator. Experts in various fields discuss negotiations as they apply in those areas of the law. Students engage in mock negotiations in a variety of contexts, such as divorce, real estate, contracts, commercial law, labor law, and criminal law. Not all instructors cover each of these areas of substantive law and different instructors emphasize different areas of substantive law.

Academic Support Program TA

**LAW 450-01, Lecture/33889**  
Professor: Law Faculty TBA  
Day/Time: /  
Location: DT /  
Dates: May 21 to July 18, 2018

Family Law Clinic 2

**LAW 504-01, Clinical/33810**  
Professor: Rhonda DeFreitas  
Day/Time: MW / 3:00 to 5:00 p.m.  
Location: DT /  
Dates: May 21 to July 18, 2018

Students who intern in the Family Law Clinic work on cases dealing with legal separation, divorce, and child custody.

The In-House Programs of the Law Offices constitute one of the largest In-House clinical programs in the United States. In most of the programs, students are given the option of enrolling for three or four credits. Students who enroll for four credits put in a minimum of sixteen hours per week and students who enroll for three credits put in a minimum of twelve hours per week during the fourteen-week semester.

Each of the In-House clinical programs provides classroom as well as field-work instruction to the students enrolled in that program as part of their weekly hourly requirement.

Credit Hours: Three or four credit hours.

Entrepreneurial Law Clinic

**LAW 507-02, Clinical/33792**  
Professor: Heather Harper  
Day/Time: MW / 3:00 to 5:00 p.m.  
Location: DT / DC 660  
Dates: May 21 to July 18, 2018

Students who intern in the Entrepreneurial Law Clinic address issues that frequently arise for companies, including but not limited to choice of entity, entity formation, contract review and drafting, corporate governance issues, review of leases, researching legal issues as appropriate, trademark searches and filing, and other transactional matters.

The In-House Programs of the Law Offices constitute one of the largest In-House clinical programs in the United States. In most of the programs, students are given the option of enrolling for three or four credits. Students who enroll for four credits put in a minimum of sixteen hours per week and students who enroll for three credits put in a minimum of twelve hours per week during the fourteen-week semester.

Each of the In-House clinical programs provides classroom as well as field-work instruction to the students enrolled in that program as part of their weekly hourly requirement.

Credit Hours: Three or four credit hours.

Mediation and Other ADR Proc

**LAW 511-01, Clinical/33812**  
Professor: Pamela Kentra  
Day/Time: MW / 1:00 to 3:00 p.m.  
Location: DT / DC 545  
Dates: May 21 to July 18, 2018

Students who intern in the ADR Program engage in training and practice in mediation, arbitration and other ADR techniques. They become certified as mediators over the course of the semester. Typical cases include juvenile court cases, criminal misdemeanor cases, employment discrimination cases, landlord-tenant disputed, and small claims court disputed. They also assist the clinical professors in arbitrating cases and drafting arbitration opinions.
Mediation and Other ADR Proc

**LAW 511-02, Clinical/33813**
Professor: Pamela Kentra
Day/Time: MW / 1:00 to 3:00 p.m.
Location: DT / DC 545
Dates: May 21 to July 18, 2018

Students who intern in the ADR Program engage in training and practice in mediation, arbitration and other ADR techniques. They become certified as mediators over the course of the semester. Typical cases include juvenile court cases, criminal misdemeanor cases, employment discrimination cases, landlord-tenant disputed, and small claims court disputed. They also assist the clinical professors in arbitrating cases and drafting arbitration opinions.

Criminal Clinic 1

**LAW 512-01, Clinical/33761**
Professor: Law Faculty TBA
Day/Time: MW / 3:00 to 5:00 p.m.
Location: DT / DC 660
Dates: May 21 to July 18, 2018

Students who intern in the Criminal Defense Litigation Program work on criminal defense matters in the trial and appellate courts in both the federal and state legal systems. The program represents clients accused of felonies and misdemeanors of all types.

Entrepreneurial Law Clinic 2

**LAW 514-01, Clinical/33797**
Professor: Heather Harper
Day/Time: MW / 3:00 to 5:00 p.m.
Location: DT / DC 660
Dates: May 21 to July 18, 2018

Entrepreneurial Law Clinic 2

**LAW 514-02, Clinical/33802**
Professor: Heather Harper
Day/Time: MW / 3:00 to 5:00 p.m.
Location: DT / DC 660
Dates: May 21 to July 18, 2018

Tax Clinic - 1

**LAW 515-01, Clinical/33818**
Professor: Jonathan Decatorsmith
Day/Time: MW / 3:00 to 5:00 p.m.
Location: DT /
Dates: May 21 to July 18, 2018

Students who intern in the Tax Litigation Program assist taxpayers with their tax disputed, including collection matters, audits, appeals and litigation before the Internal Revenue Service, United States Tax Court and the United States District Court.

Tax Clinic - 1

**LAW 515-02, Clinical/33819**
Professor: Jonathan Decatorsmith
Day/Time: MW / 3:00 to 5:00 p.m.
Location: DT /
Dates: May 21 to July 18, 2018

Students who intern in the Tax Litigation Program assist taxpayers with their tax disputed, including collection matters, audits, appeals and litigation before the Internal Revenue Service, United States Tax Court and the United States District Court.

Environmental and Energy Law Clinic

**LAW 521-02, Lecture/33753**
Professor: Keith Harley
Day/Time: W / 11:00 a.m. to 2:00 p.m.
Location: DT / DC 355
Dates: May 21 to July 18, 2018

The Environmental Law Clinic will help students develop their lawyering skills by giving them the opportunity to represent individuals and community organizations with environmental concerns. Students will interview clients, represent clients in meetings with corporations and government officials, and represent clients in court. Cases range from assisting an individual who discovers she has lead paint in her home to helping communities with problems arising from active facilities, abandoned sites, and proposed facilities. The class sessions will provide an opportunity to observe and practice lawyering skills, develop an understanding of the key substantive environmental law areas involved in the clinic’s work, and discuss ongoing cases. Students are required to perform 10 hours a week of fieldwork for the 3-credit version of the clinic, and 12 hours a week of fieldwork for the 4-credit version, in addition to the classroom component. Students are required to perform 5 hours a week of fieldwork for the 1-credit version. The clinic is open to 8 students each semester. If a selection process is necessary, you will be notified regarding the interview process after you register for the class. There are no course prerequisites for this clinic. Students must have completed 30 credit hours to take the Clinic. One, three, or four credit hours.

Environmental and Energy Law Clinic

**LAW 521-03, Lecture/33754**
Professor: Keith Harley
Day/Time: W / 11:00 a.m. to 2:00 p.m.
Location: DT / DC 355
Dates: May 21 to July 18, 2018

The Environmental Law Clinic will help students develop their lawyering skills by giving them the opportunity to represent individuals and community organizations with environmental concerns. Students will interview clients, represent clients in meetings with corporations and government officials, and represent clients in court. Cases range from assisting an individual who discovers she has lead paint in her home to helping communities with problems arising from active facilities, abandoned sites, and proposed facilities. The class sessions will provide an opportunity to observe and practice lawyering skills, develop an understanding of the key substantive environmental law areas involved in the clinic’s work, and discuss ongoing cases. Students are required to perform 10 hours a week of fieldwork for the 3-credit version of the clinic, and 12 hours a week of fieldwork for the 4-credit version, in addition to the classroom component. Students are required to perform 5 hours a week of fieldwork for the 1-credit version. The clinic is open to 8 students each semester. If a selection process is necessary, you will be notified regarding the interview process after you register for the class. There are no course prerequisites for this clinic. Students must have completed 30 credit hours to take the Clinic. One, three, or four credit hours.
Family Law Clinic 1

**LAW 523-01, Clinical/33808**
Professor: Rhonda DeFreitas
Day/Time: MW / 3:00 to 5:00 p.m.
Location: DT / DC 355
Dates: May 21 to July 18, 2018

Students who intern in the Family Law Clinic work on cases dealing with legal separation, divorce, and child custody.

The In-House Programs of the Law Offices constitute one of the largest In-House clinical programs in the United States. In most of the programs, students are given the option of enrolling for three or four credits. Students who enroll for four credits put in a minimum of sixteen hours per week and students who enroll for three credits put in a minimum of twelve hours per week during the fourteen-week semester.

Each of the In-House clinical programs provides classroom as well as field-work instruction to the students enrolled in that program as part of their weekly hourly requirement.

Credit Hours: Three or four credit hours.

Family Law Clinic 1

**LAW 523-02, Clinical/33809**
Professor: Rhonda DeFreitas
Day/Time: MW / 3:00 to 5:00 p.m.
Location: DT / DC 355
Dates: May 21 to July 18, 2018

Students who intern in the Family Law Clinic work on cases dealing with legal separation, divorce, and child custody.

The In-House Programs of the Law Offices constitute one of the largest In-House clinical programs in the United States. In most of the programs, students are given the option of enrolling for three or four credits. Students who enroll for four credits put in a minimum of sixteen hours per week and students who enroll for three credits put in a minimum of twelve hours per week during the fourteen-week semester.

Each of the In-House clinical programs provides classroom as well as field-work instruction to the students enrolled in that program as part of their weekly hourly requirement.

Credit Hours: Three or four credit hours.

Civil Litigation Clinic 1

**LAW 530-02, Clinical/33752**
Professor: Laurie Kessler
Day/Time: MW / 3:00 to 5:00 p.m.
Location: DT / DC 355
Dates: May 21 to July 18, 2018

Civil Litigation Clinic 2

**LAW 531-01, Clinical/33759**
Professor: Laurie Kessler
Day/Time: MW / 3:00 to 5:00 p.m.
Location: DT / DC 355
Dates: May 21 to July 18, 2018

Civil Litigation Clinic 2

**LAW 531-02, Clinical/33760**
Professor: Laurie Kessler
Day/Time: MW / 3:00 to 5:00 p.m.
Location: DT / DC 355
Dates: May 21 to July 18, 2018

Criminal Clinic 2

**LAW 532-01, Clinical/33776**
Professor: Law Faculty TBA
Day/Time: MW / 3:00 to 5:00 p.m.
Location: DT / DC 355
Dates: May 21 to July 18, 2018

Tax Clinic - 2

**LAW 535-01, Clinical/33820**
Professor: Jonathan Decatorsmith
Day/Time: MW / 3:00 to 5:00 p.m.
Location: DT / DC 355
Dates: May 21 to July 18, 2018

Students who intern in the Tax and Probate Clinic participate in one of the country’s leading tax clinics, aggressively representing clients in a wide variety of disputes with the Internal Revenue Service. A full-service federal tax controversy and transactions practice, the Tax and Probate Clinic primarily serves middle-income individuals and small business taxpayers in connection with IRS audits, administrative appeals, asset seizures and other debt enforcement actions, and trials before the United States Tax Court and the United States District Court.

Under the supervision of an experienced federal tax litigator, students receive hands-on practice negotiating settlements with revenue agents, appeals officers, and attorneys for the IRS; drafting petitions, discovery, motions and legal memoranda in connection with pending Tax Court trials; interviewing clients and securing information from third parties in order to defend a taxpayer’s return position; preparing offers in compromise to reduce a taxpayer’s outstanding debt; and taking an assortment of intervention measures to minimize or avoid immediate hardship resulting from IRS collection actions. Students also assist the supervising attorney and his staff with providing tax and business counseling services to sole proprietorships, corporations, partnerships and tax-exempt organizations.

Beginning with the Spring 2014 semester, students will also have the opportunity to assist the supervising Professor and staff attorney with drafting wills, living trusts, durable health care and financial powers of attorney, advising clients on property disposition and asset protection strategies, representing and counseling personal representatives in all facets of probate administration; defending interests of heirs and beneficiaries in connection with trust and estate disputes; and preparing all required decedent and estate income tax, trust and estate tax returns.

The In-House Programs of the Law Offices constitute one of the largest In-House clinical programs in the United States. In most of the programs, students are given the option of enrolling for three or four credits. Students who enroll for four credits put in a minimum of sixteen hours per week and students who enroll for three credits put in a minimum of twelve hours per week during the fourteen-week semester.

Each of the In-House clinical programs provides classroom as well as field-work instruction to the students enrolled in that program as part of their weekly hourly requirement.

Credit Hours: Three or four credit hours.
Tax Clinic - 2
LAW 535-02, Clinical/33821
Professor: Jonathan Decatorsmith
Day/Time: MW / 3:00 to 5:00 p.m.
Location: DT /
Dates: May 21 to July 18, 2018

Students who intern in the Tax and Probate Clinic participate in one of the country’s leading tax clinics, aggressively representing clients in a wide variety of disputes with the Internal Revenue Service. A full-service federal tax controversy and transactions practice, the Tax and Probate Clinic primarily serves middle-income individuals and small business taxpayers in connection with IRS audits, administrative appeals, asset seizures and other debt enforcement actions, and trials before the United States Tax Court and the United States District Court.

Under the supervision of an experienced federal tax litigator, students receive hands-on practice negotiating settlements with revenue agents, appeals officers, and attorneys for the IRS; drafting petitions, discovery, motions and legal memoranda in connection with pending Tax Court trials; interviewing clients and securing information from third parties in order to defend a taxpayer’s return position; preparing offers in compromise to reduce a taxpayer’s outstanding debt; and taking an assortment of intervention measures to minimize or avoid immediate hardship resulting from IRS collection actions. Students also assist the supervising attorney and his staff with providing tax and business counseling services to sole proprietorships, corporations, partnerships and tax-exempt organizations.

Beginning with the Spring 2014 semester, students will also have the opportunity to assist the supervising Professor and staff attorney with drafting wills, living trusts, durable health care and financial powers of attorney, advising clients on property disposition and asset protection strategies, representing and counseling personal representatives in all facets of probate administration; defending interests of heirs and beneficiaries in connection with trust and estate disputes; and preparing all required decedent and estate income tax, trust and estate tax returns.

The In-House Programs of the Law Offices constitute one of the largest In-House clinical programs in the United States. In most of the programs, students are given the option of enrolling for three or four credits. Students who enroll for four credits put in a minimum of sixteen hours per week and students who enroll for three credits put in a minimum of twelve hours per week during the fourteen-week semester.

Each of the In-House clinical programs provides classroom as well as field-work instruction to the students enrolled in that program as part of their weekly hourly requirement.

Credit Hours: Three or four credit hours.

Advanced Clinic
LAW 545-01, Clinical/33826
Professor: Richard Gonzalez
Day/Time: /
Location: DT /
Dates: May 21 to July 18, 2018

Advanced Clinic
LAW 545-02, Clinical/33827
Professor: Richard Gonzalez
Day/Time: /
Location: DT /
Dates: May 21 to July 18, 2018

Vaccine Injury Lit. Clinic 1
LAW 546-01, Clinical/33822
Professor: Edward Kraus
Day/Time: MW / 3:00 to 5:00 p.m.
Location: DT /
Dates: May 21 to July 18, 2018

Vaccine Injury Lit. Clinic 2
LAW 549-01, Clinical/33824
Professor: Edward Kraus
Day/Time: MW / 3:00 to 5:00 p.m.
Location: DT /
Dates: May 21 to July 18, 2018

Vaccine Injury Lit. Clinic 2
LAW 549-02, Clinical/33825
Professor: Edward Kraus
Day/Time: MW / 3:00 to 5:00 p.m.
Location: DT /
Dates: May 21 to July 18, 2018

Trial Advocacy 2
LAW 555-81, Lecture/33756
Professor: Erik Wilson
Day/Time: TR / 6:00 to 8:25 p.m.
Location: DT / DC 100
Dates: May 21 to July 18, 2018

An introduction to litigation taught by leading trial attorneys and judges. The course uses hypothetical cases to teach the student trial preparation, strategy, and conduct in a courtroom setting. Although the instructor will demonstrate from time to time, primary teaching method is student participation with instructor critique. Classes often run longer than three hours.

Kent Legal Scholar Research
LAW 564-01, Lecture/33916
Professor: Law Faculty TBA
Day/Time: /
Location: DT /
Dates: May 21 to July 18, 2018
The course will provide the student with an understanding of basic structural behavior. It will teach students about forces, vectors, equilibrium, statics, free body diagrams, material properties, stress, strain and deformation. It will look at the concepts of loads takedown and tributary area. Part of that discussion will be the concept of diaphragms (flexible vs. rigid) as a way of distributing horizontal loads to the lateral resisting systems.

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 21 to June 30, 2018

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.

Furniture Design/Build
ARCH 448-01, Lecture/Lab/33708
Professor: Frank Flury
Day/Time: / 
Location: IL / 
Dates: May 21 to August 11, 2018

This 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 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.

Alternative Chairs
ARCH 449-01, Lecture/34070
Professor: John Kriegshauser
Day/Time: TR / 1:20 to 3:45 p.m.
Location: MC / MM MEZZANINE
Dates: June 4 to July 28, 2018

This course will be about the design of chairs, or more broadly body support devices, and the focus will be on ergonomics, structure, materials, and manufacturing issues. If a house can be considered a “machine for living”, this will be about machines for the support of the body. The course will conclude with each student building a prototype chair of his or her own design.
Topics in Modernism: Advanced History Elective  
**ARCH 456-01, Lecture/33652**  
Professor: Colleen Humer  
Day/Time: /  
Location: IL /  
Dates: May 21 to June 30, 2018

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.

Drawing From Travel  
**ARCH 468-01, Lab/30288**  
Professor: Martin Majkrak  
Day/Time: /  
Location: IL /  
Dates: May 21 to June 30, 2018

A drawing 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. Requisite: European Study Program or Paris Program

Special Projects: Reflective Recordings  
**ARCH 497-01, Lecture/31205**  
Professor: Catherine Wetzel  
Day/Time: /  
Location: IL /  
Dates: June 4 to July 28, 2018

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

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 21 to June 30, 2018

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 21 to August 11, 2018

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

Special Projects: Urbanism Elective  
**ARCH 497-04, Lecture/32739**  
Professor: Martin Klaeschen  
Day/Time: /  
Location: IL /  
Dates: June 4 to July 28, 2018

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

Special Projects: Assembly and Construction  
**ARCH 497-06, Lecture/33722**  
Professor: Lap Chi Kwong  
Day/Time: /  
Location: IL /  
Dates: June 4 to July 28, 2018

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

Special Projects: Chile Workshop  
**ARCH 497-07, Lecture/33862**  
Professor: Susan Conger-Austin  
Day/Time: /  
Location: IL /  
Dates: July 2 to August 11, 2018

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: Grocery Futures  
**ARCH 497-08, Studio/33872**  
Professor: Joseph Altshuler  
Day/Time: MW / 9:00 a.m. to 2:45 p.m.  
Location: MC /  
Dates: June 4 to July 28, 2018

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/33964**
Professor: Maria Clarke
Day/Time: / 
Location: IL / 
Dates: May 21 to June 30, 2018

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 Advanced Technology
**ARCH 509-03, Lecture/33965**
Professor: Catherine Wetzel
Day/Time: / 
Location: IL / 
Dates: June 4 to July 28, 2018

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.

Thesis Preparation Seminar
**ARCH 588-01, Seminar/33741**
Professor: Vedran Mimica
Day/Time: TR / 9:50 a.m. to 1:00 p.m.
Location: MC / CR UC1
Dates: May 21 to June 30, 2018

The Master of Science in Architecture program positions its investigations in the liminal space between emerging forms of urbanization and existing concepts of architecture, landscape, and cities. Our goal is to develop new and better models for shaping socially, culturally, and ecologically sustainable environments. Thesis preparation seminars are conducted on thesis development with a thesis statement outlining an area of study or a problem that has consequences for contemporary architectural production at-large. Thesis development is parallel and complementary with the research-based design cloud studio ARCH 545 with Master of Science students focusing on the social and cultural aspect of research-based design developments. The seminar will focus on developing a bibliography, case studies of referential projects and built structures, and advanced research methods specifically tailored to the research interests of each student. Regular oral presentations will focus on development of thesis content, the use of media and rhetoric, and the didactic nature of disciplinary architectural communication. Open only to Architecture majors.
Introduction to Differential Equations

**MATH 252-01, Lecture/30227**
Professor: Kiah Ong
Day/Time: MWR / 12:50 to 2:55 p.m.
Location: MC /
Dates: June 4 to July 28, 2018


Matrix Algebra and Complex Variables

**MATH 333-01, Lecture/32282**
Professor: Arthur Lubin
Day/Time: MW / 12:50 to 3:15 p.m.
Location: MC /
Dates: June 4 to July 28, 2018

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.

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 4 to July 28, 2018

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.

**MATH 474-02, Lecture/33912**
Professor: Arthur Lubin
Day/Time: / 
Location: II / 
Dates: June 4 to July 28, 2018

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.

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 21 to June 30, 2018

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.

Biochemistry

**BIOL 403-01, Lecture/34020**
Professor: Andrew Howard
Day/Time: TR / 8:35 a.m. to 12:45 p.m.
Location: MC /
Dates: May 21 to June 30, 2018

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.

Laboratory Rotation

**BIOL 520-106, Lab/31036**
Professor: Tanya Bekyarova
Day/Time: / 
Location: MC /
Dates: June 4 to July 28, 2018

Independent study in the research laboratory of a faculty member.

**BIOL 520-120, Lab/31037**
Professor: Thomas Irving
Day/Time: / 
Location: MC /
Dates: June 4 to July 28, 2018

Independent study in the research laboratory of a faculty member.

**BIOL 520-139, Lab/30021**
Professor: Jialing Xiang
Day/Time: / 
Location: MC /
Dates: June 4 to July 28, 2018

Independent study in the research laboratory of a faculty member.

**BIOL 520-157, Lab/32487**
Professor: Andrew Howard
Day/Time: / 
Location: MC /
Dates: June 4 to July 28, 2018

Independent study in the research laboratory of a faculty member.
Laboratory Rotation

BIOL 520-161, Lab/32488
Professor: Nicholas Menhart
Day/Time: /
Location: MC /
Dates: June 4 to July 28, 2018

Independent study in the research laboratory of a faculty member.

Laboratory Rotation

BIOL 520-167, Lab/32365
Professor: Hyun-Soon Chong
Day/Time: /
Location: MC /
Dates: June 4 to July 28, 2018

Independent study in the research laboratory of a faculty member.

Laboratory Rotation

BIOL 520-188, Lab/31233
Professor: Mitchell Dushay
Day/Time: /
Location: MC /
Dates: June 4 to July 28, 2018

Independent study in the research laboratory of a faculty member.

Laboratory Rotation

BIOL 520-191, Lab/33553
Professor: Oscar Juarez
Day/Time: /
Location: MC /
Dates: June 4 to July 28, 2018

Independent study in the research laboratory of a faculty member.

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 4 to July 28, 2018

An introduction to the foundations of chemistry, including: atoms and molecules; stoichiometry of chemical reactions; thermochemistry; 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 4 to July 28, 2018

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 4 to July 28, 2018

Same as CHEM 125 except without the laboratory.

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 4 to July 28, 2018

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 4 to July 28, 2018

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: Katherine Leight
Day/Time: TR / 9:00 to 11:25 a.m.
Location: MC /
Dates: June 4 to July 28, 2018

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.

Introduction to Research

**CHEM 450-105, Lab/32904**
Professor: James Kaduk
Day/Time: / 
Location: MC /
Dates: June 4 to July 28, 2018

Required for chemistry majors. Designed to give research experience in a faculty research laboratory.

**CHEM 450-147, Lab/32772**
Professor: David Minh
Day/Time: / 
Location: MC /
Dates: June 4 to July 28, 2018

Required for chemistry majors. Designed to give research experience in a faculty research laboratory.

**CHEM 450-162, Lab/32776**
Professor: Rong Wang
Day/Time: / 
Location: MC /
Dates: June 4 to July 28, 2018

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 4 to July 28, 2018

Required for chemistry majors. Designed to give research experience in a faculty research laboratory.

Analytical Chemistry in Pharmaceutical Laboratories

**CHEM 543-01, Lecture/33962**
Professor: Kim Huynh-Ba
Day/Time: / 
Location: IN /
Dates: June 4 to July 28, 2018

This course is designed to compliment the current curriculum of the professional master degree in analytical chemistry. It is a review of the requirements a student may face as a professional chemist in a regulated industry. The course focus is on the requirements and common topics facing today’s pharmaceutical industry. While individual agencies have specific regulations, the fundamental ideas of these regulations are largely consistent across the board. For example, an analytical chemist versed in Good Laboratory Practices (GLP) under FDA can quickly pick up the GLP’s required by EPA.

Practical Laboratory for Analytical Chemistry

**CHEM 700-01, Accelerated Course/33963**
Professor: Lee Polite
Day/Time: MTWRF / 
Location: MC /
Dates: June 11 to 15, 2018

In this one-week intensive course, students will gain hand 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.

Laboratory

**CS 105-L01, Lab/31608**
Professor: Jon Hanrath
Day/Time: TR / 11:00 a.m. to 12:05 p.m.
Location: MC / SB 112E
Dates: May 21 to June 30, 2018

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).
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 21 to June 30, 2018
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 I
CS 115-02, Lecture/Lab/34071
Professor: John Korah
Day/Time: MW / 5:00 to 8:10 p.m.
Location: MC / SB 112E
Dates: July 2 to August 11, 2018
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 115-L01, Lab/33079
Professor: Jon Hanrath
Day/Time: TR / 3:10 to 4:15 p.m.
Location: MC / SB 112E
Dates: May 21 to June 30, 2018
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).

Data Structures and Algorithms
CS 331-01, Lecture/32269
Professor: Michael Saelee
Day/Time: MW / 1:00 to 4:10 p.m.
Location: MC / 
Dates: May 21 to June 30, 2018
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.

Data Structures and Algorithms
CS 331-02, Lecture/Lab/33261
Professor: Michael Saelee
Day/Time: / 
Location: IN / 
Dates: May 21 to June 30, 2018
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 331-L01, Lab/33082
Professor: Michael Saelee
Day/Time: / 
Location: IN / 
Dates: May 21 to June 30, 2018
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.

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 21 to June 30, 2018
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.

Systems Programming
CS 351-01, Lecture/30168
Professor: Michael Saelee
Day/Time: MW / 8:30 to 11:40 a.m.
Location: MC / 
Dates: May 21 to June 30, 2018
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 351-L01, Lab/33085
Professor: Michael Saelee
Day/Time: MW / 11:50 a.m. to 12:55 p.m.
Location: MC / SB 
Dates: May 21 to June 30, 2018
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.
Introduction to Advanced Studies I

CS 401-01, Lecture/32270
Professor: Michael Saelee
Day/Time: MW / 1:00 to 4:10 p.m.
Location: MC /
Dates: May 21 to June 30, 2018

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.

CS 401-02, Lecture/Lab/33244
Professor: Michael Saelee
Day/Time: / 
Location: IN /
Dates: May 21 to June 30, 2018

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 401-L01, Lab/33086
Professor: Michael Saelee
Day/Time: MW / 4:20 to 5:25 p.m.
Location: MC /
Dates: May 21 to June 30, 2018

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.

CS 402-01, Lecture/33087
Professor: Michael Choi
Day/Time: MW / 5:00 to 8:10 p.m.
Location: MC /
Dates: May 21 to June 30, 2018

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.

Introduction to Advanced Studies II

Database Organization

CS 425-01, Lecture/33974
Professor: Yousef Elmehdwi
Day/Time: TR / 8:50 a.m. to 12:00 p.m.
Location: MC /
Dates: July 2 to August 11, 2018

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.

CS 425-03, Lecture/33976
Professor: Yousef Elmehdwi
Day/Time: / 
Location: II /
Dates: July 2 to August 11, 2018

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.

Introduction to Algorithms

CS 430-01, Lecture/Lab/33603
Professor: Matthew Bauer
Day/Time: MW / 8:50 a.m. to 12:00 p.m.
Location: MC /
Dates: May 21 to June 30, 2018

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.
Object Oriented Design and Programming

**CS 445-01, Lecture/33090**
Professor: Omar Aldawud
Day/Time: TR / 4:00 to 7:10 p.m.
Location: MC /
Dates: May 21 to June 30, 2018

Introduction to methodologies for object-oriented design and programming. Examines the object model and how it is realized in various object-oriented languages. Focuses on methods for developing and implementing object-oriented systems.

Object Oriented Design and Programming

**CS 445-02, Lecture/33091**
Professor: Omar Aldawud
Day/Time: / 
Location: IN /
Dates: May 21 to June 30, 2018

Introduction to methodologies for object-oriented design and programming. Examines the object model and how it is realized in various object-oriented languages. Focuses on methods for developing and implementing object-oriented systems.

Operating Systems

**CS 450-01, Lecture/33977**
Professor: Yousef Elmehdwi
Day/Time: TR / 1:00 to 4:10 p.m.
Location: MC /
Dates: July 2 to August 11, 2018

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.

Operating Systems

**CS 450-02, Lecture/33978**
Professor: Yousef Elmehdwi
Day/Time: / 
Location: IN /
Dates: July 2 to August 11, 2018

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.

Operating Systems

**CS 450-03, Lecture/33979**
Professor: Yousef Elmehdwi
Day/Time: / 
Location: II /
Dates: July 2 to August 11, 2018

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.

Data Communications

**CS 455-01, Lecture/31091**
Professor: Edward Chlebus
Day/Time: MW / 8:50 a.m. to 12:00 p.m.
Location: MC /
Dates: May 21 to June 30, 2018

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.

Software Engineering I

**CS 487-02, Lecture/30198**
Professor: Omar Aldawud
Day/Time: / 
Location: IN /
Dates: May 21 to June 30, 2018

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.

Software Engineering I

**CS 487-03, Lecture/30648**
Professor: Omar Aldawud
Day/Time: / 
Location: II /
Dates: May 21 to June 30, 2018

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.

Object-Oriented Analysis and Design

**CS 521-01, Lecture/32272**
Professor: Atef Bader
Day/Time: TR / 6:00 to 9:10 p.m.
Location: MC /
Dates: May 21 to June 30, 2018

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, multiple-product, risk and rule analysis, and automatic code generation. (Credit will not be given for CS 521 if CS751 is taken)
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, multiple-product, risk and rule analysis, and automatic code generation. (Credit will not be given for CS 521 if CS751 is taken)

Advanced Database Organization
CS 525-01, Lecture/33093
Professor: Yousef Elmehdwi
Day/Time: TR / 6:00 to 9:10 p.m.
Location: MC /
Dates: July 2 to August 11, 2018

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 specialist, and the designers and developers of client/server and distributed systems. Focus is on transaction management, database structures and distributed processing.

Advanced Database Organization
CS 525-02, Lecture/33094
Professor: Yousef Elmehdwi
Day/Time: / 
Location: IN / 
Dates: July 2 to August 11, 2018

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 specialist, and the designers and developers of client/server and distributed systems. Focus is on transaction management, database structures and distributed processing.

Advanced Database Organization
CS 525-03, Lecture/33095
Professor: Yousef Elmehdwi
Day/Time: / 
Location: II / 
Dates: July 2 to August 11, 2018

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 specialist, 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 12:00 p.m.
Location: MC / 
Dates: May 21 to June 30, 2018

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.

High-Speed Networks
CS 548-01, Lecture/33609
Professor: Michael Choi
Day/Time: TR / 6:00 to 9:10 p.m.
Location: MC / 
Dates: May 21 to June 30, 2018

The course studies the architectures, interfaces, protocols, technologies, products and services for broadband (high-speed) multimedia networks. The key principles of the protocols and technologies used for representative network elements and types of broadband network are studied. Specifically, cable modems, Digital Subscriber Lines, Power Lines, wireless 802.16 (WiMax), and broadband cellular Internet are covered for broadband access; for broadband Local Area Networks (LANs), Gigabit Ethernet, Virtual LANs and wireless LANs (802.11 WiFi and Bluetooth) are discussed; for broadband Wide Area Networks (WANs) the topics covered include optical networks (SONET/SDH,DWDM, optical network nodes, optical network nodes, optical switching technologies), frame-relay, ATM, wire-speed routers, IP switching, and MPLS. Also, quality of service issues in broadband networks and a view of the convergence of technologies in broadband networks are covered.

High-Speed Networks
CS 548-02, Lecture/33610
Professor: Michael Choi
Day/Time: / 
Location: IN / 
Dates: May 21 to June 30, 2018

The course studies the architectures, interfaces, protocols, technologies, products and services for broadband (high-speed) multimedia networks. The key principles of the protocols and technologies used for representative network elements and types of broadband network are studied. Specifically, cable modems, Digital Subscriber Lines, Power Lines, wireless 802.16 (WiMax), and broadband cellular Internet are covered for broadband access; for broadband Local Area Networks (LANs), Gigabit Ethernet, Virtual LANs and wireless LANs (802.11 WiFi and Bluetooth) are discussed; for broadband Wide Area Networks (WANs) the topics covered include optical networks (SONET/SDH,DWDM, optical network nodes, optical network nodes, optical switching technologies), frame-relay, ATM, wire-speed routers, IP switching, and MPLS. Also, quality of service issues in broadband networks and a view of the convergence of technologies in broadband networks are covered.
High-Speed Networks

CS 548-03, Lecture/33611
Professor: Michael Choi
Day/Time: / 
Location: II / 
Dates: May 21 to June 30, 2018

The course studies the architectures, interfaces, protocols, technologies, products and services for broadband (high-speed) multimedia networks. The key principles of the protocols and technologies used for representative network elements and types of broadband network are studied. Specifically, cable modems, Digital Subscriber Lines, Power Lines, wireless 802.16 (WiMax), and broadband cellular Internet are covered for broadband access; for broadband Local Area Networks (LANs), Gigabit Ethernet, Virtual LANs and wireless LANs (802.11 WiFi and Bluetooth) are discussed; for broadband Wide Area Networks (WANs) the topics covered include optical networks (SONET/SDH, DWDM, optical network nodes, optical network nodes, optical switching technologies), frame-relay, ATM, wire-speed routers, IP switching, and MPLS. Also, quality of service issues in broadband networks and a view of the convergence of technologies in broadband networks are covered.

Software Project Management

CS 587-02, Lecture/30213
Professor: Atef Bader
Day/Time: / 
Location: IN / 
Dates: July 2 to August 11, 2018

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.

Software Project Management

CS 587-03, Lecture/30676
Professor: Atef Bader
Day/Time: / 
Location: II / 
Dates: July 2 to August 11, 2018

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.

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 21 to August 11, 2018

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.

Undergraduate Summer Research Experience: Elements of drug design against pathogenic bacteria

SCI 498-100, Independent Study/Research/34097
Professor: Oscar Juarez
Day/Time: / 
Location: MC / 
Dates: June 4 to July 28, 2018

In this course, students will be introduced to the main concepts of drug development, in particular the design of drugs against human pathogenic bacteria. Students will perform microbiological experiments manipulating bacteria, biochemical analysis of molecular targets, and molecular structure analysis to identify possible inhibition sites. Students will be working on research topics under the supervision of faculty in the summer on a specific topic. Students will be expected to work for 32 hours per week for a minimum of 8 weeks. Permission of the instructor is required.

Undergraduate Summer Research Experience: Modeling interactions between proteins and small organic

SCI 498-200, Independent Study/Research/34099
Professor: David Minh
Day/Time: / 
Location: MC / 
Dates: June 4 to July 28, 2018

Interactions between small organic molecules and proteins are critical to physiology and pharmacy. Students will use computers to predict where and how these molecules bind to proteins. The calculations may be used to gain physiological insight or to identify potential drug leads. They also may be used to improve computational methods. Students will be working on research topics under the supervision of faculty in the summer on a specific topic. Students will be expected to work for 32 hours per week for a minimum of 8 weeks. Permission of the instructor is required.

Undergraduate Summer Research Experience: Big Data Computing

SCI 498-300, Independent Study/Research/34101
Professor: Ioan Raicu
Day/Time: / 
Location: MC / 
Dates: June 4 to July 28, 2018

This summer program will focus on undergraduate research in the practice of big data computing at extreme scales, aiming to promote a data-centric view of scientific and technical computing. Students will conduct research in the Data-Intensive Distributed Systems Laboratory (DataSys: http://datasys.cs.iit.edu) over an eight-week period in the area of big data and how it will impact the design, analysis, and implementation of run-time systems and storage systems to support big data applications. Students will be exposed to big data applications, large data sets, and various distributed systems such as the Mystic reconfigurable testbed at Illinois Tech, Chameleon cloud and Theta supercomputer at Argonne National Laboratory, XSEDE national cyberinfrastructure, and Amazon Web Services cloud. The proposed work will place students in the middle of a technological revolution that will transform the computing domain in the coming decade. Students will be working on research topics under the supervision of faculty in the summer on a specific topic. Students will be expected to work for 32 hours per week for a minimum of 8 weeks. Permission of the instructor is required.
**Undergraduate Summer Research Experience: Algorithms for Network Design and Games**

**SCI 498-301, Independent Study/Research/34102**
Professor: Sanjiv Kapoor  
Day/Time: /  
Location: MC /  
Dates: June 4 to July 28, 2018

In this project, we will consider multi-path routing schemes for networks. Based on theoretical developments, algorithms will be developed to implement multi-path protocols in networks, both for wide-area broadband networks and as interprocess networks defining the communication infrastructure of high performance computers. We will also consider game theoretic aspects of network routing. Students will be working on research topics under the supervision of faculty in the summer on a specific topic. Students will be expected to work for 32 hours per week for a minimum of 8 weeks. Permission of the instructor is required.

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**Undergraduate Summer Research Experience: Reliable Mathematical Software**

**SCI 498-400, Independent Study/Research/34104**
Professor: Sou-Cheng Choi  
Day/Time: /  
Location: MC /  
Dates: June 4 to July 28, 2018

Many mathematical or statistical problems cannot be solved analytically or by hand in a reasonable amount of time, in which case we turn to mathematical software to solve these problems. Popular examples of general-purpose mathematical software include Mathematica, MATLAB, the NAG Library, and R. Researchers often find themselves writing mathematical software to demonstrate their new ideas, or using mathematical software written by others to solve their applications. This course covers the ingredients that go into producing mathematical software that is efficient, robust, and trustworthy. Students will write their own packages or parts of packages to practice the principles of reliable mathematical software. Students will be working on research topics under the supervision of faculty in the summer on a specific topic. Students will be expected to work for 32 hours per week for a minimum of 8 weeks. Permission of the instructor is required.

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**Undergraduate Summer Research Experience: Introduction to Random Sequence Comparisons**

**SCI 498-401, Independent Study/Research/34105**
Professor: Ruoting Gong  
Day/Time: /  
Location: MC /  
Dates: June 4 to July 28, 2018

Random sequence comparisons have been extensively used in various fields, such as speech recognition and digital communication, and more recently, in biological sequence analysis. For instance, random sequence alignments under various models have been applied to gene prediction, pairwise and multiple sequence alignments, base calling, modeling RNA sequencing errors, protein secondary structure prediction, ncRNA identification, RNA structural alignments, and many others. The asymptotic theory for sequence alignments provides critical theoretical supports for statistical inference for such models. The purpose of the section is to provide a general introduction to the area of random sequence comparisons, and to carry out elementary simulations for some conjectures in the asymptotic theory. Students will be working on research topics under the supervision of faculty in the summer on a specific topic. Students will be expected to work for 32 hours per week for a minimum of 8 weeks. Permission of the instructor is required.

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**Undergraduate Summer Research Experience: Exploring Graph Theory and Networks**

**SCI 498-402, Independent Study/Research/34106**
Professor: Michael Pelsmajer  
Day/Time: /  
Location: MC /  
Dates: June 4 to July 28, 2018

Graphs are the basic mathematical structure used to model social, communication, and transportation networks, arrangements that avoid conflicts, and a host of other problems. Students in this section will explore graph and network properties through experiments and mathematical arguments. There will be an opportunity to apply methods to real-world data and also to work on unsolved math problems. Students will be working on research topics under the supervision of faculty in the summer on a specific topic. Students will be expected to work for 32 hours per week for a minimum of 8 weeks. Permission of the instructor is required.

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**SCI 498-403, Independent Study/Research/34107**
Professor: Hemanshu Kaul  
Day/Time: /  
Location: MC /  
Dates: June 4 to July 28, 2018

Students will be working on research topics under the supervision of faculty in the summer on a specific topic. Students will be expected to work for 32 hours per week for a minimum of 8 weeks. Permission of the instructor is required.

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**SCI 498-500, Independent Study/Research/34109**
Professor: Carlo Segre  
Day/Time: /  
Location: MC /  
Dates: June 4 to July 28, 2018

The need for better batteries to be used in electronic devices, electric vehicles, and storage of renewable energy is well established. In this course, students will learn the basic electrochemical principles and phenomena of batteries and current state-of-the-art battery technologies, and they will get hands-on experience in synthesis and testing of novel battery cathodes and anodes. Students will be working on research topics under the supervision of faculty in the summer on a specific topic. Students will be expected to work for 32 hours per week for a minimum of 8 weeks. Permission of the instructor is required.

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**SCI 498-501, Independent Study/Research/34110**
Professor: Daniel Kaplan  
Day/Time: /  
Location: MC /  
Dates: June 4 to July 28, 2018

Students will be working on research topics under the supervision of faculty in the summer on a specific topic. Students will be expected to work for 32 hours per week for a minimum of 8 weeks. Permission of the instructor is required.

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**SCI 498-502, Independent Study/Research/34111**
Professor: Derrick Mancini  
Day/Time: /  
Location: MC /  
Dates: June 4 to July 28, 2018

Students will be working on research topics under the supervision of faculty in the summer on a specific topic. Students will be expected to work for 32 hours per week for a minimum of 8 weeks. Permission of the instructor is required.
Undergraduate Summer Research Experience: Self-Assembling Langmuir Monolayers at the Air-Water Interface

**SCI 498-503, Independent Study/Research/34112**
Professor: David Gidalevitz
Day/Time: / 
Location: MC / 
Dates: June 4 to July 28, 2018

Biological membranes are complex structures composed of different phospholipids, cholesterol, and proteins. Generally, they can be modeled with monolayers of phospholipids at the air-water interface. The structure of such monolayers could be modified depending of the representative membrane. In this project, students will learn to prepare Langmuir monolayers and use Langmuir trough and epifluorescence to study the structure-function relationships in thin films.

Students will be working on research topics under the supervision of faculty in the summer on a specific topic. Students will be expected to work for 32 hours per week for a minimum of 8 weeks. Permission of the instructor is required.

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Undergraduate Summer Research Experience: Experimental Neutrino Physics: From Nuclear Reactors to Particle Accelerators

**SCI 498-505, Independent Study/Research/34114**
Professor: Bryce Littlejohn
Day/Time: / 
Location: MC / 
Dates: June 4 to July 28, 2018

In recent decades, neutrinos have played an increasingly important role in the pursuit of a complete understanding of the Standard Model of Particle Physics — the theory that describes the behavior of all known matter in the universe. Neutrinos, the ghostly, chargeless and nearly massless cousins of electrons, are the least well understood of all Standard Model particles; as a result, scientists have much fundamental knowledge to gain by studying them. The Littlejohn-White Experimental Neutrino Group at Illinois Tech dedicates its research to developing and building neutrino detectors and using those detectors to learn about neutrinos and the sources that produce them, from nuclear reactors to particle accelerators. In this class, you will have an opportunity to learn about and discuss neutrino physics and the Standard Model of Particle Physics with classmates, experienced undergraduate group members, grad students, and Littlejohn, while also engaging in hardware, software, and/or data analysis tasks needed for advancing the Littlejohn-White group’s efforts on a variety of neutrino physics experimental efforts.

Students will be working on research topics under the supervision of faculty in the summer on a specific topic. Students will be expected to work for 32 hours per week for a minimum of 8 weeks. Permission of the instructor is required.

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Project Management

**SCI 511-01, Lecture/32632**
Professor: Kelly Cherwin
Day/Time: / 
Location: IN / 
Dates: June 4 to July 28, 2018

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.

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Public Engagement for Scientists

**SCI 522-01, Lecture/32469**
Professor: James Maciukenas
Day/Time: / 
Location: IN / 
Dates: May 21 to June 30, 2018

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.

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Teacher Education/Professional Development in Science

**MSED 530-100, Lecture/31382**
Professor: Norman Lederman
Day/Time: TR / 3:20 to 6:30 p.m.
Location: MC / TS 4036
Dates: May 21 to June 30, 2018

A course that stresses the empirical research on best practices in teacher education and professional development in science.

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Informal Education Practicum

**MSED 540-100, Lecture/31385**
Professor: Judith Lederman
Day/Time: T / 1:00 to 3:05 p.m.
Location: MC / TS 4016
Dates: May 21 to June 30, 2018

Placement in an informal educational setting such as museums and outdoor education. The focus of this course is on the use of informal setting to supplement classroom instruction.

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Leadership

**MSED 597-100, Lecture/31396**
Professor: Norman Lederman
Day/Time: R / 5:00 to 11:15 p.m.
Location: MC / TS 4032
Dates: May 21 to June 30, 2018

Current problems in science/mathematics education. May be repeated for credit with different topics.

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General Physics I: Mechanics

**PHYS 123-01, Lecture/33968**
Professor: David Gidalevitz
Day/Time: MW / 1:10 to 3:35 p.m.
Location: MC / 
Dates: June 4 to July 28, 2018

Laboratory
PHYS 123-L01, Lab/33969
Professor: David Gidalevitz
Day/Time: MW / 5:30 to 6:45 p.m.
Location: MC /
Dates: June 4 to July 28, 2018


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 4 to July 28, 2018


Laboratory
PHYS 221-L01, Lab/33346
Professor: Yurii Shylnov
Day/Time: MW / 7:00 to 8:15 p.m.
Location: MC / PS 265
Dates: June 4 to July 28, 2018


General Physics III for Engineers
PHYS 224-01, Lecture/30003
Professor: Yurii Shylnov
Day/Time: TR / 1:10 to 3:35 p.m.
Location: MC /
Dates: June 4 to July 28, 2018


Instrumentation for Health Physics
PHYS 550-01, Lecture/Lab/33911
Professor: Steven Butala
Day/Time: F / 8:00 a.m. to 12:00 p.m.
Location: MC /
Dates: June 4 to July 28, 2018

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 4 to July 28, 2018

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 4 to July 28, 2018

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: /
Location: MC /
Dates: June 4 to July 28, 2018

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.
Operational Health Physics
PHYS 577-02, Lecture/33972
Professor: Gary Zeman
Day/Time: /
Location: IN /
Dates: June 4 to July 28, 2018

Covers the basic principles for establishing and maintaining an effective institutional radiation safety program including the following: facility design criteria; organizational management issues; training; internal and external radiation control; radioactive waste disposal; environmental monitoring; radiation safety instrumentation; ALARA program; and emergency response planning. The course will also cover facility licensing/registration with state and federal agencies and legal issues such as institutional and individual liability, fines, violations, and worker rights and responsibilities.

GRADUATE INTERDISCIPLINARY

Global IP Management
IPMM 505-01, Lecture/33896
Professor: Mickie Piatt
Day/Time: /
Location: DT /
Dates: May 21 to July 18, 2018

This is a broad course covering the critical areas of IP portfolio management in a variety of business settings. The course focuses on the role of innovation and intellectual property within the global operation of companies and addresses strategies for global IP coverage, including decisions on when, where and how to seek IP protection on a cost-effective basis. This course will also teach principles of IT portfolio management that affect the operations, planning, knowledge management, and new product/process development of businesses trading internationally. Various scenarios and cases will be discussed, such as technological discontinuities, mergers, divestitures, regulations, rationalization of corporate assets, and reorganizations.

Maximizing IP Value
IPMM 506-01, Lecture/33897
Professor: Mickie Piatt
Day/Time: /
Location: DT /
Dates: May 21 to July 18, 2018

This is an examination of the methods used to value IP in various settings: IP owned by a business; IP which is the target of acquisition; and IP which has been asserted against a business by a third party IP owner. All of the methods examined will be anchored in a review of applicable regulations and accounting principles. Other topics covered are: securitization and/or monetization of IP with particular focus on IP holding companies and their benefits, liabilities, and challenges; issues of taxation with particular focus on tax efficient means of optimizing IP value; and deployment of and defense against the adversarial assertion of IP by non-practicing entities (also known as “patent trolls”).

LEWIS COLLEGE OF HUMAN SCIENCES

Structure of Modern English
COM 308-01, Lecture/34072
Professor:
Day/Time: /
Location: IL /
Dates: July 2 to August 18, 2018

This course examines the structure of the English language from four different approaches: traditional-prescriptive, descriptive, generative, and contextual.

Intercultural Communication
COM 435-01, Lecture/33948
Professor: Gregory Pulliam
Day/Time: TR / 2:00 to 4:25 p.m.
Location: MC /
Dates: June 4 to July 28, 2018

An introduction to the problems of communication across cultures, with emphasis on the interplay of American civilization with those of other cultural areas.

Topics in Communication: Intercultural Communication
COM 580-01, Lecture/33949
Professor: Gregory Pulliam
Day/Time: TR / 2:00 to 4:25 p.m.
Location: MC /
Dates: June 4 to July 28, 2018

An investigation into a topic of current interest in communication, which will be announced by the instructor when the course is scheduled.

Topics in History: Middle Earth III: The Hobbit and Other Writings
HIST 380-01, Lecture/33950
Professor: Keith Green
Day/Time: MW / 12:30 to 3:40 p.m.
Location: MC /
Dates: May 21 to June 30, 2018

An investigation into a topic of current or enduring interest in history, which will be announced by the instructor when the course is scheduled.

Topics in Humanities: Gender and Media
HUM 200-01, Lecture/32636
Professor: Michael Deanda
Day/Time: MWF / 1:00 to 3:05 p.m.
Location: MC /
Dates: July 2 to August 11, 2018

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.
Aesthetics

PHIL 363-01, Lecture/31314
Professor: John Snapper
Day/Time: MW / 2:00 to 4:25 p.m.
Location: MC /
Dates: June 4 to July 28, 2018

The philosophy of the fine arts, including an analysis of the concepts of beauty, representation, expression and the purpose of art.

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 4 to July 28, 2018

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.

Assessment in Rehabilitation and Mental Health Counseling

PSYC 513-01, Lecture/34064
Professor: Nicole Ditchman
Day/Time: S / 9:00 a.m. to 1:45 p.m.
Location: MC /
Dates: June 4 to July 28, 2018

An overview of test selection, administration, and interpretation through synthesis, integration, and evaluation of assessment data used in rehabilitation and mental health counseling. Includes historical perspectives in assessment, statistical concepts, an orientation to standardized and non-standardized tests, and the process and practice of assessing adults with disabling conditions for rehabilitation plan development and vocational decision-making.

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 4 to July 28, 2018

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.

Industrial Psychology Internship I

PSYC 558-01, Internship/30279
Professor: Roya Ayman
Day/Time: / 
Location: MC /
Dates: June 4 to July 28, 2018

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

Industrial Psychology Internship II

PSYC 559-01, Internship/30280
Professor: Roya Ayman
Day/Time: / 
Location: MC /
Dates: June 4 to July 28, 2018

Supervised experience in psychological practices in an industrial setting. (credit: Variable)

Rehabilitation and Mental Health Counseling Internship I

PSYC 578-01, Internship/32402
Professor: Jonathan Larson
Day/Time: M / 1:50 to 3:20 p.m.
Location: MC /
Dates: June 4 to July 28, 2018

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).

Rehabilitation and Mental Health Counseling Internship II

PSYC 579-01, Internship/33657
Professor: Jonathan Larson
Day/Time: M / 1:50 to 3:20 p.m.
Location: MC /
Dates: June 4 to July 28, 2018

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).

Psychiatric Rehabilitation

PSYC 590-01, Lecture/33878
Professor: Jonathan Larson
Day/Time: / 
Location: MC /
Dates: June 4 to July 28, 2018

Class covers a wide range of topics including a review of the disease and disability models of mental illness, skills training components in treatment, incentive strategies for participants, transfer of learned skills to other situations, and cognitive rehabilitation strategies.

Clinical Internship

PSYC 599-01, Internship/32113
Professor: Joyce Hopkins
Day/Time: / 
Location: MC /
Dates: June 4 to July 28, 2018

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.
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 2 to August 11, 2018

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.

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 21 to June 30, 2018

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).

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 2 to August 11, 2018

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 21 to June 30, 2018

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.

Supply Chain Management

**INT 841-01, Lecture/34083**
Professor: Kerry Fechner  
Day/Time: W / 6:00 to 9:10 p.m.  
Location: MC / TS 4000  
Dates: May 21 to August 11, 2018

This course covers the full range of activities involved in the supply chain. This includes management tools for optimizing of supply chains, relationships with other parts of the organization, in-house versus third party approaches, and suitable performance measurements. Topics covered include: Warehouse Management Systems (WMS), Transportation Management Systems (TMS), Advanced Planning and Scheduling Systems (APS), as well as cost benefit analysis to determine the most appropriate approach.

A+ Certification Training

**IT 801-01, Lecture/Lab/33677**
Professor: Vasilios Pappademetroi  
Day/Time: W / 5:30 to 8:40 p.m.  
Location: MC / TS 2033  
Dates: June 4 to July 28, 2018

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.
A+ Certification Training

**IT 801-01, Lecture/Lab/33677**
Professor: Vasilios Pappademetriou
Day/Time: / Location: MC / Dates: June 4 to July 28, 2018

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.

Introduction to Programming with Java

**IT 811-01, Lecture/Lab/33678**
Professor: Sheikh Shamsuddin
Day/Time: MW / 5:00 to 8:10 p.m. Location: RI / RC 155 Dates: June 4 to July 28, 2018

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

**IT-D 813-01, Lecture/33680**
Professor: James Papademas
Day/Time: MW / 6:25 to 8:50 p.m. Location: MC / Dates: June 4 to July 28, 2018

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.

Topics in Data Science and Management

**IT-D 825-01, Lecture/34115**
Professor: Aastha Gupta
Day/Time: / Location: IN / Dates: July 2 to August 11, 2018

This course will cover a particular topic in databases, data science, data management, or data analytics, varying from semester to semester, in which there is particular student or staff interest. Prerequisite: consent of instructor.

Network+ Certification Training I

**IT-O 840-01, Lecture/33684**
Professor: Louis McHugh
Day/Time: MW / 6:25 to 8:50 p.m. Location: MC / Dates: June 4 to July 28, 2018

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.

Introduction to Cyber Warfare

**IT-S 857-01, Lecture/34036**
Professor: Louis McHugh
Day/Time: TR / 6:25 to 8:50 p.m. Location: MC / Dates: June 4 to July 28, 2018

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.

Open Source Programming

**IT-D 813-02, Lecture/33681**
Professor: James Papademas
Day/Time: / Location: IN / Dates: June 4 to July 28, 2018

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.

Cyber Security Management

**IT-S 878-01, Lecture/33686**
Professor: Raymond Trygstad
Day/Time: TR / 10:00 a.m. to 12:25 p.m. Location: MC / Dates: June 4 to July 28, 2018

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

**IT-S 878-02, Lecture/33687**
Professor: Raymond Trygstad  
Day/Time: /  
Location: IN /  
Dates: June 4 to July 28, 2018

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.

Governance, Risk, and Compliance

**IT-S 884-01, Lecture/34037**
Professor: Bonnie Goins  
Day/Time: /  
Location: IN /  
Dates: June 4 to July 28, 2018

This course is an in-depth examination of topics in information technology/information security governance, risk, and compliance including information assurance policies, standards, and compliance as well as the examination of security risk analysis and the performance of systems certification and accreditation.

IEP Listening and Speaking Level I

**IEP 021-01, Lecture/Lab/34047**
Professor:  
Day/Time: TR / 1:50 to 4:30 p.m.  
Location: MC /  
Dates: May 21 to August 11, 2018

IEP Listening and Speaking Level I (IEP 021) focuses on students acquiring the basic skills necessary to function in social and academic situations. Essential listening and speaking skills are introduced at this level which serves as a foundation for future more academic material at the higher levels. Students will be required to complete several listening logs in order to practice their ability to understand real-life listening situations. The goal of this course is to build a foundation of academic and conversational listening and speaking skills. Students will be required to apply a variety of Academic Word List vocabulary, sentence structures and colloquial phrases in real life situational conversations, small group discussions, and short presentations. Students will also practice extensive listening and analysis of academic lectures and conversations. Placement in this course is based on placement exam results and/or the successful completion of the prerequisite course.

IEP Listening and Speaking Level II

**IEP 022-01, Lecture/Lab/34048**
Professor:  
Day/Time: WF / 10:00 a.m. to 12:40 p.m.  
Location: MC /  
Dates: May 21 to August 11, 2018

IEP Listening and Speaking Level II (IEP 022) builds on students’ basic skills in conversation and presentation by expanding application of Academic Word List vocabulary and focusing on communicating in the classroom (with professors, students and friends). The goal of this course is to give the students the pragmatic tools needed to be successful in an American classroom situation. Students will practice a wide variety of role plays including one-on-one dialogues with professors, small groups, large groups and longer presentations with visual aids and notecards. Listening skills will be developed thorough analysis and discussion of authentic recordings of academic lectures and conversations. Placement in this course is based on placement exam results and/or the successful completion of the prerequisite course.

IEP Listening and Speaking Level III

**IEP 023-01, Lecture/Lab/33572**
Professor:  
Day/Time: TR / 1:50 to 4:30 p.m.  
Location: MC /  
Dates: May 21 to August 11, 2018

IEP Listening and Speaking Level III (IEP 023) develops more advanced listening and note taking skills in the students as well as more complex oral skills in presentation, interviewing, and meetings. The goal of the course is to prepare the students to enter into the academic environment of a US university. Special attention will be paid to presentation skills, agenda-driven group meetings and longer, interview-type conversations. Advanced note taking and analysis will drive the listening curriculum of lectures and discussions. Placement in this course is based on placement exam results and/or the successful completion of the prerequisite course.

IEP Listening and Speaking Level IV

**IEP 024-01, Lecture/Lab/34049**
Professor:  
Day/Time: TR / 1:50 to 4:30 p.m.  
Location: MC /  
Dates: May 21 to August 11, 2018

IEP Listening and Speaking Level IV (IEP 024) develops more finely-tuned language skills of the advanced student. The goal of the course is to develop the listening and speaking skills of the student with specific attention to understanding and communicating statistical data, results, trends, techniques, methods and differences of opinion. Students will not only listen to academic lectures in order to test note-taking and technical understanding but will also be asked to deliver longer and more detailed numerically-driven presentations. Placement in this course is based on placement exam results and/or the successful completion of the prerequisite course.

IEP Advanced Pronunciation

**IEP 028-01, Lecture/34051**
Professor:  
Day/Time: F / 1:50 to 4:30 p.m.  
Location: MC /  
Dates: May 21 to August 11, 2018

IEP Advanced Pronunciation is designed for the IEP program. This course 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 the prerequisite course.
IEP Reading and Writing Level I

IEP 041-01, Lecture/Lab/34052
Professor:
Day/Time: WF / 10:00 a.m. to 12:40 p.m.
Location: MC /
Dates: May 21 to August 11, 2018

IEP Reading and Writing Level I (IEP 041) focuses on the basics of reading and writing in English. The necessary reading skills of identifying main ideas and supporting details along with strategies for guessing meaning from context are introduced. The writing component focuses on correct sentence and paragraph structure. The combined reading and writing project provides students an opportunity to answer questions based on extensive reading. Placement in this course is based on placement exam results and/or the successful completion of the prerequisite course.

IEP Grammar Level II

IEP 062-01, Lecture/34056
Professor:
Day/Time: TR / 10:00 to 11:15 a.m.
Location: MC /
Dates: May 21 to August 11, 2018

IEP Grammar Level II (IEP 062) focuses on the grammatical structures that students will encounter while studying English. This level builds upon the topics covered in Level I. Students will learn the present perfect tense, uses of selected modals, adjective and adverb clauses, adverbs and adverb clauses, prepositional phrases, real conditionals and comparative and superlative forms. Students will also have online assignments and two grammar projects during the course. Placement in this course is based on placement exam results and/or the successful completion of the prerequisite course.

IEP Reading and Writing Level II

IEP 042-01, Lecture/Lab/34053
Professor:
Day/Time: TR / 1:50 to 4:30 p.m.
Location: MC /
Dates: May 21 to August 11, 2018

IEP Reading and Writing Level II (IEP 042) expands on the reading and writing skills introduced in Level I. In addition to continuing the development of reading skills, students will make inferences and predictions, classify information and identify a sequence of events from readings. The writing component focuses on more advanced sentence structure and expands from paragraph to essay. The combined reading and writing project will provide an opportunity to write recommendation letters for graded readers. Placement in this course is based on placement exam results and/or the successful completion of the prerequisite course.

IEP Grammar Level III

IEP 063-01, Lecture/33728
Professor:
Day/Time: TR / 11:25 a.m. to 12:40 p.m.
Location: MC /
Dates: May 21 to August 11, 2018

IEP Grammar Level III (IEP 063) focuses on developing intermediate grammar skills in order to communicate accurately in written and spoken English. Level III is a continuation of level II and builds on already acquired skills. Students will learn present perfect and past perfect tenses, past tense modals, passive voice, real and unreal conditionals, nouns, pronoun reference, articles (advanced), and gerunds and infinitives. Students will also have online assignments and two grammar projects during the course. Placement in this course is based on placement exam results and/or the successful completion of the prerequisite course.

IEP Reading and Writing Level III

IEP 043-01, Lecture/Lab/33727
Professor:
Day/Time: WF / 10:00 a.m. to 12:40 p.m.
Location: MC /
Dates: May 21 to August 11, 2018

IEP Reading and Writing Level III (IEP 043) expands on the core reading and writing concepts developed in Level II. Additionally students will identify the writer's perspective and distinguish fact from opinion in readings. The writing component focuses on persuasive and response essays incorporating outside material. In the combined reading and writing project, students respond to an article/news/visual prompt. Placement in this course is based on placement exam results and/or the successful completion of the prerequisite course.

IEP Grammar Level IV

IEP 064-01, Lecture/34057
Professor:
Day/Time: TR / 10:00 to 11:15 a.m.
Location: MC /
Dates: May 21 to August 11, 2018

IEP Grammar Level IV (IEP 064) focuses on effective use of advanced grammar in writing and speaking. Level IV expands on already acquired skills. Students will learn to express complex relationships. The grammar points presented in academic contexts and students practice writing for effective and correct language use, as well as practice controlling language accuracy in speaking. In addition to textbook activities, students will also complete a written and oral portfolio project. Placement in this course is based on placement exam results and/or the successful completion of the prerequisite course.

U. S. Culture for IEP

IEP 073-01, Lecture/34058
Professor:
Day/Time: F / 1:50 to 4:30 p.m.
Location: MC /
Dates: May 21 to August 11, 2018

U. S. Culture for IEP is designed to expose students to many of the issues, history, and community elements that are unique to the way of life in the United States. Topics such as traditional values, language, immigration, and the development of music will be used to increase students’ comfort with and understanding of life in the United States. Students will also be able to reflect on cultural differences between the U. S. and their country of origin. The course will give students a chance to explore Chicago and learn about the diversity present in the city. Field trips will complement the classroom topics. Placement in this course is based on placement exam results and/or the successful completion of the prerequisite course.
TOEFL Preparation for IEP

IEP 075-01, Lecture/34059
Professor:
Day/Time: M / 10:00 a.m. to 12:40 p.m.
Location: MC /
Dates: May 21 to August 11, 2018

TOEFL Preparation for IEP is designed for students in the IEP program. The course familiarizes students with the TOEFL iBT test structure and introduces different types of tasks and questions that appear on the test. Students will have an opportunity to work on their reading, listening, speaking, writing, and vocabulary skills necessary to receive a high score on the test. Students will also be working with practice tests in order to improve their ability to produce quality responses to different types of test tasks under timed conditions. In-class work will be accompanied by homework assignments and a vocabulary project with quizzes. In order to take this course, students must have been assessed and placed into the equivalent of level III or IV of the IEP.

GRE Preparation for IEP

IEP 077-01, Lecture/34060
Professor:
Day/Time: F / 1:50 to 4:30 p.m.
Location: MC /
Dates: May 21 to August 11, 2018

GRE Preparation for IEP is designed for students in the IEP program. The course familiarizes students with the GRE test structure, content, scoring, and test taking strategies. Students are introduced to the two types of written tasks present on the test, and the kinds of questions they are expected to answer on the verbal reasoning part of the test. Students will also have an opportunity to practice taking the written and verbal reasoning sections of the test under timed conditions. Additionally, the course will introduce mathematical terms that students must be familiar with in order to deal with the quantitative reasoning section of the test. Students will also increase their academic vocabulary by completing a vocabulary project. In-class work will be accompanied by homework assignments. In order to take this course, students must have been assessed and placed into the equivalent of level III or IV of the IEP.

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 4 to July 28, 2018

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 Biotechnology

FDSN 504-01, Lecture/34066
Professor:
Day/Time: MW / 10:00 a.m. to 12:25 p.m.
Location: MC /
Dates: June 4 to July 28, 2018

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 analysis, gene production, genomic map construction, and structural and functional prediction of proteins. Applications of DNA fingerprinting techniques in food safety and public health.

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 4 to July 28, 2018

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.

Contract Administration for Construction Projects

INTM 413-02, Lecture/32221
Professor: David Arditi
Day/Time: / 
Location: IN /
Dates: June 4 to July 28, 2018

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.

Industrial Risk Management

INTM 418-02, Lecture/34079
Professor: Andrew Kumiega
Day/Time: / 
Location: IN /
Dates: May 21 to August 11, 2018

Each year, industrial companies are affected by critical incidents which cause disruption in operations and significant monetary losses due to repairs and/or lost revenue. Whether it is a small fire, an extended electrical outage or an incident of a more serious magnitude, all company stakeholders - from the board of directors to the employees to the customers - are impacted. The key to understanding the complexities of industrial resiliency lies in focusing on the issues of preparedness: prevention, mitigation, and control. This course is designed to prepare the student for managing a critical incident, including understanding risk and business impact, emergency preparedness, contingency planning and damage control.
This course covers the full range of activities involved in the supply chain. This includes management tools for optimizing of supply chains, relationships with other parts of the organization, in-house versus third party approaches, and suitable performance measurements. Topics covered include Warehouse Management Systems (WMS), Transportation Management Systems (TMS), Advanced Planning and Scheduling Systems (APS), as well as cost benefit analysis to determine the most appropriate approach.

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Students 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.

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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 4 to July 28, 2018

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.

Open Source Programming

**ITMD 413-02, Lecture/33632**
Professor: James Papademas  
Day/Time: /  
Location: IN /  
Dates: June 4 to July 28, 2018

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.

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 4 to July 28, 2018

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 Application Development: Behavioral Design

**ITMD 469-01, Lecture/33983**
Professor: Daniel Krieglstein  
Day/Time: TW / 6:00 to 9:10 p.m.  
Location: MC /  
Dates: May 21 to June 30, 2018

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.

Topics in Application Development: Behavioral Design

**ITMD 469-02, Lecture/33984**
Professor: Daniel Krieglstein  
Day/Time: /  
Location: IN /  
Dates: May 21 to June 30, 2018

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.

Topics in Application Development: Data APIs

**ITMD 469-04, Lecture/33985**
Professor: Karl Stolley  
Day/Time: /  
Location: IN /  
Dates: May 21 to June 30, 2018

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.

Open Source Programming

**ITMD 513-01, Lecture/33637**
Professor: James Papademas  
Day/Time: MW / 6:25 to 8:50 p.m.  
Location: MC /  
Dates: June 4 to July 28, 2018

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.

Open Source Programming

**ITMD 513-03, Lecture/33901**
Professor: James Papademas  
Day/Time: /  
Location: II /  
Dates: June 4 to July 28, 2018

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.
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 4 to July 28, 2018

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: /  
Location: IN /  
Dates: June 4 to July 28, 2018

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: /  
Location: II /  
Dates: June 4 to July 28, 2018

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 Data Science and Management: Recommender Systems

**ITMD 525-02, Lecture/33990**
Professor: Yong Zheng  
Day/Time: /  
Location: IN /  
Dates: July 2 to August 11, 2018

This course will cover a particular topic in databases, data science, data management, or data analytics, varying from semester to semester, in which there is particular student or staff interest.

Topics in Data Science and Management: Topic: Distributed Non-Relational Databases

**ITMD 525-04, Lecture/33992**
Professor: Aastha Gupta  
Day/Time: WF / 9:00 a.m. to 12:10 p.m.  
Location: MC /  
Dates: July 2 to August 11, 2018

This course will cover a particular topic in databases, data science, data management, or data analytics, varying from semester to semester, in which there is particular student or staff interest.

Topics in Data Science and Management: Recommender Systems

**ITMD 525-07, Lecture/34062**
Professor: Seth Kinnett  
Day/Time: MW / 5:30 p.m. to 7:55 p.m.  
Location: MC /  
Dates: June 4 to July 28, 2018

This course will cover a particular topic in databases, data science, data management, or data analytics, varying from semester to semester, in which there is particular student or staff interest.

Topics in Data Science and Management: Customer Relationship Management (CRM)

**ITMD 525-08, Lecture/34063**
Professor: Seth Kinnett  
Day/Time: /  
Location: IN /  
Dates: June 4 to July 28, 2018

This course will cover a particular topic in databases, data science, data management, or data analytics, varying from semester to semester, in which there is particular student or staff interest.
Intelligent Device Projects

ITMD 556-01, Lecture/Lab/33995
Professor: Jeremy Hajek
Day/Time: MW / 9:00 a.m. to 12:10 p.m.
Location: MC /
Dates: June 4 to July 28, 2018

Students create projects that exercise and expand their understanding of intelligent device application development. Instructional materials and lectures are provided as needed to support projects. Scope and deliverables will be determined through joint decision of the instructor and students. Students will describe requirements, create test plans as needed, demonstrate the application when applicable, create a written description of the work, and may deliver a formal presentation to an audience appropriate to the scope and scale of the work completed. This course may be taken more than once but only 6 hours of ITMD 556 credit may be applied to a degree.

Topics in Application Development: Behavioral Design

ITMD 569-01, Lecture/33996
Professor: Daniel Krieglstein
Day/Time: TW / 6:00 to 9:10 p.m.
Location: MC /
Dates: May 21 to June 30, 2018

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 Application Development: Behavioral Design

ITMD 569-03, Lecture/33998
Professor: Daniel Krieglstein
Day/Time: / 
Location: II /
Dates: May 21 to June 30, 2018

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 Application Development: Data APIs

ITMD 569-04, Lecture/33999
Professor: Karl Stolley
Day/Time: / 
Location: IN /
Dates: May 21 to June 30, 2018

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.

Project Management for Information Technology Management

ITMM 571-01, Lecture/34087
Professor: Brian Vanderjack
Day/Time: TR / 5:50 to 9:05 p.m.
Location: MC /
Dates: May 21 to June 30, 2018

Basic principles of project management are taught. Includes software development concepts of requirements analysis, object modeling and design and software testing. Management of application development and major Web development projects will also be addressed.

Introduction to Data Networks and the Internet

ITMO 540-01, Lecture/33641
Professor: Louis McHugh
Day/Time: MW / 6:25 to 8:50 p.m.
Location: MC /
Dates: June 4 to July 28, 2018

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 440-01, Lecture/33642
Professor: Louis McHugh
Day/Time: MW / 6:25 to 8:50 p.m.
Location: IN /
Dates: June 4 to July 28, 2018

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 540-02, Lecture/33643
Professor: Louis McHugh
Day/Time: MW / 6:25 to 8:50 p.m.
Location: MC /
Dates: June 4 to July 28, 2018

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 540-02, Lecture/33644**  
Professor: Louis McHugh  
Day/Time: /  
Location: IN /  
Dates: June 4 to July 28, 2018

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.

### Cyber Security Management

**ITMS 478-01, Lecture/33646**  
Professor: Raymond Trygstad  
Day/Time: TR / 10:00 a.m. to 12:25 p.m.  
Location: MC /  
Dates: June 4 to July 28, 2018

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.

### 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 4 to July 28, 2018

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

**ITMS 557-02, Lecture/34061**  
Professor: Louis McHugh  
Day/Time: /  
Location: IN /  
Dates: June 4 to July 28, 2018

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

**ITMS 578-02, Lecture/33650**  
Professor: Raymond Trygstad  
Day/Time: /  
Location: IN /  
Dates: June 4 to July 28, 2018

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: /  
Location: II /  
Dates: June 4 to July 28, 2018

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.

### Governance, Risk, and Compliance

**ITMS 584-01, Lecture/34004**  
Professor: Bonnie Goins  
Day/Time: /  
Location: IN /  
Dates: June 4 to July 28, 2018

This course is an in-depth examination of topics in information technology/information security governance, risk, and compliance including information assurance policies, standards, and compliance as well as the examination of security risk analysis and the performance of systems certification and accreditation.
Governance, Risk, and Compliance

**ITMS 584-02, Lecture/34005**
Professor: Bonnie Goins
Day/Time: / 
Location: II / 
Dates: June 4 to July 28, 2018

This course is an in-depth examination of topics in information technology/information security governance, risk, and compliance including information assurance policies, standards, and compliance as well as the examination of security risk analysis and the performance of systems certification and accreditation.

Topics in Information Technology: Blockchain

**ITMT 495-02, Lecture/34094**
Professor: William Slater
Day/Time: / 
Location: IN / 
Dates: June 4 to July 28, 2018

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: Intelligent Device Projects

**ITMT 495-03, Lecture/34095**
Professor: Jeremy Hajek
Day/Time: MW / 9:00 a.m. to 12:10 p.m. 
Location: MC / 
Dates: June 4 to July 28, 2018

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 495-04, Lecture/34096**
Professor: Jeremy Hajek
Day/Time: / 
Location: IN / 
Dates: June 4 to July 28, 2018

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: Blockchain

**ITMT 595-01, Lecture/34090**
Professor: William Slater
Day/Time: MW / 6:25 to 9:05 p.m. 
Location: MC / 
Dates: June 4 to July 28, 2018

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: Blockchain

**ITMT 595-03, Lecture/34092**
Professor: William Slater
Day/Time: / 
Location: II / 
Dates: June 4 to July 28, 2018

This course will cover a particular topic, varying from semester to semester, in which there is particular student or staff interest.

Consulting for Technical Professionals

**TECH 581-01, Lecture/34006**
Professor: Daniel Tomal
Day/Time: TR / 3:00 to 5:25 p.m. 
Location: MC / 
Dates: June 4 to July 28, 2018

This course explores the application of technology and technical management skills to working with business, industry, or various professions in solving specific problems for an organization as an internal or external consultant. Students learn how to involve clients in all phases of problem identification and solution with the goal that, at the end of a consulting assignment, the clients are able to sustain the necessary changes in their organization. Particular attention is paid to managing expectations among change agents, managers, executives, technical professionals, and other members of the organization. The course will cover the most critical, high-level, functional frameworks used by top consulting firms today as well as the tools commonly used by consulting professionals.

Consulting for Technical Professionals

**TECH 581-02, Lecture/34007**
Professor: Daniel Tomal
Day/Time: / 
Location: IN / 
Dates: June 4 to July 28, 2018

This course explores the application of technology and technical management skills to working with business, industry, or various professions in solving specific problems for an organization as an internal or external consultant. Students learn how to involve clients in all phases of problem identification and solution with the goal that, at the end of a consulting assignment, the clients are able to sustain the necessary changes in their organization. Particular attention is paid to managing expectations among change agents, managers, executives, technical professionals, and other members of the organization. The course will cover the most critical, high-level, functional frameworks used by top consulting firms today as well as the tools commonly used by consulting professionals.

Consulting for Technical Professionals

**TECH 581-03, Lecture/34008**
Professor: Daniel Tomal
Day/Time: / 
Location: II / 
Dates: June 4 to July 28, 2018

This course explores the application of technology and technical management skills to working with business, industry, or various professions in solving specific problems for an organization as an internal or external consultant. Students learn how to involve clients in all phases of problem identification and solution with the goal that, at the end of a consulting assignment, the clients are able to sustain the necessary changes in their organization. Particular attention is paid to managing expectations among change agents, managers, executives, technical professionals, and other members of the organization. The course will cover the most critical, high-level, functional frameworks used by top consulting firms today as well as the tools commonly used by consulting professionals.
STUART SCHOOL OF BUSINESS

Creating, Communicating, and Delivering Customer Value

MAX 504-01, Lecture/33622
Professor: Robert Nelson
Day/Time: WF / 6:00 to 8:30 p.m.
Location: DT /
Dates: June 4 to July 28, 2018

This course provides an introduction to the practice and strategy of marketing. Marketing activities are those processes and functions that enable managers and policy-makers to identify and serve the values and needs of a customer given the capacities of the company, activities of competitors, and inherent constraints in the business environment. Marketers typically refer to these concepts as the “four C’s.” Based on their understanding of the “four C’s,” students will then learn how to implement strategy by applying the levers of the marketing mix. These elements are known as the four P’s (product, price, place/channels of distribution, and promotion). The treatment of marketing constraints and marketing mix will be motivated by essential foundations from economics, sociology, and consumer behavior. Over the course of the semester, students are expected to transition from thinking about these concepts in isolation to a dynamic, integrative framework. This process includes using the marketing strategy framework to assess business and policy problems from a “multiple objective” perspective: that is, the student will be asked to think about how marketing activities along with those of competitors and collaborators will affect the profitability, sustainability, social, and ethical standing of the firm. The synthesis of these concepts will be carried out through the use of case studies, problem sets, classroom lectures, discussions, and a field project. There will also be a midterm and final exam. The pedagogical style of the course emphasizes the students’ role in applying the concepts discussed in the lectures to the situations at hand. The role of the instructor is to provide tools to structure thinking and to stimulate and facilitate analysis of the cases.

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 4 to July 28, 2018

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.

Contemporary Economic Analysis and Game Theory

MBA 505-101, Lecture/34029
Professor: Liad Wagman
Day/Time: S / 9:30 a.m. to 3:30 p.m.
Location: DT /
Dates: July 2 to August 11, 2018

This course applies economic principles to key decisions with organizations and solidifies intuition for understanding the business environments in which organizations operate. A key objective of the course is to develop tools useful in other Stuart courses. Economics is a key foundation for much of what is taught in finance, marketing, business strategy, environmental management, and virtually every other course in the graduate program. Economics is a way of thinking about problems, issues, and decisions that managers face in each of the functional areas of their organization. It stresses the importance of incentives in impacting human decision making and emphasizes the consideration of costs and benefits when making decisions. The course introduces and develops concepts in areas of microeconomics such as competition and market structure, incentive contracts, and pricing. Topics covered range from the most basic demand and supply models to principal-agent models and economics of information. The course will also touch on some of the primary macroeconomic topics (including GDP, inflation, and unemployment), topics in game theory (simultaneous and sequential games), and issues of ethics in economic policy-making pertaining to competitive and oligopolistic markets, pricing, and trade.

Creating, Communicating, and Delivering Customer Value

MBA 511-01, Lecture/33621
Professor: Robert Nelson
Day/Time: WF / 6:00 to 8:30 p.m.
Location: DT /
Dates: June 4 to July 28, 2018

This course provides an introduction to the practice and strategy of marketing. Marketing activities are those processes and functions that enable managers and policy-makers to identify and serve the values and needs of a customer given the capacities of the company, activities of competitors, and inherent constraints in the business environment. Marketers typically refer to these concepts as the “four C’s.” Based on their understanding of the “four C’s,” students will then learn how to implement strategy by applying the levers of the marketing mix. These elements are known as the four P’s (product, price, place/channels of distribution, and promotion). The treatment of marketing constraints and marketing mix will be motivated by essential foundations from economics, sociology, and consumer behavior. Over the course of the semester, students are expected to transition from thinking about these concepts in isolation to a dynamic, integrative framework. This process includes using the marketing strategy framework to assess business and policy problems from a “multiple objective” perspective: that is, the student will be asked to think about how marketing activities along with those of competitors and collaborators will affect the profitability, sustainability, social, and ethical standing of the firm. The synthesis of these concepts will be carried out through the use of case studies, problem sets, classroom lectures, discussions, and a field project. There will also be a midterm and final exam. The pedagogical style of the course emphasizes the students’ role in applying the concepts discussed in the lectures to the situations at hand. The role of the instructor is to provide tools to structure thinking and to stimulate and facilitate analysis of the cases.
Operations and Technology Management
MBA 513-103, Lecture/34073
Professor:
Day/Time: /
Location: MC /
Dates: June 4 to July 28, 2018

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, marginal/incremental analysis to identify relevant versus sunk 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.

Negotiations and Strategic Decision Making
MBA 523-101, Lecture/31981
Professor: Liad Wagman
Day/Time: S / 9:30 a.m. to 3:30 p.m.
Location: DT /
Dates: May 21 to June 30, 2018

This course is designed to foster an understanding of incentives and strategic decision-making as they apply to negotiations. The course has both theoretical and applied components with the objective of addressing both theory and skills as they apply to dyadic and multiparty negotiations, to buyer-seller transactions, to competitors’ interactions, to the resolution of disputes, and to the development of negotiation strategies. The theoretical component is focused on an analytical study of strategic interactions using game theory while the applied component is based on a series of simulated negotiations in a variety of contexts including one-on-one, multiparty, and team negotiations. The objectives of the course are to provide an analytical foundation, to show where practice and theory diverge, and to provide a forum where negotiation tools in a variety of business-oriented settings can be actively applied. Instructor permission is required.

Leadership in Multicultural Organizations
MBA 524-101, Lecture/33626
Professor: Eliezer Geisler
Day/Time: S / 9:30 a.m. to 3:30 p.m.
Location: DT /
Dates: May 21 to June 30, 2018

Managerial leadership is one of the primary drivers of an organization’s success. Not surprisingly, organizations are demanding effective leadership skills from managers at all levels. This course is designed to enhance students’ understanding of leadership in contemporary organizations. Students will develop a conceptual framework of effective leadership in multinational organizations. Besides discussing leadership skills and traits, particular attention will be devoted to exploring the influence of organizational and societal context on leadership. This course will be taught with an experiential learning approach. Through self-assessments, case analyses, and a variety of other exercises, students will augment their leadership skills.

Special Topics: MBA Program
MBA 595-103, Lecture/34074
Professor: M Krishna Erramilli
Day/Time: /
Location: MC /
Dates: June 4 to July 28, 2018

Special topics in business administration.

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 /
Dates: June 4 to July 28, 2018

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.

Special Topics in Finance: Python Programming in Finance
MSF 599-01, Lecture/34028
Professor:
Day/Time: TR / 6:00 to 8:30 p.m.
Location: DT /
Dates: June 4 to July 28, 2018

Special topics in finance.
Leading and Managing Knowledge Intensive Organizations

**PA 502-108, Lecture/34025**
Professor: Gregory Jackson
Day/Time: MW / 6:00 to 8:30 p.m.
Location: DT /
Dates: June 4 to July 28, 2018

PA 502 builds awareness and understanding of the behavior of individuals and groups in organizations, preparing managers to be more effective within their organizational contexts. Topics include individual differences in motivation, perception, culture and learning style, group and organizational dynamics, and the impact of organizational structure and culture on behavior. Leadership techniques for influencing other organizational members, creative problem-solving and decision-making, ethics and values-based managing are covered. This course helps students relate basic theories, concepts, and techniques to real-world situations through the extensive use of case studies.

Internship in Public Administration

**PA 590-110, Internship/33900**
Professor: Roland Calia
Day/Time: / 
Location: DT /
Dates: June 4 to July 28, 2018

This course provides practical experience in public administration and may be taken only by students lacking extensive work experience in governmental administration.

Integrative Practicum for Effective Leadership in Public and Nonprofit Organizations

**PA 599-108, Lecture/33129**
Professor: Bruce Gockerman
Day/Time: TR / 6:00 to 8:30 p.m.
Location: DT /
Dates: June 4 to July 28, 2018

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.