

COURSE LISTINGS

Applied Health Informatics (HINF)

HINF 6101. Concepts in Health Informatics. (4 Credits)

This course provides an overview of the academic discipline of health informatics, which itself is the confluence of the disciplines of healthcare, information science, computer science, and engineering. It provides students with their first hands-on experience with the open source software tools which underpin this applied health informatics program. The first lecture provides a general overview of health informatics, in alignment with the general structure of course topics in this program. Subsequent lectures provide an overview of each topic that is covered in more detail in the other eight courses. Note: Four-credit courses that meet for 150 minutes per week require three additional hours of class preparation per week on the part of the student in lieu of an additional hour of formal instruction.

Mutually Exclusive: CISC 6700.

HINF 6103. Models for Clinical Information. (4 Credits)

This course provides a broad perspective on the key concepts, requirements, and standards for modelling clinical information. Creating and managing clinical information using structured models is an essential requirement for many informatics services, including detailed analysis and reporting, decision support, big data analysis, and artificial intelligence. The two key international standards—ISO 13606 and Health Level 7 (HL7)—provide flexible frameworks for representing structured clinical information; an understanding of their scope and capabilities is essential for any student of health informatics. Note: Four-credit courses that meet for 150 minutes per week require three additional hours of class preparation per week on the part of the student in lieu of an additional hour of formal instruction.

HINF 6105. Electronic Health Records. (4 Credits)

The electronic health record can provide a full cradle-to-grave (longitudinal) record for a patient that is a vital tool to assist the provision of care in any setting: primary, secondary, or tertiary. In addition, a properly structured and coded record can act as a rich source of information for clinical studies and trials. This course provides students with hands-on experience of the requirements and functionality of electronic health records systems. The emphasis is on the use of patient centered record systems that manage structured clinical information. Students learn the importance of the EHR as a repository for clinical information, that has been integrated from many different sources, and the key functional requirements for working with the patient record: clinical data entry, viewing of the full longitudinal record, clinical correspondence, scheduling, ordering, and prescribing. Note: Four-credit courses that meet for 150 minutes per week require three additional hours of class preparation per week on the part of the student in lieu of an additional hour of formal instruction.

HINF 6111. The Business of Health Informatics. (4 Credits)

This course aims to equip students with the knowledge needed to apply health informatics for success in allied business environments—whether that environment is a public health service, a care provider organization, hospital, clinic, ancillary service provider, supplier business, or entrepreneurial start-up. Note: Four-credit courses that meet for 150 minutes per week require three additional hours of class preparation per week on the part of the student in lieu of an additional hour of formal instruction.

Attribute: HNEL.

HINF 6113. Engineering Clinical Information Systems. (4 Credits)

This course covers the technology and techniques required to design and implement effective health informatics systems. Starting from the general architecture of clinical information systems and telemedicine systems, students learn how to use relational and "no-SQL" databases to manage structured clinical data and how to design safe and usable clinical user interfaces. Note: Four-credit courses that meet for 150 minutes per week require three additional hours of class preparation per week on the part of the student in lieu of an additional hour of formal instruction.

Attribute: HNEL.

Mutually Exclusive: HADM 6100.

HINF 6115. Healthcare Integration. (4 Credits)

Integration of clinical information that originates from many different sources is a vital requirement for the provision of patient-centred care. With the emphasis placed on the patient, rather than the care provider, clinical information systems users must have access to all relevant patient data, from primary, secondary or tertiary care. Integration is enabled through the use of open standards, for both information and functional interfaces. This course covers the most important open standards and standards profiles for integration and provides hands-on experience with the key technologies. Note: Four-credit courses that meet for 150 minutes per week require three additional hours of class preparation per week on the part of the student in lieu of an additional hour of formal instruction.

Attribute: HNEL.

Mutually Exclusive: HADM 5800.

HINF 6117. Artificial Intelligence in Healthcare. (4 Credits)

Since the advent of artificial intelligence in the 1950s, many researchers have recognized its potential for application in healthcare. In the late 1960s and early 1970s, some of the earliest operational rules-based systems were for clinical decision making, and there was a second wave of interest in the 1980s with healthcare applications in the emerging technologies of Bayesian belief networks and artificial neural networks. Whilst general advances in AI continued into the 21st century, in such fields as natural language processing, image analysis and reasoning engines, it was not until the second decade of this century that mainstream interest in AI in medicine was renewed. This has been fueled by advances in general AI techniques and the growing availability of structured, coded clinical information. This course covers the background and AI techniques for mining linked data, clinical decision support, natural language processing, and decision making using different types of reasoning engines. Note: Four-credit courses that meet for 150 minutes per week require three additional hours of class preparation per week on the part of the student in lieu of an additional hour of formal instruction.

Attribute: HNEL.

Mutually Exclusive: HADM 5200.

HINF 6119. Analysis and Reporting in Healthcare. (4 Credits)

This course provides an overview and practical experience in the key tools and techniques for analyzing and reporting healthcare information. This includes the full longitudinal record for a single patient as well as the combined information set for a cohort of many patients. Those patient cohorts may first be assembled through query of the EHR, to satisfy requirements for reporting of clinical outcomes or measuring the effectiveness of clinical services. Or the cohorts may have been selected as part of clinical studies or trials, which have specific standards and requirements for analysis and reporting. Students learn about statistical techniques that have a long history of use in health informatics, together with newer techniques for analyzing "big data" generated from large scale, structured health records systems. Note: Four-credit courses that meet for 150 minutes per week require three additional hours of class preparation per week on the part of the student in lieu of an additional hour of formal instruction.

Attribute: HNEL.

Mutually Exclusive: CISC 5109.

HINF 6210. XML in Healthcare. (4 Credits)

This course provides a hands-on introduction to the use of XML in healthcare. It starts with the basics of the XML syntax, builds through the introduction of related XML standards, and then takes a look at how XML is used for structured messages, information storage, semantic technologies, and ontologies. The final topics of the course look at the use of XML for Artificial Intelligence in Healthcare and for Electronic Health Records. Each class consists of a lecture, followed by a hands-on exercise that students complete using the machines and software provided, with the assistance of the course tutors.

Attribute: HNEL.

HINF 6211. Health Data Analytics Leadership. (4 Credits)

This is a course in leadership development. It is geared for both purchasers and sellers of analytics. The goal is to continuously improve the demonstrable value of health care. Each topic covers a vital step in the process to achieve that goal. The objectives are to understand the types and value of health data analytics, appreciate the perspectives of both buyers and sellers of health data analytics, learn how to introduce effective analytics capabilities to a health care organization, and equip students with the skills required to be a chief analytics officer.

Attribute: HNEL.

HINF 6212. State of the Art in Health Informatics. (4 Credits)

This course covers special topics in health informatics that reflect the current state of the art or lie outside the scope of the other courses offered. As with all the courses, the emphasis is on hands-on experience and applied knowledge of technology. The syllabus for this course is reviewed at regular intervals to ensure that it reflects current trends in the ever-changing field. Reflecting this, guest lecturers are engaged for many of the classes, to bring practical expertise, relevant expertise, and an insight into current practices.

Attribute: HNEL.

HINF 6213. Model Driven Electronic Health Records. (4 Credits)

This course provides an intensive overview of the technology and standards for creating and deploying open source, model-driven Electronic Health Records (EHR). Each class consists of a lecture, followed by a hands-on exercise that students complete using the equipment and software provided, with the assistance of the course tutors. Learning Objectives The objectives of this course are to: · provide an overview of the concepts of model-driven development · familiarize students with the main open standards used—ISO 13606 and HL7 CDA · gain hands-on experience with the open source Mirth Connect integration engine and cityEHR electronic health records system · explore the application of integration tools and techniques in telemedicine, particularly the integration of clinical information gathered by devices at the point of care.

Attribute: HNEL.

HINF 6214. Integration for Healthcare and Telemedicine. (4 Credits)

This course provides an intensive study of the technology and standards for integration of information and systems in health care and telemedicine. Each class consists of a lecture, followed by a hands-on exercise that students complete using the equipment and software provided, with the assistance of the course tutors. Learning Objectives The objectives of this course are to: · provide an overview of the requirements and techniques for integration in health care · familiarize students with the main open standards used for integration—HL7 v2, HL7 CDA, HL7 FHIR, and ISO 13606 · gain hands-on experience with the open source Mirth Connect integration engine · Import and export structured records to/from the cityEHR electronic health records system · explore the application of integration tools and techniques in telemedicine, particularly the integration of clinical information gathered by devices at the point of care.

Attribute: HNEL.

HINF 6300. Special Topics in Applied Health Informatics. (4 Credits)

This course covers special topics in health informatics which reflect the state-of-the-art or lie outside the scope of the other courses offered. As with all the courses, the emphasis is on hands-on experience and applied knowledge of technology. The syllabus for this course is reviewed at regular intervals to ensure that it reflects current trends in the ever-changing field. Reflecting this, guest lecturers are engaged for many of the classes, to bring practical expertise, relevant expertise, and an insight into current practices. Note: Four-credit courses that meet for 150 minutes per week require three additional hours of class preparation per week on the part of the student in lieu of an additional hour of formal instruction.

Attribute: HNEL.

HINF 6497. Research Project/Thesis. (4 Credits)

Upon approval of a proposal developed under the stewardship of a faculty member, students work with a qualified supervisor to conduct research, collect data, analyze, test their hypotheses, and write up their findings. The finished thesis must demonstrate the student's ability to conduct comprehensive research and articulate original ideas and thought processes that make a practical contribution to the existing body of knowledge in the field of real estate. All final papers must meet academic and research standards that are consistent with the requirements of current journals and publications. In order to successfully complete the project, the student's supervisor and one other reader from either academe or industry must approve the thesis.

HINF 6498. Applied Project. (4 Credits)

In this course, which is subject to prior departmental approval, students undertake and deliver a real-world project for active practitioners in a field that is consistent with the student's career pursuits. Under the direction of a supervisor, students select and explore a topic to be developed. Students will then be required to generate a practical application of their findings that demonstrates professional-level mastery of the subject matter involved. The project will be reviewed by the supervisor and one other expert in the field.

HINF 8999. Tutorial. (4 Credits)

This is a tutorial course for students enrolled in the M.S. or Advanced Certificate programs in applied health informatics.

Real Estate (REAL)

REAL 5002. Real Estate Finance. (3 Credits)

This course covers the principles of commercial real estate finance including valuation methodologies, income and expense analysis, derivation of capitalization rates, concepts of commercial leasing, forms of debt and equity, valuation of land and key principles of construction loan finance.

Attributes: CONM, REDV.

REAL 5004. Real Estate Accounting and Tax. (3 Credits)

This course covers accounting concepts, rules, regulations, and reporting requirements for income-producing properties; tax tools for financial statements and real estate investments; accounting principles and income tax analysis for decision-making; and accounting and tax implications of real estate ownership structures and real estate transactions.

Attributes: REAM, REDM.

REAL 5006. Real Estate Legal Concepts and Contracts. (3 Credits)

This course provides an overview of the typical, major legal agreements that are involved with every commercial real estate transaction. The course is broken into four segments: legal overview, purchase/sale agreements, leases, and financing agreements.

Attributes: HMG, HOEL, HOID, REAM.

REAL 5008. Real Estate Economics and Market Analysis. (3 Credits)

This course discusses economic base analysis, macroeconomic factors influencing metropolitan areas and links connecting economic fundamentals to property market performance. Delineation of market and submarket areas will be stressed, along with the differences arising from specific property types including office, retail, industrial, housing, and hotels. The dynamics of cities will be studied, especially as they relate to property market performance.

Attributes: HMG, HOEL, REAM.

REAL 5010. Real Estate Structures and Capital Markets. (3 Credits)

The course covers the structure and operation of public and private, debt and equity real estate capital markets and the means by which this capital is channeled into commercial real estate to finance local transactions. Key topics include capital sources, participants, risk and return, tranches, capital asset pricing model (CAPM), CMBS, REOCs and REITs.

Attributes: HOEL, HOID, REDM.

REAL 5012. Real Estate Valuation and Investment Analysis. (3 Credits)

Students in this course evaluate a range of investment opportunities in commercial real estate from the perspective of the investor (equity) and the lender (debt). Students analyze investment assumptions and model cash flows using Excel. Valuation techniques utilized include income capitalization and discounted cash flow analysis. Students examine pricing, returns, investment horizon, hold vs. sell strategies, financial leverage, sizing debt based on lender parameters and the impacts of leverage on returns.

Attributes: HOEL, HOID.

Prerequisites: REAL 5002 and REAL 5004 and REAL 5008.

REAL 5014. Negotiation. (1.5 Credits)

This course introduces negotiation techniques and strategies along with a strong foundation in several key concepts, including the three major roles of the conflict specialist, theories of communication and conflict, approaches to negotiation and their limitations, private versus court-centered approaches to resolving conflict, and psychological biases and barriers in addressing conflict. Students explore new roles for conflict specialists with an eye toward preparing themselves to engage in various negotiation scenarios that arise in the real estate and construction industry.

Attributes: HMG, HOEL, HOID, REAM, REDM.

REAL 5016. Ethical Issues in Real Estate. (1.5 Credits)

Students in this course study how ethics are considered from various points of view: historically, relationally and transactionally. In a series of different situations commonly occurring in the real estate industry, students consider the ethical issues present and then evaluate the adequacy of the real world responses to those issues.

Attribute: REDM.

REAL 5050. Construction Contracts, Claims, and Dispute Resolution. (1.5 Credits)

This course examines the essential elements of commonly used contracts, including the rights, duties, and obligations of the owner and contractor. It offers the legal knowledge to review, understand, and evaluate the terms and conditions of construction contracts to minimize the risk of project disruptions, claims, disputes, and litigation. This course also provides an overview of project delivery methods, the bidding process, contract formation, contract forms, contract conditions, general conditions, subcontracts, privity of contracts, riders, defaults and terminations, changed conditions, changes and extra work, payments, lien law, surety bonds, damages for delay, claims, and methods of dispute resolution. Discussions will include the riskier provisions, including the incorporation by reference clause, the contingent payment clause, the no damage for delay clause, cardinal changes, and terminations for cause and convenience.

REAL 5051. Advanced Construction Contracts, Claims, and Dispute Resolution. (3 Credits)

This course provides students with a comprehensive examination of the commonly used contracts in the construction industry, including the rights, duties, and obligations of the owner and contractor. It offers the requisite legal knowledge to review, interpret, and evaluate the terms and conditions of construction contracts to minimize the risk of project disruptions, claims, disputes, and litigation. Detailed discussions include project delivery methods, the bidding process, contract formation, contract forms, contract conditions, general conditions, subcontracts, privity of contracts, riders, defaults and terminations, changed conditions, changes and extra work, payments, lien law, surety bonds, damages for delay, claims, and methods of dispute resolution.

Attributes: REAM, REDM.

REAL 5052. Construction Financial Management. (1.5 Credits)

The general objectives of this course are for students to gain a comprehensive understanding of the key factors of effective construction financial and cost control. Students will develop cost control and tracking methods to monitor and control project budgets for successful project outcomes. The course covers project cash flow and critical path analysis as it pertains to cost; general conditions, insurance, and risk management; progress payment disbursement; forecasting and trends; and the use of associated reports.

Attributes: REAM, REDM.

REAL 5053. Construction Safety. (1.5 Credits)

This course examines the role of worker and public safety management in construction projects and company success. The course provides a comprehensive review of industry construction safety standards and public safety laws; OSHA regulations; legal and economic aspects of construction safety; insurance and risk management; accident investigation and analysis; the development and management of worker safety programs; and crisis management tactics.

REAL 5054. Construction Cost Estimating and Bidding Strategies. (1.5 Credits)

This course will expose students to the theory, processes, and practices to prepare construction cost estimates and final project bids. Students will begin with an understanding of key terminology and progress into core topics including pre-construction and detailed estimates; planning for the estimate, design, and constructability review; general conditions; predesign; conceptual and preliminary budgets; cost of labor; pricing of material; time/cost analysis design review; unit prices; lump-sum bids; direct and indirect costs; mark-up; overhead; profit; bonds; insurance; and internal and external management considerations. This course will proceed with discussions on the bidding process, the bid package, subcontractor bid comparisons, qualification, bid solicitation, bid leveling and notification, bid analysis, and final bid price. Case studies, problems, and exercises are used extensively.

Attributes: REAM, REDM.

REAL 5055. Business Development. (1.5 Credits)

This course examines business development principles and practices for construction management professionals to grow the prospect base and gain business for the construction firm. The course addresses business building strategies, the market, economic drivers of customer value, supply chain impacts, the connection to marketing, the importance of reputation and a robust network, success during the proposal process, strategic risk management, and data, innovation, and AI in business development.

REAL 5056. Construction Scheduling and Impact Analysis. (1.5 Credits)

This course will expose students to a variety of network-based scheduling principles and tools including advanced Critical Path Method (CPM) construction scheduling techniques and the Precedence Diagramming Method (PDM). The course will cover project resource allocation, resource leveling, schedule development, schedule updating, schedule impacts of date constraints, project time and cost trade-offs, activity duration estimating, work breakdown structures, and an overview of construction contract scheduling specifications. An introduction to other scheduling methodologies and the use of schedules in construction claims will be addressed.

Attributes: REAM, REDM.

REAL 5058. Pre-Construction Project Planning and Development. (3 Credits)

Pre-construction project planning and development efforts play a key role in the overall success of a project, providing an opportunity for discovery, risk assessment, and strategic planning. This early planning can have a significant impact on project outcomes and offer substantial time and cost savings. This course examines the essential planning and analyses performed prior to the construction phase of a project to determine project scope, schedule, and cost estimate. It offers the knowledge to define project objectives, determine feasibility, manage risks, and analyze schedule and cost impacts to ensure optimal project performance and customer satisfaction.

Attributes: REAM, REDV.

REAL 5060. Construction Project Delivery. (3 Credits)

This hands-on, applied course will discuss and employ best practices for construction project administration and execution. Students will be presented with concepts and techniques to coordinate, monitor, and supervise work from construction start up through the commissioning phases of a project with a focus on leadership, scope, schedule, quality control, inspection, safety, and costs.

Attributes: REAM, REDM.

REAL 5102. Real Estate Risk and Portfolio Management. (3 Credits)

This course discusses the theory and principles of investments and portfolio management. Students acquire a working knowledge of the risks associated with individual real estate investments, such as asset-specific underwriting, credit evaluation, and tenant credit risk and then explore advanced topics including portfolio selection, calculation of efficient sets, and portfolio performance evaluation for the holding entity.

Prerequisites: REAL 5002 and REAL 5004 and REAL 5006 and REAL 5008 and REAL 5010.

REAL 5104. The Real Estate Development Process. (3 Credits)

This course provides a practical analysis of the phases of the real estate development process including conceptualization, site acquisition, planning and design, construction, financing, leasing and marketing. Leadership, management and control of the development team are featured issues.

Attributes: CONA, CONM, HOEL.

REAL 5106. Real Estate Asset Management. (3 Credits)

Students learn how to develop an investment strategy and an actionable asset management plan based on that strategy for increasing the value of real estate assets under management on behalf of ownership. Students examine acquisitions, leasing, operations, budgets, capital expenditures, repositioning, refinancing, dispositions and distressed and foreclosure workouts using financial modeling, underwriting, risk analysis, and performance benchmarking concepts and tools. The decision-making process will be examined from the property, asset and portfolio management perspectives.

Attributes: REAM, REDM.

Prerequisites: REAL 5002 and REAL 5004 and REAL 5006 and REAL 5008.

REAL 5108. Real Estate Credit Analysis and Underwriting. (3 Credits)

Students learn how to underwrite and structure commercial real estate (CRE) loans for the acquisition, development and construction of income-producing properties. A combination of market, risk and financial analysis tools will be used to assess commercial investment properties and borrower credit worthiness, and to make prudent, defensible lending decisions.

Attribute: REDM.

Prerequisite: REAL 5002.

REAL 6001. Real Estate Financial Modeling. (1.5 Credits)

Students gain a comprehensive understanding of real estate financial modeling principles and practices to prepare models for income and expense presentation and analysis, direct capitalization, and discounted cash flow (DCF) analysis. Students develop the vocabulary and preliminary critical thinking skills needed to develop real estate financial models. The course will emphasize effective presentation of data and productivity.

Attributes: CONM, REAM, REDM, REFI.

REAL 6002. Real Estate Development Feasibility Study. (3 Credits)

This course examines the components of a real estate development feasibility study report. Students refine leadership, team and presentation skills to deliver a comprehensive and persuasive report on a currently available real estate project.

Prerequisites: REAL 5002 and REAL 5012 and REAL 5104.

REAL 6003. Private Equity. (1.5 Credits)

In this course, students develop an understanding of the taxonomy of different real estate private equity strategies, including core, core plus, value-add, and opportunistic. Students learn how real estate funds are set up and managed, how to align the general partners' fees and incentives with the limited partners' interests, and exit strategies such as initial public offerings (IPOs), recapitalization, and secondary sales. The course examines the role of private equity real estate investments within a portfolio comprising various asset classes, with a focus on performance measurement, diversification gains, and risk measurement.

Attributes: HOEL, HOID, REDM, REFI.

Prerequisite: REAL 5002.

REAL 6004. Adaptive Reuse and Sustainability. (1.5 Credits)

Utilizing sustainable principles and building practices, this comprehensive course challenges students to think critically about reusing existing building stock and maintaining historic structures. It encourages adaptive reuse by owners and developers entering the design review process. The goal is to help developers think critically about the opportunities presented by adaptive reuse.

Attributes: CONA, CONM, HOEL, REAM, REDM, REDV.

REAL 6005. Commercial Mortgage-Backed Securities. (1.5 Credits)

In this course, students learn the history, structure, and key building blocks (commercial real estate loans) of commercial mortgage-backed securities (CMBS), as well as the transaction, ratings, and offering process. The participants, legal documents, and federal regulations that govern CMBS are also examined. Topics covered include the perspectives of originators, structurers, loan sellers, attorneys, ratings agencies, investors, servicers, and special servicers. The course will focus primarily on conduit deals, but will also introduce single-asset and single-borrower transactions and a securitized financing tool used primarily by commercial mortgage REITs: CLOs.

Attributes: REDM, REFI.

Prerequisites: REAL 5002 and REAL 5010.

REAL 6006. Development Project Leadership, Management and Communications. (1.5 Credits)

Gain essential leadership, management and reporting skills and strategies to effectively control the design and construction process, ensuring that every decision is made in the owner's best interest. Become acquainted with different types of reporting, and learn best practices and tools needed to improve performance, standards and timely project delivery.

Attributes: CONA, CONM, HOEL, REAM, REDM, REDV.

REAL 6007. Real Estate Investment Trusts. (1.5 Credits)

Students gain an understanding of the history, operations, and mechanics of REITs, and how REITs are an important link between the real estate capital markets and the property markets. Topics covered include real estate space and asset markets, measurement and determinants of real estate prices, market trends, valuation methods, and returns and benchmarks.

Attributes: REDM, REFI.

Prerequisites: REAL 5010 and REAL 5002.

REAL 6008. Affordable Housing. (1.5 Credits)

In this course, students acquire an understanding of the history and current state of affordable housing in the US in general and NYC in particular. Students learn from a combination of formal lectures and interviews with past and current industry participants and leaders. The focus of the course is examine the multiple factors that must be addressed in the planning and execution of affordable housing projects.

Attributes: CONM, REAM, REDM, REDV.

REAL 6009. Commercial Leasing. (1.5 Credits)

This course will cover all aspects of commercial leasing as it relates to office buildings, retail spaces and industrial properties. Office leases will serve as the base model, while retail and industrial specifics will be discussed throughout the course when the relevant clause/topic is discussed. The instructor will explain each clause of a lease from strategic, legal, operational, and cost-effectiveness points of view, as well as the role such a clause can play in achieving particular investment objectives. The importance of crafting effective leases will be reviewed so that students will understand how to maximize the value of a real estate property or portfolio. Additionally, since many properties are purchased with existing leases, this course will cover best practices to address both the limitations and opportunities associated with an inherited lease, including analyzing existing leases during due diligence. The instructor will review key clauses of a commercial lease in detail to explain why particular clauses exist, as well as their impact on the property operations and their place in the overall strategy for the asset (or portfolio) in both the short term and the long term.

Attributes: CONM, REDM, REDV.

REAL 6010. Development Project Finance. (1.5 Credits)

This course presents the principles of development project finance. Students acquire best practices for submitting a loan request to a lender for interim construction loan project financing, long-term permanent "take-out" financing, and mini-perm financing. Students will become familiar with the presentation of project pro forma, construction loan types, the requirements of a development team, the lender's credit criteria, the loan proposal, hard and soft cost budgets, valuation, project feasibility and documentation. This course includes discussion of privately and publicly funded infrastructure investment considerations.

Attributes: CONA, CONM, REDM, REDV.

REAL 6011. Building Systems, Operations, and Maintenance. (1.5 Credits)

This course is designed to provide a technical baseline—a working knowledge—of the key building systems and infrastructure commonly found in commercial offices and large residential buildings. Topics include heating, ventilation, and air conditioning; electrical; lighting; plumbing; fire alarm; fire protection; and vertical transportation.

Attributes: CONM, HMG, HOEL, HOID, REDM.

REAL 6012. Global Real Estate Investment. (1.5 Credits)

This course provides a comparative and critical approach to undertaking international real estate transactions, investments and development projects by providing a framework for analyzing real estate investments across borders within specific markets.

Attributes: HOEL, HOID, REDM.

REAL 6013. Real Estate Management. (3 Credits)

This course introduces students to the core concepts, key terminology, and specialized competencies and skills needed to professionally plan and manage commercial real estate and corporate workspace for real estate owners, for-profit and not-for-profit businesses, and third-party management companies. Through the study of established management practices with real-world applications, this course introduces students to the field of property management and corporate real estate. Students study ownership goals, the management plan, the management agreement, management organizational structures, ownership obligations, management responsibilities, management fees, operating procedures, repositioning for value creation, budgeting and financial management, market analysis, leasing, tenant relations, staffing, training, supervision, risk management, insurance, leadership, communication, and ethics. Case studies and several real-world applications will be examined. One or more prominent industry guest speakers may visit for part of a class to discuss their experience.

Attributes: CONM, REDM.

Prerequisites: REAL 5002 and REAL 6009 and REAL 6011.

REAL 6014. Land Use Law. (1.5 Credits)

Real estate development is profoundly impacted by land use law and environmental regulations. A successful developer must navigate through land use controls, federal, state and city environmental regulations, landmark and historic preservation restrictions and community concerns, in addition to building and fire codes and other safety regulations.

Attributes: CONM, HOEL, HOID, REDV.

REAL 6015. Planning and Design for Development. (1.5 Credits)

This course presents strategies for optimizing and managing the design phase when undertaking a real estate development project. Concepts covered include site selection, zoning considerations, programming, massing studies, criteria for selecting a design team, steps in the design process, and design successes and failures.

Attribute: REDV.

REAL 6016. Real Estate Entrepreneurship Business Planning. (1.5 Credits)

This course integrates the concepts, tools and practices of entrepreneurship. Students learn to be superior opportunity assessors and shapers, to understand the integration of people and process in entrepreneurship, to write, articulate and present a new venture execution plan, to understand the alternatives and trade-offs in financing, starting and operating a venture, and to gain a better understanding of their personal entrepreneurial capabilities.

Attributes: CONM, HMG, HOEL, HOID, REDM.

REAL 6018. Real Estate Technology. (1.5 Credits)

This course examines the rise of technological applications to collect data and the potential power of employing advanced data analytics to support new hypotheses regarding real estate investments; development opportunities; property operations; construction projects; and environmental, social, and governance (ESG) compliance requirements.

Attributes: REDM, REFI.

REAL 6020. Internship. (1.5 Credits)

Internship.

Attributes: REDM, REDV.

REAL 6021. Special Topics in Construction. (1.5 Credits)

This course, which will be offered periodically, is designed to enhance the student's educational experience by supplementing the standard array of courses with topics that are very highly specialized. Areas of study will include construction technology, law, arbitration, claims, and project management. In most cases, they will be of interest to those students who desire a more intense exposure to a particular field of study within construction.

Attributes: CONA, CONM, HOEL, REAM, REDM.

REAL 6022. Special Topics in Real Estate. (1.5 Credits)

These courses, which will be offered periodically, are designed to enhance the student's educational experience by supplementing the standard array of courses with topics that are very highly specialized. Areas of study will include real estate finance, investment and development. In most cases, they will be of interest to those students who desire a more intense exposure to a particular field of study.

Attributes: CONA, CONM, HMG, HOEL, REAM, REDM, REDV, REFI.

REAL 6024. Construction Quality Control Quality Assurance. (1.5 Credits)

This course explores the essential elements of quality management principles, planning concepts, and techniques employed in the management of construction projects. The course offers practical ways to integrate QC/QA practices throughout the project life cycle to improve quality and schedule, and prevent costly delays in closing out projects.

REAL 6026. Advanced Construction Scheduling. (1.5 Credits)

This course is designed to provide a deeper understanding of the construction scheduling and schedule management techniques covered in the core course Construction Scheduling and Impact Analysis (REAL5056). This course is especially useful for those who would like to master scheduling concepts and techniques.

Prerequisite: REAL 5056.

REAL 6051. Advanced Construction Methods and Materials. (3 Credits)

This course provides a comprehensive examination of the latest methods, materials, and systems used in the construction of the core and shell and interior components of high-rise buildings. Topics include reviewing the working drawings and specifications related to the various components of the systems related to excavation and foundation, structures, facades, interior construction, elevators, plumbing, fire protection, HVAC, and electric.

Attributes: CONA, REAM, REDV.

REAL 6100. Applied Project. (3 Credits)

The Applied Project capstone course provides for a comprehensive application of core, flex core and elective course principles, concepts, and professional practice to real world real estate investment projects.

Prerequisites: REAL 5002 and REAL 5004 and REAL 5006 and REAL 5008 and REAL 5010 and REAL 5012.

REAL 6200. Research Project (Thesis). (3 Credits)

Students work with a qualified supervisor to conduct research, collect data, analyze, test their hypotheses and write up their findings. The finished thesis must demonstrate the student's ability to conduct comprehensive research and articulate original ideas and thought processes that make a practical contribution to the existing body of knowledge in the field of real estate.

REAL 6300. Applied Project. (3 Credits)

This capstone course provides students with the opportunity to demonstrate their professional-level mastery of the subject matter covered in the prior construction management courses by delivering a real-world response for a construction project Request for Proposal (RFP) or proposal solicitation under the guidance of a faculty member or members. Structured as a seminar, the course requires regular class attendance to discuss the RFP response progress, as well as individual meetings with the instructor(s) to discuss specific issues that may impact the RFP response. Lectures will be highly interactive in nature and will largely focus on feedback, discussion, and the monitoring of interim milestone activities precedent to finalizing the RFP response, in addition to discussing best practices and RFP response expectations.

Prerequisites: REAL 5014 and REAL 5051 and REAL 5052 and REAL 5054 and REAL 5056 and REAL 5058 and REAL 5060 and REAL 6051.

REAL 6400. Real Estate Development Applied Project. (3 Credits)

This course provides students with the opportunity to synthesize a hypothetical real estate development project under the guidance of a faculty member. Structured as a seminar, the course requires regular class attendance to discuss and document project progress, as well as individual meetings with the instructor. Lectures will be highly interactive in nature and will largely focus on feedback, discussion, and the refinement of interim milestone submissions, in addition to illustrating best practice examples. Students are expected to regularly visit the Fordham Blackboard online course portal for announcements and course material.

Prerequisites: REAL 5104 and REAL 5006 and REAL 5002 and REAL 5008 and REAL 6051 and REAL 6015 and REAL 6014 and REAL 5058 and REAL 5012 and REAL 6002.

REAL 8999. Independent Study. (1 to 4 Credits)

Independent Study.