Columbia University IKNS ## Bulletin on pre-approved electives, v6.0## Subject to change. Electives not offered every semester; always check with general Columbia U. Directory of Classes for updates and whether a course is offered in a specific semester.

School	Program/Topic Area	Number	Name	Modality* - In Person	Modality* - Online	Offered in Block Format	Description	Open to IKNS students?	Curriculum Areas (CA1, CA2, CA3)
Business School	Business	B8813	Cross Cultural Seminar (1.5 Points)		X		This course will focus on national (or organizational) culture in the context of your internship or student experience and beyond. In particular, we will investigate how cultures differ along several dimensions, and how you can identify areas of good and bad fit between a previous culture and the culture in which you now work or study. I will present information on how to classify any culture, how cultural attributes influence organizations and work expectations, and how workers can manage the adjustment to the workplace or academy in non-native cultures. The online class lecture (webinar) will provide you a formal way to analyze how you approach work assignments across cultures and managing cross-cultural teams. At our required class meeting we will have a discussion regarding your cross-cultural (e.g., internship or student) experiences, both in general and with a specific focus on cross-cultural challenges. We will also take time to analyze a cross-cultural business case and to view presentations by your fellow students (see section on Grading and Required Assignments).	Refer to Directory of Classes or contact instructor for more information	CA2
Business School	Business Economics	B8216	Economics Of Strategic Behavior	X		X	This course examines the underlying economics of successful business strategy: the strategic imperatives of competitive markets, the sources and dynamics of competitive advantage, managing competitive interactions, and the organizational implementation of business strategy. The course combines case discussion and analysis (approximately two thirds) with lectures (one third). The emphasis is on the ability to apply a small number of principles effectively and creatively, not the mastery of detailed aspects of the theory. The course offers excellent background for all consultants, managers and corporate finance generalists.	Refer to Directory of Classes or contact instructor for more information	CA3
Business School	Decision, Risk & Operations Management	B6100	Managerial Statistics (1.5 Points)		X		Introduces students to basic concepts in probability and statistics of relevance to managerial decision making. Topics include basic data analysis, random variables and probability distributions, sampling distributions, interval estimation, hypothesis testing and regression. Numerous examples are chosen from quality-control applications, finance, marketing and management.	Refer to Directory of Classes or contact instructor for more information	CA1
Business School	Economics	B7216	Economics Of Strategic Behavior		X		This course examines the underlying economics of successful business strategy: the strategic imperatives of competitive markets, the sources and dynamics of competitive advantage, managing competitive interactions, and the organizational implementation of business strategy. The course combines case discussion and analysis (approximately two thirds) with lectures (one third). The emphasis is on the ability to apply a small number of principles effectively and creatively, not the mastery of detailed aspects of the theory. Grading is based on class participation and online case quizzes (35%), case write-ups (25%), and a take-home case-based exam (40%). The course offers excellent background for all consultants, managers and corporate finance generalists.	Refer to Directory of Classes or contact instructor for more information	CA3
Business School	Management	B8519	Launch Your Startup		X		At Columbia Business School, instilling entrepreneurial thinking in our students is part of our mission. Entrepreneurship is fully integrated throughout the MBA curriculum, and now — for the first time ever — we are offering an open-enrollment executive education program on the topic. The eight-week Launch Your Startup (Online) program — comprised of four live and four self-directed modules — offers an intensive learning experience that focuses on the creation, evaluation, development, and launch readiness of a new business or social enterprise. Program participants learn from world-renowned Columbia Business School faculty and tap into the expertise of the University's vibrant entrepreneurial community. Each participant enters the program with a preliminary venture idea that they would like to work on. Using a proprietary sequence of eight modules, the program leverages associated work assignments to support the development of the new venture. Participants learn how to assess the industry and market attractiveness for their venture idea, form competitive strategies, develop minimum viable products and services, prioritize customer acquisition strategies for early traction, and generate full financial statements. Throughout the program, participants refine their venture's hypothesized business model based on instructor, peer, and customer feedback. They leave the program fully equipped with the tools and frameworks required to create and launch their new startup.	Refer to Directory of Classes or contact instructor for more information	CA3

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Business School	Marketing	MRKT B8624	Driving Strategic Impact: Mastering the Tools of Strategy Consulting	X			This course provides an advanced understanding of the evolving consulting industry and the skills and critical learnings necessary to thrive at the levels of project manager through partner and senior partner. Through a combination of lectures, class exercises, panel discussions, cases, and real-life examples drawn from the instructors' combined 50+ years of consulting experience, this course focuses on the following: - Reinforcing the problem-solving and communications principles and skills taught in B8624-001/002 - Providing a perspective on where the management consulting industry is headed and what it means for the skills required of those entering it today - Understanding the progression of skills you will be expected to master at each rung of the consulting ladder as well as the trade-offs around leaving consulting at each career stage The course's ultimate objective is to position students for a successful run as mid-level to senior-level consultants with knowledge of how their skills will need to evolve, the subtleties of how to navigate their firms and client teams, and what it will take to thrive.	Refer to Directory of Classes or contact instructor for more information	CA3
Business School	Marketing	MRKT B8605	Succeeding in Consulting: from Project Manager to CEO Advisor	X			This course provides an advanced understanding of the evolving consulting industry and the skills and critical learnings necessary to thrive at the levels of project manager through partner and senior partner. Through a combination of lectures, class exercises, panel discussions, cases, and real-life examples drawn from the instructors' combined 50+ years of consulting experience, this course focuses on the following: - Reinforcing the problem-solving and communications principles and skills taught in B8624-001/002 - Providing a perspective on where the management consulting industry is headed and what it means for the skills required of those entering it today - Understanding the progression of skills you will be expected to master at each rung of the consulting ladder as well as the trade-offs around leaving consulting at each career stage The course's ultimate objective is to position students for a successful run as mid-level to senior-level consultants with knowledge of how their skills will need to evolve, the subtleties of how to navigate their firms and client teams, and what it will take to thrive.	Refer to Directory of Classes or contact instructor for more information	CA3
Graduate School of Arts and Sciences	Quantitative Methods in the Social Sciences	QMSS GR5066	Data Analysis With Phyton	X			This course is meant to provide an introduction to regression and applied statistics for the social sciences, with a strong emphasis on utilizing the Python software language to perform the key tasks in the data analysis workflow. Topics to be covered include various data structures, basic descriptive statistics, regression models, multiple regression analysis, interactions, polynomials, Gauss-Markov assumptions and asymptotics, heteroskedasticity and diagnostics, data visualization, models for binary outcomes, models for ordered data, first difference analysis, factor analysis, and cluster analysis. Through a variety of lab assignments, students will be able to generate and interpret quantitative data in helpful and provocative ways. Only relatively basic mathematics skills are assumed, but some more advanced math will be introduced as needed. A previous introductory statistics course that includes linear regression is helpful, but not required.	Refer to Directory of Classes or contact instructor for more information	CA1
Graduate School of Arts and Sciences (GSAS)	Quantitative Methods in the Social Sciences	QMSS GR5019	Entrepreneurial Principles And Quantitative Reasoning	X	X		This course is structured around class-wide and individual exercises that introduce students to the key principles of entrepreneurial thinking, such as identifying problems and opportunities, thinking creatively, developing minimally viable products (MVPs) and low fidelity prototypes, creating a reliable workflow, pivoting and course-correcting, finding valuable help, and developing productive habits. In addition, students are introduced to the key tools of quantitative reasoning, including surveys, observational data, experiments, simulation and projections, data analysis, statistical reasoning, organized researching, and persuasive and authoritative writing – and how those tools support entrepreneurial projects. Students should leave the class equipped with the sense that they themselves can produce constructive change in their world, along with a blueprint for how to go about getting it started.	Refer to Directory of Classes or contact instructor for more information	CA1, CA3
Graduate School of Arts and Sciences (GSAS)	Quantitative Methods in the Social Sciences	QMSS 5015	Data Analysis for the Social Sciences	X			The data analysis course covers specific statistical tools used in social science research using the statistical program R. Topics to be covered include statistical data structures, and basic descriptives, regression models, multiple regression analysis, interactions, polynomials, Gauss-Markov assumptions and asymptotics, heteroskedasticity and diagnostics, models for binary outcomes, naive Bayes classifiers, models for ordered data, models for nominal data, first difference analysis, factor analysis, and a review of models that build upon OLS. Prerequisite: introductory statistics course that includes linear regression.	Refer to Directory of Classes or contact instructor for more information	CA1
Graduate School of Arts and Sciences (GSAS)	Quantitative Methods in the Social Sciences	QMSS GR5072	Modern Data Structures	X			This course is intended to provide a detailed tour of how to access, clean, "munge" and organize data, both big and small. (It should also give students a flavor of what would be expected of them in a typical data science interview.) Each week will have simple, moderate and complex examples in class, with code to follow. Students will then practice additional exercises at home. The end point of each project would be to get the data organized and cleaned enough so that it is in a data-frame, ready for subsequent analysis and graphing. Therefore, no analysis or visualization (beyond just basic tables and plots to make sure everything was correctly organized) will be taught; and this will free up substantial time for the "nitty-gritty" of all of this data wrangling.	Refer to Directory of Classes or contact instructor for more information	CA1

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Graduate School of Arts and Sciences (GSAS)	Quantitative Methods in the Social Sciences	QMSS GR5062	Social Network Analysis	X			The course is designed to teach students the foundations of network analysis including how to manipulate, analyze and visualize network data themselves using statistical software. We will focus on using the statistical program R for most of the work. Topics will include measures of network size, density, and tie strength, measures of network diversity, sampling issues, making ego-nets from whole networks, distance, dyads, homophily, balance and transitivity, structural holes, brokerage, measures of centrality (degree, betweenness, closeness, eigenvector, beta/Bonacich), statistical inference using network data, community detection, affiliation/bipartite networks, clustering and small worlds; positions, roles and equivalence; visualization, simulation, and network evolution over time.	Refer to Directory of Classes or contact instructor for more information	CA1, CA2
Graduate School of Arts and Sciences (GSAS)	Quantitative Methods in the Social Sciences	QMSS GR5063	Data Visualization	X			This course is designed to the interdisciplinary and emerging field of data science. It will cover techniques and algorithms for creating effective visualizations based on principles from graphic design, visual art, perceptual psychology, and cognitive science to enhance the understanding of complex data. Students will be required to complete several scripting, data analysis and visualization design assignments as well as a final project. Topics include: data and image models, social and interactive visualizations, principles and designs, perception and attention, mapping and cartography, network visualization. Computational methods are emphasized and students will be expected to program in R, Javascript, D3, HTML and CSS and will be expected to submit and peer review work through Github. Students will be expected to write up the results of the project in the form of a conference paper submission.	Refer to Directory of Classes or contact instructor for more information	CA1
Graduate School of Arts and Sciences (GSAS)	Sociology	UN3675	Organizing Innovation	Tba	Tba		This course examines major innovations in organizations and asks whether innovation itself can be organized. We study a range of forms of organizing (e.g. bureaucratic, post-bureaucratic, and open architecture network forms) in a broad variety of settings: from fast food franchises to the military-entertainment complex, from airline cockpits to Wall Street trading rooms, from engineering firms to mega-churches, from scientific management at the turn of the twentieth century to collaborative filtering and open source programming at the beginning of the twenty-first. Special attention will be paid to the relationship between organizational forms and new digital technologies.	Refer to Directory of Classes or contact instructor for more information	CA2, CA3
Graduate School of Arts and Sciences (GSAS)	Statistics	GR5702	Exploratory Data Analysis And Visualization		X		This course is covers the following topics: fundamentals of data visualization, layered grammer of graphics, perception of discrete and continuous variables, intreoduction to Mondran, mosaic pots, parallel coordinate plots, introduction to ggobi, linked pots, brushing, dynamic graphics, model visualization, clustering and classification.

Prerequisites: programming | Refer to Directory of Classes or contact instructor for more information | CA1 |
School of Engineering and Applied Science (SEAS)	Computer Science	W4995	Topics In Computer Science: Varying Topics		X		Special topics arranged as the need and availability arises. Topics are usually offered on a one-time basis. Since the content of this course changes each time it is offered, it may be repeated for credit. Consult the department for section assignment.	Refer to Directory of Classes or contact instructor for more information	CA1
School of Engineering and Applied Science (SEAS)	Engineering	ENGI E4501	Human-Centered Design and Innovation	X			Introduces human-centered design process. Includes learning from and evaluating with customers, creating new ideas collaboratively as part of a team, simple ways to prototype both physical and digital experience, and presenting ideas with impact. Develop skills and experience by practicing process as they engage in various design challenges.	Refer to Directory of Classes or contact instructor for more information	CA1, CA3
School of Engineering and Applied Science (SEAS)	Industrial Engineering and Operations Research	IEOR E4510	Project Management	X			Management of complex projects and the tools that are available to assist managers with such projects. Topics include project selection, project teams and organizational issues, project monitoring and control, project risk management, project resource management, and managing multiple projects.	Refer to Directory of Classes or contact instructor for more information	CA2

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School of Engineering and Applied Science (SEAS)	Industrial Engineering and Operations Research	IEOR E4532	Visualization and Storytelling with Data (1.5 pts)	X		X	Data visualization and how to build a story with data. Using complex data or statistics to communicate results effectively. Learn to present analysis and results conscisely and effectively.	Refer to Directory of Classes or contact instructor for more information	CA1
School of Engineering and Applied Science (SEAS)	Industrial Engineering and Operations Research	IEOR E4561	Launch Your Startup: Tech	Tba	Tba		Launch Your Startup focuses on the evaluation, development and potential launch of a new business. Working individually (or on occasion in pairs), students spend the entire term developing an effective and comprehensive presentation of a real business concept by addressing five key issues: in-depth market analysis, product or service design, development of a marketing campaign, assessment of human resource requirements and building a realistic financial forecast. The output will be a comprehensive business plan and a formal presentation of their idea. Students are expected to come with a specific business idea or at least a sincere interest in a particular industry in which they would like to explore the possibility of launching a venture. Projects can be based upon students' own ideas, new technologies from the Columbia Innovation Enterprise or other start-ups that have requested assistance from Columbia MBA students. Industry mentors and a board of directors composed of other class participants provide a reality check as students refine their business opportunity into a written and oral presentation ready to seek funding and commence operations. Faculty members assist in identifying projects, but students are responsible for finding appropriate projects. By the second week of class, all students must have an approved venture project.	Refer to Directory of Classes or contact instructor for more information	CA3
School of Engineering and Applied Science (SEAS)	Industrial Engineering and Operations Research	IEOR E4573	Topics In Or: Performance, Objectives, And Results	X		X	Performance, Objectives - Results Using Data Analytics. This course will cover how to analyze any business. At the core, we are inundated by data today. But not all of it matters. This class will help you formulate Key Performance Indicators (KPIs) and organize them into Objectives and Key Results (OKRs) so that you'll be equipped with the strategic and business acumen to help support a product or business in virtually any situation. Points: 1.5. Fall 2018 term: Financial Decision Models for Engineers is aimed at IEOR students with an interest in financially-oriented applications of foundational IEOR subjects. The course builds on students' knowledge of probability, statistics, simulation, optimization, and large data analytics, as well as the financial material covered Accounting and Finance and IEOR E4003/4403. The course focuses on rigorous analysis and modeling of real-world problems, with an emphasis on understanding modeling assumptions and limitations. The class cycles through a variety of finance-oriented topics and solution methodologies, such as (for example): real options solved with simulation models; optimal project costing and scheduling with random variable (RV) task durations and costs; DCF entity valuations with RV costs, revenues and free cash flows; decision tree evaluation with time value and RV cash flows; and single and multi-period portfolio optimization.	Refer to Directory of Classes or contact instructor for more information	CA1
School of Engineering and Applied Science (SEAS)	Industrial Engineering and Operations Research	IEOR E4721	Topics In Quantitative Finance: Big Data In Finance		X		The vast proliferation of data and increasing technological complexities continue to transform the way industries operate and compete. Over the last two years, 90 percent of the data in the world has been created as a result of the creation of 2.5 quintillion bytes of data on a daily basis. Commonly referred to as big data, this rapid growth and storage creates opportunities for collection, processing and analysis of structured and unstructured data. Financial services, in particular, have widely adopted big data analytics to inform better investment decisions with consistent returns. In conjunction with big data, algorithmic trading uses vast historical data with complex mathematical models to maximize portfolio returns. The continued adoption of big data will inevitably transform the landscape of financial services. However, along with its apparent benefits, significant challenges remain in regards to big data's ability to capture the mounting volume of data. The increasing volume of market data poses a big challenge for financial institutions. Along with vast historical data, banking and capital markets need to actively manage ticker data. Likewise, investment banks and asset management firms use voluminous data to make sound investment decisions. Insurance and retirement firms can access past policy and claims information for active risk management. The course will be a mix of Theory and practice with real big data cases in finance. We will invite guest lecturers mostly for real Big Data Finance Applications. We will give MATLAB, R, or Python examples.	Refer to Directory of Classes or contact instructor for more information	CA1

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School of International and Public Affairs (SIPA)	International Affairs	U6004	Programming For Social Impact (1.5 Points; Workshop)	Tba	Tba		In this course, you will learn the fundamentals of programming so you can start writing web applications that can potentially be used in non-profit or public sectors. The course will be very hands-on and you are expected to code during the class. The topics will include - fundamentals of computer science, programming basics, data structures, client-server architecture, javascript, application programming interface, LAMP stack and web frameworks, design tools, scalability issues and infrastructure for application deployment. We will discuss some of these topics in the context of agile development methodology for startups. If you are interested in building a startup as a social entrepreneur, the tools and methods you learn in this course should help you in coding the first prototype of your application. As part of the final project, you are expected to build a fully functional web application. No programming background is required. Students are expected to complete all the reading assignments before the first day of class.	Refer to Directory of Classes or contact instructor for more information	CA1
School of Professional Studies (SPS)	Actuarial Science	ACTU PS5840	Data Science In Finance And Insurance	X			Financial decision making has been heavily relied on the data. This dependency becomes more and more strengthened due to an explosion in financial data -- social media activity, mobile interactions, server logs, real-time market feeds, customer service records, transaction details. To fully utilize these giant data sets, Wall Street has an increasing demand to data scientists. It is said that data scientist is the sexiest job of 21 century. This course will provide students with the knowledge, skills, and experience to get a job as a data scientist in finance and insurance – which requires a mix of software engineering, statistical understanding, and the ability to apply both skills in the industry. The program will prepare students to gather data, apply statistical analysis to answer questions with that data, and make their insights and information in the decision-making. This is an intensive hands-on course so be prepared for a lot of work and a significant time commitment. But your reward proficiency in data analytics skills will be substantial. Prerequisite There is no prerequisite for this course. However prior exposure to some programming language is helpful. Some basic knowledge of linear algebra and statistics is also expected.	Yes	CA1
School of Professional Studies (SPS)	Applied Analytics	Multiple	Multiple	X	X		NOTE: MULTIPLE COURSES IN APPLIED ANALYTICS ARE RELEVANT TO IKNS STUDENTS. CURRENTLY THESE COURSES ARE OPEN TO APPLIED ANALYTICS STUDENTS ONLY, FOR CAPACITY REASONS. CHECK THE COLUMBIA COURSE DIRECTORY FOR CHANGES TO THIS POLICY.	Tba	Tba
School of Professional Studies (SPS)	Business Offerings	BUSI PS5010	Managing Human Behavior In The Organization	X	X		Students will gain an overview of major concepts of management and organization theory, concentrating on understanding human behavior in organizational contexts, with heavy emphasis on the application of concepts to solve managerial problems. By the end of this course students will have developed the skills to motivate employees, establish professional interpersonal relationships, take a leadership role, and conduct performance appraisal. NOTE: THIS COURSE IS ALSO OFFERED THROUGH THE ENTERPRISE RISK MANAGEMENT PROGRAM AS ERM PS5300.	Yes	CA2, CA3
School of Professional Studies (SPS)	Business Offerings	BUSI PS5030	Developing And Implementing New Ideas	X			Interested in starting your own company? Do you have an idea for a new product or service? Have you come up with a way to improve something that already exists? This course tackles the central business concept of how one creates, builds and leads companies. It looks at aspects of entrepreneurship and leadership for both individuals and teams in the face of complex situations. Using the case study method as taught in business school, also known as participant-centered learning, this course puts students in the role of an entrepreneur facing critical business decisions. A selection of guest speakers will offer firsthand experience on innovation and entrepreneurship.	Yes	CA3

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School of Professional Studies (SPS)	Construction Administration	CNAD PS5155	Innovative Project Delivery (1.5 Points)	X			This course is an elective, designed to introduce students to the administration and management responsibilities associated with innovative project delivery methods, or procurement methods, including planning, design, construction, and financing, as well as operations and maintenance requirements; for both public sector and private sector participation and collaboration. This course will focus on defining a continuum of alternative or accelerated procurement processes when compared to traditional design – bid – build processes; for a range of public works asset types. Practices, tools, and methods will be informed by municipal planning and general economic concepts, as well as case studies. Students will develop an understanding of the political forces, principles and contractual structures in innovative project delivery agreements.	Refer to Directory of Classes or contact instructor for more information	CA2
School of Professional Studies (SPS)	Construction Administration	CNAD PS5156	Introduction to Infrastructure: Megaproject Management and Delivery (1.5 Points)	X			This class will introduce students to the concepts, techniques, and tools necessary to manage Infrastructure Megaprojects. We will explore criteria that defines a Megaproject and their varied and often conflicting challenges. We will discuss the role of political will in project success, and how to evaluate and quantify the social and economic benefits, and values of a large complex infrastructure project. As part of the course students will meet and be taught by prominent guest lecturers who have been involved in building some of NYC's most significant infrastructure Megaprojects. The course instructor and the invited guests will discuss relevant Mega Project case studies, such as the World Trade Center, Design & Construction of the NY Mets Minor League Stadium, and the Metropolitan Transportation Authority's Major Capital Infrastructure Program.	Refer to Directory of Classes or contact instructor for more information	CA2
School of Professional Studies (SPS)	Enterprise Risk Management	ERM PS5300	Managing Human Behavior In The Organization	X	X		In this course, students will gain an overview of major concepts of management and organization theory, concentrating on understanding human behavior in organizational contexts, with a heavy emphasis on the application of concepts to solve managerial problems. Students will work in a combination of conceptual and experiential activities, including case studies, discussions, lectures, simulations, videos, and small group exercises. NOTE: THIS COURSE IS ALSO OFFERED THROUGH THE BUSINESS OFFERINGS PROGRAM AS BUSI PS5010.	Refer to Directory of Classes or contact instructor for more information	CA2, CA3
School of Professional Studies (SPS)	Enterprise Risk Management	ERM PS5570	Information Technology Risk Management		X		Students will learn how to better identify and manage a wide range of IT risks as well as better inform IT investment decisions that support the business strategy. Students will develop an instinct for where to look for technological risks, and how IT risks may be contributing factors toward key business risks. This course includes a review of IT risks, including those related to governance, general controls, compliance, cybersecurity, data privacy, and project management. Students will learn how to use a risk-based approach to identify and mitigate cybersecurity and privacy related risks and vulnerabilities. No prior experience or technical skills required to successfully complete this course.	Refer to Directory of Classes or contact instructor for more information	CA1, CA3
School of Professional Studies (SPS)	Human Capital Management	HCM PS5100	Introduction To Human Capital Management		X		In this foundations course, students will examine the impact of industry dynamics (i.e., external industry trends, shifting workforce and workplace challenges) on human capital management (HCM) solutions and the competencies required of human resources (HR) professionals. Students will learn about effective strategies for designing human capital solutions and people development programs, including business-aligned and integrated approaches to talent management and cross-functional collaboration with organizational leadership. Students will be introduced to the latest practices related to advancing human capital implications for high-impact organizational performance and have an opportunity to apply practices to current industry and organizational challenges. The course will also introduce foundational approaches to measuring the effectiveness of human capital investment.	Refer to Directory of Classes or contact instructor for more information	CA2
School of Professional Studies (SPS)	Human Capital Management	HCM PS5160	People Analytics & Decision Making		X		Successful organizational leaders are increasingly turning towards human capital analytics (HCA) for workforce reporting to help make better, more informed, decisions about their human capital in terms of current needs and future goals. Helping to drive organization performance, HCA linked with decision making can deliver competitive advantage throughout an organization. This course provides students with skills necessary to take a strategic view of HCA and form effective hypotheses for the development of organizational insight. Students will review in depth systematic data collection techniques, analysis methods, and ways that data can be effectively presented. Looking closely at performance measures, students will practice planning, interpreting, and clearly articulating an organization's "people metrics" with the goal of improving decision-making about talent, financial measures, and the organization as a whole.	Refer to Directory of Classes or contact instructor for more information	CA1

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School of Professional Studies (SPS)	Human Capital Management	HCM PS5280	Digital HR And The Digital Workplace	X	X		The digital capabilities of the organization and the digital acumen of its leader are constant game changers in the changing world of work. Data-driven insights and management of human capital is essential to the success of the enterprise. Systems and tools—such as a human resource information system (HRIS)—allow professionals to more readily understand the organization's operations in real time. Digital disruption is occurring across industries at an unprecedented rate. This disruption is creating new approaches to human capital management including the emergence of a new world of work. The emergence of the digital enterprise provides intelligence from non-human resources (HR) systems that enable multivariant analyses of people-related issues, opportunities, and solutions. This course provides students with an overview of this landscape, building their ability to develop a strategic, interdisciplinary, and integrative approach to using technology to measure and manage human capital. Students will also explore specific systems and frameworks for investigating and selecting technology solutions. Through class discussion, case exploration, tool demonstrationsand group activities, this course will provide opportunities to apply tools and information in order to understand the advantages of using technology to enhance the contributions of the human resource function across an organization.	Refer to Directory of Classes or contact instructor for more information	CA1, CA3
School of Professional Studies (SPS)	Human Capital Management	HCM PS5290	Leading Cross-Cultural Global Organizations		X		This course will cover the essentials necessary to lead and work across cultures in high performing global organizations and matrixed systems. The course will cover various cultural frameworks, identity work-style differences impacting interactions, communication, leadership, negotiation, conflict-resolution, and decision-making in complex environments. In this course, the core theories of culture will be examined and applied in relation to authority, power, leadership styles and work practices, as well as intercultural communication across cultural groups, including multicultural team dynamics and group leadership.	Refer to Directory of Classes or contact instructor for more information	CA2
School of Professional Studies (SPS)	Human Capital Management	HCM PS5340	Inclusive Leadership	X		X	This course seeks to introduce students to the latest theory, research and practice of "Inclusive Leadership," an evolving framework, for understanding the role of people leaders, teams, and individual contributors in cultivating diverse, equitable, and inclusion environments in companies and organizations. This interactive, intensive course will leverage insights, research, and experiences of leading scholars and practitioners in the fields of leadership, diversity, and inclusion. The content covered is grounded in inclusive leadership development, diversity management, team effectiveness, organization development, and intergroup relations. Students will learn hands-on strategies for fostering inclusion at every level of the organization, and how and why it matters on the overall culture and climate of the organization in a systematic way. Class discussions, assignments, and readings will pose questions such as: How to foster a culture of inclusion? How do we know when inclusion is actually taking place?	Refer to Directory of Classes or contact instructor for more information	CA2, CA3
School of Professional Studies (SPS)	Human Capital Management	HCM PS5230	Change Management		X		Change is a necessary and constant part of any organization. The change may be expected, or it may be in reaction to unanticipated external and/or internal factors. In fact, organizations that do not change do not last. Change initiatives can be exceedingly complex and disorienting, however. The success of a given change initiative often rests on the clarity of vision of an organization's leaders; an accurate and sensitive understanding of the organization's culture; the involvement, input and buy-in of multiple internal and external stakeholders to the change objectives and process; leaders' ability to leverage technology to communicate and drive change; and an organization's analytical capabilities to document and measure progress, and continue to iterate and improve. In light of these requirements, this course seeks to ask: What is the role of the HCM leader in facilitating change within an organization? The aims of this course are not abstract. This course will help students develop skills to support actual organizations (their own and/or others) through change. Lectures, readings, videos, in-class synchronous discussions, and assignments will all focus on the practical application of change theory and empirical research to real-world organizational contexts. This course is an advanced elective within the Master of Science in Human Capital Management program. Prerequisites include "HCMPS5100: Introduction to Human Capital Management," and "HCMPS5150: Integrated Talent Management Strategies." Some familiarity with people analytics and digital approaches to Human Capital Management will also be helpful.	Yes (but check with Instructor re. pre-requisites)	CA3

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School of Professional Studies (SPS)	IKNS	IKNS PS5995	IKNS Internship In Industry (1, 2, Or 3 Points)	X	X		Students enroll in this course (for credit) in parallel to carrying out an internship with a non-Columbia entity (private sector, NGO, non-profit, or government). International students can enroll in this course as part of their optional Curricular Practical Training (CPT). Please contact the IKNS program administration for details. The Internship course offers students the preparation to excel in the marketplace with hands-on experience within an organization. The ideal internship will provide students an opportunity to gain tangible and practical knowledge in their chosen field by taking on a position that is closely aligned with their coursework and professional interests. The course is structured around the internship experience. In the first assignment, students will author learning objectives to complete in their internship and review these learning objectives with their site supervisor. Students should also expect that after completing this course they will be able to: # Discuss the application of program content and theory in a professional context (LO1) # Define a plan for assessing and building their professional competencies (LO2) # Describe an organization's culture and assess their cultural "fit" (LO3) # Make recommendations for the types of behaviors, structure, and culture they would want to see in a future workplace setting (LO4) Before registering for this course, students must secure an appropriate graduate-level internship, complete the Internship Application Form and receive approval from the academic program. It is highly recommended that domestic students complete at least 12 points (credits) prior to completing an internship. International students must have completed at least two terms before completing an internship and apply for & receive CPT approval through the ISSO Office unless they completed their undergraduate degree in the U.S. and enrolled in graduate school immediately after obtaining their undergraduate degree. To receive approval, the internship must: # Provide an appropriate opportunity for students to apply course concepts # Fit into the planned future program-related career path of the student # Provide a minimum of 210 hours over the semester # Internship dates must coincide with the start and end of the term you are enrolling in the course. You may not complete this course for a previous internship or for an internship you plan to take in the future. The internship and course must be done at the same time. Logistics: Ahead of registration in this course, the student meets with the supervisor to discuss and agree on (i) the topic and the relevant IKNS content area(s); (ii) the timeline of deliverables, milestones, and contact hours for the semester; and (iii) the number of credits. The number of credits (1-3) will be commensurate with the scope of the work. The scope can range from a summary of existing sources (typically 1 credit. 5-10 page report), to a synthesis or meta-analysis of existing and new sources, e.g., interviews with subject matter experts (typically 2 credits, 10-15 pages report), to a comprehensive study which adds the student's own critical discussion and suggestions to the topic (typically 3 credits; 15-20 pages report). Pre-requisites: PS5300 (Foundations of the Knowledge-driven Organization) or instructor permission.	Yes	Either CA1, CA2, or CA3 (determined based on topic)

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School of Professional Studies (SPS)	IKNS	IKNS PS5301	Strategic Consulting For Knowledge-Based Organizations		X		The primary objective of this course is to become familiar with the typical phases of an internal or external consulting project. The course is designed to provide a deep understanding of the typical challenges, opportunities, phases, and methods for conducting a successful consulting assignment for knowledge-based organizations. A typical strategic consulting assignment includes the following phases: organization assessment, sponsor/client relationship, gathering data, diagnosis issues, implementation, and measurement. Drawing on examples from a variety of organizations, this course will focus directly on strategies for building a successful knowledge service or product for organizations or institutions. We will provide knowledge of foundational frameworks and theories and the need for tailored approaches for different clients. Students will get hands-on experience diagnosing and proposing knowledge strategies for improving organizational effectiveness and competitiveness. Successful consulting, whether internal or external, requires many capabilities and, at heart, is dependent on the client-consultant relationship. Students will be engaged in working on a simulated consulting assignment based on the current organization in which they work. Alternatively, students may discuss with the faculty to be assigned to work with a voluntary organization seeking student input. During the term, each student will complete individual and team assignments that build on the deliverables needed for an actual consulting assignment. By developing expertise in strategic leadership consulting, students will gain credibility, competence, and confidence in their ability to communicate, design, develop, and provide knowledge and change services to an organization and society. During the semester, students will learn strategies for building knowledge services, including the models, methods, processes, and social factors that promote successful change. This course is designed for students who are or will be working in positions that require internal or external organizational consulting skills or in positions that require managing organizational change initiatives. No prerequisites. NOTE: Students interested in in-person courses with similar content please consider *Succeeding in Consulting: from Project Manager to CEO Advisor (MRKT 8605)* or *Driving Strategic Impact: Mastering the Tools of Strategy Consulting (MRKT 8624)*.	Yes	CA3

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School of Professional Studies (SPS)	IKNS	IKNS PS5305	The Science Of Communities And Networks		X		As the pace of technological change accelerates, and market disruptors lurk around the corner, organizations find that traditional hierarchies pose a huge disadvantage. Decision-making is often layered and ponderous, insular cultures block new ideas, and information moves inefficiently. Increasingly, managers find that, to compete, they need novel operating models. Organizations need to readily access resources and markets. At the same time, they need diverse intelligence, large multidisciplinary data sets, and novel product ideas. The answer lies in the network, an organizational construct that involves people engaging across boundaries, organizations, and/or geographies with shared knowledge-creation goals. For-profit and nonprofit organizations, alike, are embracing networks to share insights and data, act as a voting block, serve customers, and innovate. For example, realtor COMPASS, the World Health Organization, the World Bank, and electric cooperatives are all leveraging networks. The ideas of "open" and "collective" are no longer seen as a rarified university experiment. Now these present a viable means for a growing number of purposes: get to market faster, thwart climate change, clean the oceans, and find cures to intractable diseases. "The Science Of Communities And Networks" presents the structure, impacts, and practical work of networks. There are many different forms of network, varying in size, shape and purpose. Yet there are some common practices and behavior models that trace their origins back to the science of the human brain, evolution and social and behavioral psychology. We will use the Knowledge Network Effectiveness Framework, a logic model flowing backwards from outcomes, to individual and social behavior, to dynamics, to design. We will also use other scholarly research, along with practical cases, to study different network forms: communities of practice, knowledge-networks, crowds, open source, open data, and open innovation. Students will envision, diagnose and design networks for "cooperative advantage." We will do that while considering that networks operate in the context of human bias, social influence, common-pool resource dilemmas, and technology advancement. IKNS and other SPS students will find that the course aligns with the future of work, in which operations and innovation come increasingly from parties outside the organization or department. Work is more networked, collaborative, and integrative. This course relates to three main thrusts of the IKNS Program: - Digital transformation - Future of work - Leading collaboration NOTE: Students seeking in-person alternatives with similar content please consider *Social Network Analysis (QMSS 5062)* or *Social Networks & Performance (ORLJ 5115)*.	Yes	CA1, CA2

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School of Professional Studies (SPS)	IKNS	IKNS PS5338	Digital Product Innovation And Entrepreneurship		X		The exponential growth of information and data—combined with software that can understand and learn from experience—provides entrepreneurs with tremendous opportunities to bring innovative customer-focused solutions to market. While there are no direct paths to bring a new product idea to market, there are easily identifiable milestones that can guide the way from idea generation to product profitability. This course will explore the process of early-stage development of knowledge-driven, data-intensive digital products like Spotify, Netflix, Watson, and TripAdvisor. The goal is to create a hands-on entrepreneurial experience at its most elemental and visceral level—ideation, brainstorming, interacting with customers, building a founding team, developing a business model, managing risk, investigating competitors, pitching the business to potential investors, and creating an interactive mobile app prototype (a design proof of concept for your business idea) through an iterative user-centered design process. In this course, we use Eric Reis' startup method from his book, Lean Startup, as a foundation for creating and testing new ideas. Students learn to validate their new product ideas in the market by immediately engaging with customers to gauge whether their idea solves a problem better than alternative solutions. Building on the insight generated by customer interviews, students design a business model using the Lean Canvas approach designed by Ash Maurya and iterate their ideas based on Design Thinking (Tim Brown) principles. Throughout the course, we will shift from learning to the rapid application of new frameworks to speed up product design and development. Students will be exposed to all the pressures and demands of real-world start-ups by participating in teams tasked with creating weekly deliverables required to launch a new business. The user-experience skills and methods that are taught in this class are in demand by employers and startups across nearly every industry and reflect the latest best practices used to create today's most widely used and award-winning digital products. The skills developed in this class apply to many real-world business problems that require an agile and iterative approach. NOTE: Students seeking in-person alternatives with similar content please consider *Entrepreneurship: Developing and Implementing New Ideas (BUSI 5030)* or *Human-Centered Design and Innovation (ENGI 4501)*.	Yes	CA1, CA3

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School of Professional Studies (SPS)	IKNS	IKNS PS5989	Findability, Semantic Modeling, and Computational Classification		X		Findability refers to how easy it is for users to find and apply information, data, and knowledge stored in electronic repositories. Today, technology mediates most of our information-seeking, knowledge-creating, and analytical tasks. While we are familiar with the technologies that present information to us, most of us are unfamiliar with the knowledge engineering and user experience design methods that provide the foundation for "findability." For information and knowledge professionals, creating a knowledge platform that maximizes the value of unstructured and structured data is a critical skill. Increasingly, human knowledge is being stored in vast repositories of unstructured and structured data. Building an organizing system to organize and make sense of these data can be accomplished in one of two ways. One way uses semantic models, such as an ontology, to capture the network of meaningful relationships among concepts and words in a knowledge domain. An alternative way uses machine learning to make sense of unstructured data stored in large language models. Assembling learned patterns and relationships computationally can create coherent, logical, and contextually relevant answers to questions. Predicting the sequence of words that respond to questions uses artificial intelligence algorithms and probabilistic techniques to create meaningful arrangements of words. This course focuses on building a network of meaningful relationships among data using semantic models and computational classification to facilitate findability and enable analytics. The skill set the students will learn involves the following foundational concepts and methods: - computational thinking, which explains how to approach problem-solving by breaking down a solution into discrete steps that a computer can execute - defining a user's problem by using agile requirements-gathering methodologies - using use cases to describe how a user will interact with a system - writing narratives called epics and user stories to describe a user's high-level intentions and requirements - describing a user population using audience profiles and personas - assembling the data required to solve a user's problem - organizing data using semantic modeling techniques to build taxonomies, ontologies and meaningful database schemas - automating classification using rules-based categorization, supervised learning, unsupervised learning or semi-supervised learning - deciding on whether to store the data for manipulation and retrieval using a relational database or a graph database - making user experience design decisions that best fit the user's requirements To practice the concepts and modeling methods learned in class, assignments will reinforce the analytical techniques required to organize and enrich data, using a movie recommendation system as one specific example. We will apply a model-driven approach (MDE) to make design decisions on how to organize, store, analyze, and interact with data. The course culminates by asking students to apply what they have learned to describe and plan their solutions to specific use cases using the tools, methods, and models learned in the class. There are no prerequisites for this course. While we will cover technical topics, no programming is required to learn the material. Students will, however, use tools like Excel, Power BI, PowerPoint, Optimal Workshop, and Protégé to organize data, explore classification techniques, and author semantic models.	Yes	CA1

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School of Professional Studies (SPS)	IKNS	IKNS PS5990	Navigating The Future Of Work	X		X	This course is designed to provide an understanding of the critical capabilities necessary for individual, team, and organizational success in the new world of work. Based upon current economic models, students will recognize the intangible factors within teams and organizations that drive decision making, knowledge, and culture as value and valuation of the work of organizations. Our core question is, how to start, build, and sustain leadership and organization capabilities for successfully navigating the future of work? The course will answer this question by looking at successful case examples who are demonstrably leading the way. We will bring actual leaders and entrepreneurs to the class for exchange with our class. The course will require students to work individually and in teams to build their own future of work models through unlearning and learning. Students will study modern exemplar organizations and leaders to harness their lessons for staying competitive and successful. We will explore the changing nature of work, provide the means for better understanding what is occurring, and develop strategies for successfully navigating this new world. This course will start by analyzing how platforms, robotics, AI, automation, data, digitization, and the speed of technology has changed work. The capabilities necessary for success require both technological expertise, as well as, human skill centered around leadership, knowledge, and cultures of trust, respect and intentional inclusion. Students will participate in an "intangibles" assessment survey that will measure behaviors associated with leadership, culture, and knowledge for driving performance. This approach allows for exploring how the intangible factors behind each of these change factors impact the world of work, workforces, and workplaces. Assignments will include determining individual work interests, skills and connecting them to organizational objectives and key results (OKR). Students will work in teams to design a future of work map and negotiate practices for their current organizations and clients.	Yes	CA2, CA3
School of Professional Studies (SPS)	IKNS	IKNS PS5991	Leading Large Complex Projects		X		The primary focus of this course will be around project leadership as projects are planned and executed (project management). The course will start by recognizing the need and benefits of project management for large complex global projects, explore characteristics of project managers, and study the commonality and differences in types of projects. The course will continue with understanding the essential capabilities of project management, and analyze the variations in project lifecycles. The course will address managing risk throughout the project lifecycle, controls, and performance measurement, and maximizing the use of knowledge. Lastly, the course will visualize the future of projects and project management structure and core capabilities. These lessons will be explored through the analysis and discussion of case studies of projects such as construction of the Denver International Airport, development of the F-35 Joint Strike Fighter, and the NASA Mars Pathfinder project. Throughout the course, students will work collaboratively to design, author, and present a Project Plan that (1) integrates the essentials for successfully managing a large global complex project and (2) reflects the attributes of a Project of the Future. NOTE: Students seeking in-person alternatives with similar content please consider *Project Management (IEOR 4510)*, *Innovative Project Delivery (CNAD 5155)*, or *Introduction to Infrastruture: Megaproject Management and Delivery (CNAD 5156)*.	Yes	CA2

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School of Professional Studies (SPS)	IKNS	IKNS PS5994	A Systems Approach To Knowledge Management		X		This course will equip students with skills and strategies on how to plan, design, develop and deploy knowledge management programs for different types of organizations as well as for different sectors of the global economy. A hallmark of the course's approach is that students will learn the steps from planning to deployment from a systems standpoint, i.e., students will learn how to use systems engineering principles as an analytic and structured framework for designing and implementing knowledge management programs that are responsive to organizational needs. The course first provides an overview of the strategic value of institutional and project knowledge when properly managed, shared and applied, or leveraged to support decision making. Next, a system's view and analysis of knowledge management (KM) is introduced as critical to business success because of the strategic value of knowledge assets. The knowledge management "system" as used in this course comprises of all the organizational elements that go into formulating a knowledge management strategy and its related implementation programs. Such system is made up of a defined KM strategy, appropriate information technology (IT) tools, processes, teams and leadership engagements, implementation programs delivery, institutional learning, lessons learned, knowledge sharing and transfer methodologies. Further, students will learn how to conduct organizational KM needs assessment, define institutional KM drivers, strategy formulation and knowledge sharing protocols. Students will also acquire skills for developing robust knowledge management practices and programs that support business objectives, enable project success, and sustain improved organizational performance. Additionally, students will apply the structured KM design principles they learned to real-world organizational challenges and opportunities. Assignments comprise a combination of individual exercises, a group project, and a final exam. Pre-requisites: There is no pre-requisite knowledge or specific competency required for taking this course, because the instruction will include knowledge management fundamentals as well as systems engineering basics. NOTE: Students seeking in-person alternatives with similar content please consider *Dynamic Networks and Systems (ORL 6502)* or *Group Dynamics: A systems perspective (ORL 5362)*.	Yes	CA1, CA3
School of Professional Studies (SPS)	IKNS	IKNS PS5999	IKNS Independent Study (1, 2, Or 3 Points)	X	X		Overview: This one-semester course (elective, IKNS students only, hybrid) provides an opportunity for a student to extend or supplement their educational experience via a deep-dive into an established or novel area of research of their choice (the topic), under the guidance and supervision of a faculty member (the supervisor). An independent study course allows a student to work one-on-one with a faculty member to gain and contribute new insight into the discipline of Knowledge Management. Topic and objective: The topic can be chosen freely by the student as long as it falls within the general realm of Knowledge Management or its specific content areas in the IKNS curriculum, such as IT systems, knowledge organizing systems, data repositories, business data analytics including machine learning and AI, learning processes, collaboration, dialogue, team and project management, transformational leadership, change management, digital transformation, or digital product innovation. The course will therefore serve the dual purpose of allowing a student to pursue their own intellectual curiosity and to make a contribution to the wider discipline of Knowledge Management while also deepening their understanding of the content they acquired in other courses, by applying this material to the specific topic chosen for the Independent Study. Logistics: Ahead of registration in this course, the student meets with the supervisor to discuss and agree on (i) the topic and the relevant IKNS content area(s); (ii) the timeline of deliverables, milestones, and contact hours for the semester; and (iii) the number of credits. The number of credits (1-3) will be commensurate with the scope of the Independent Study. The scope can range from a summary of existing sources (typically 1 credit. 5-10 page report), to a synthesis or meta-analysis of existing and new sources, e.g., interviews with subject matter experts (typically 2 credits, 10-15 pages report), to a comprehensive study which adds the student's own critical discussion and suggestions to the topic (typically 3 credits; 15-20 pages report). Pre-requisites: PS5300 (Foundations of the Knowledge-driven Organization) or instructor permission.	Yes	Either CA1, CA2, or CA3 (determined based on topic)

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School of Professional Studies (SPS)	Negotiation and Conflict Resolution	NECR PS5095	Complexity Of Conflict And Change Management		X (Asynchronous)		Complexity of Conflict and Change Management (NECR K5095) is an elective course in the Negotiation and Conflict Resolution (NECR) Program. The course explores how change can create conflict and also how conflict requires change. Conflict is generally about differences in how people think, know, prefer, believe, and understand. By entering into a conflict resolution process, people can shift their understanding and beliefs about the conflict, the other party or parties, and possible outcomes. The course reviews literature and case studies of how people are impacted at a fundamental level when change occurs. Understanding this elemental human experience can lead to greater self-awareness and the ability to manage change professionally and personally, in order to become effective change agents, negotiators, mediators, and peacemakers. We will also explore how leaders at all levels in organizations can play an important role in implementing change in an organizational context. Thoughtful and strategic approaches that consider the impact of a change management process can mitigate and even prevent conflict. We will review change management models and links to developments in neuroscience and how humans are biologically wired to resist change. Balancing theory and practice, this course will focus on the experience and expertise of the students. They will learn to apply practical conflict resolution approaches to change efforts at the individual and organizational levels as well as consider national and international applications. While there will be no required live course sessions, we will be planning one synchronous meeting near the start of the term and one near the end of the term. You are highly encouraged to attend both. These meetings will be scheduled once class has started. If needed, we may have two sessions of each meeting to accommodate time zones and student schedules.	Yes	CA2, CA3
School of Professional Studies (SPS)	Negotiation and Conflict Resolution	NECR PS5101	Understanding Conflict And Cooperation	X	X		The field of conflict resolution has been developed academically as a discipline from diverse fields of knowledge. This course provides an introduction to the major schools of thought that contribute to the developments in social psychology, law, political science, social work, and business. The field of conflict resolution is also dynamically transforming, and the course introduces recent developments, particularly in the area of complexity and dynamical systems.	Yes	CA2, CA3
School of Professional Studies (SPS)	Negotiation and Conflict Resolution	NECR PS5212	Conflict, Social Networks, And Communication Technologies		X		Conflict, Social Networks, and Communications Technology (NECR PS5212) will analyze the relationship between conflict and communications technologies and will explore the challenges that individuals and networks face in using online technology for collaboration and conflict mediation purposes. The course will demonstrate how recent software and social media innovations can facilitate knowledge acquisition, network building, and the analysis and presentation of conflict-related data. Finally, it will analyze contemporary cases where developments in communications technologies have played a critical role in exacerbating and/or resolving conflicts. The course focuses on international peacebuilding, business, and human rights cases. The course will also instruct students in the use of social software (such as blogs, wikis, curation, and visual mapping) and improve their "digital literacy" on a range of technologies. It will also provide practical (and often provocative) examples and challenge students to reflect on how these tools will be useful in their professional development and work environment. As an elective offered by the Negotiation and Conflict Resolution (NECR) program, Conflict, Social Networks, and Communications Technology builds on students' conflict analysis skills (PS6125, PS6150), their ability to understand and apply relevant theories and frameworks to complex issues (PS5101), and their assessments as to what influences the behaviors and cultural understandings of conflict parties (PS5105, PS5107, PS5124, PS5205). The aforementioned courses will contribute to the understanding of this course's content and should, in general, be taken before this (or any other) electives.	Yes	CA2
School of Professional Studies (SPS)	Negotiation and Conflict Resolution	NECR PS5105	Introduction To Negotiation	X		X	Negotiation is one of the most important strategies in conflict resolution and is used routinely by all humans to resolve conflict and potential conflict successfully. This course examines both theoretical and practical implications of diverse assumptions and strategies. Students develop a deeper self-awareness of their role in the creation, perpetuation, escalation and resolution of conflicts, as well as in relationship with the other party.	Yes	CA2

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School of Professional Studies (SPS)	Negotiation and Conflict Resolution	NECR PS5109	Negotiation For Everyday	X			In this course, we will explore negotiation from several points of view and approaches. We will also look at characteristics that impact the quality of our negotiations and the outcomes, such as the role of emotions, cultural considerations, effectiveness of our communication, and opportunities to seek out negotiation to transform relationships. The course will be a blend of concepts and skills, theory and practice. On some occasions, you will be introduced to a concept and then asked to apply those concepts in an experiential activity. At other times, you will be asked to engage the activity or simulation and then the concepts will be elicited based on your experience. You will have several opportunities to practice developing your skills throughout the course, in terms of enhancing your practice and honing your analytical and conceptual understanding.	Yes	CA2
School of Professional Studies (SPS)	Nonprofit Management	NOPM PS5250	Data Analytics/Metric In The Nonprofit Sector		X		Data analytics and resultant metrics analysis are skillsets now being utilized and even required in the nonprofit and philanthropic sector at a rate and level of sophistication never before seen. Unlike the for-profit sector, metrics evaluation methodology in a mission-based environment is not always obvious nor agreed upon by stakeholders. In this class, you will discuss the research and practice methodologies related to nonprofit organization and program evaluation. We will explore a model for evaluation that includes both qualitative and quantitative benchmarks of success. Through the development of an intentional approach to data and analytics, students will learn how to assess service needs and determine the effectiveness and efficiency of individual program components or entire service systems.	Refer to Directory of Classes or contact instructor for more information	CA1
School of Professional Studies (SPS)	Political Analytics	Tba	Electoral Data & Predictive Modeling				When investing campaign resources, including funding for advertising and field operations staff, it is critical that investment decisions be as cost-effective as possible. The use of previous behavior on voting and turnout, as well as political attitudes, is used to develop predictive models to guide investment decisions. These models are modified in real time to reflect changing political conditions. This course will teach students how to select data for model construction, run models, and use them to influence campaign strategies and decision-making. The student will analyze the strategies used in ensuring effective use of campaign resources. The student will propose and develop predictive models for investment decisions and data-based campaign strategies	Tba	CA1
School of Professional Studies (SPS)	Political Analytics	Tba	Data Mining for Social Science				The class is roughly divided into two parts: 1) programming best practices, exploratory data analysis (EDA), and unsupervised learning; and 2) supervised learning including regression and classification methods. In the first part of the course, we will focus on writing R programs in the context of simulations, data wrangling, and EDA. Unsupervised learning is focused on problems where the outcome variable is not known and the goal of the analysis is to find hidden structure in data such as different market segments from buying patterns or human population structure from genetic data. Supervised learning deals with prediction problems where the outcome variable is known such as predicting the price of a house in a certain neighborhood or an outcome of a congressional race.	Tba	CA1
School of Professional Studies (SPS)	Political Analytics	Tba	Natural Language Processing				Social scientists need to engage with natural language processing (NLP) approaches that are found in computer science, engineering, AI, tech and in industry. This course will provide an overview of natural language processing as it is applied in a number of domains. The goal is to gain familiarity with a number of critical topics and techniques that use text as data, and then to see how those NLP techniques can be used to produce social science research and insights. This course will be hands-on, with several large-scale exercises. The course will start with an introduction to Python and associated key NLP packages and github. The course will then cover topics like language modeling; part of speech tagging; parsing; information extraction; tokenizing; topic modeling; machine translation; sentiment analysis; summarization; supervised machine learning; and hidden Markov models. Prerequisites are basic probability and statistics, basic linear algebra and calculus. The course will use Python, and so if students have programmed in at least one software language, that will make it easier to keep up with the course.	Tba	CA1

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School of Professional Studies (SPS)	Political Analytics	Tba	Data Visualization				This course is designed to the interdisciplinary and emerging field of data science. It will cover techniques and algorithms for creating effective visualizations based on principles from graphic design, visual art, perceptual psychology, and cognitive science to enhance the understanding of complex data. Students will be required to complete several scripting, data analysis and visualization design assignments as well as a final project. Topics include: data and image models, social and interactive visualizations, principles and designs, perception and attention, mapping and cartography, network visualization. Computational methods are emphasized and students will be expected to program in R, Javascript, D3, HTML and CSS and will be expected to submit and peer review work through Github. Students will be expected to write up the results of the project in the form of a conference paper submission.	Tba	CA1
School of Professional Studies (SPS)	Political Analytics	Tba	Machine Learning for Social Science				Prerequisites: basic probability and statistics, basic linear algebra, and calculus

This course will provide a comprehensive overview of machine learning as it is applied in a number of domains. Comparisons and contrasts will be drawn between this machine learning approach and more traditional regression-based approaches used in the social sciences. Emphasis will also be placed on opportunities to synthesize these two approaches. The course will start with an introduction to Python, the scikit-learn package and GitHub. After that, there will be some discussion of data exploration, visualization in matplotlib, preprocessing, feature engineering, variable imputation, and feature selection. Supervised learning methods will be considered, including OLS models, linear models for classification, support vector machines, decision trees and random forests, and gradient boosting. Calibration, model evaluation and strategies for dealing with imbalanced datasets, non-negative matrix factorization, and outlier detection will be considered next. This will be followed by unsupervised techniques: PCA, discriminant analysis, manifold learning, clustering, mixture models, cluster evaluation. Lastly, we will consider neural networks, convolutional neural networks for image classification and recurrent neural networks. This course will primarily use Python. Previous programming experience will be helpful but not requisite. Prerequisites: basic probability and statistics, basic linear algebra, and calculus. | Tba | CA1 |
| School of Professional Studies (SPS) | Political Analytics | Tba | Social Network Analysis | | | | The course is designed to teach students the foundations of network analysis including how to manipulate, analyze and visualize network data themselves using statistical software. We will focus on using the statistical program R for most of the work. Topics will include measures of network size, density, and tie strength, measures of network diversity, sampling issues, making ego-nets from whole networks, distance, dyads, homophily, balance and transitivity, structural holes, brokerage, measures of centrality (degree, betweenness, closeness, eigenvector, beta/Bonacich), statistical inference using network data, community detection, affiliation/bipartite networks, clustering and small worlds; positions, roles and equivalence; visualization, simulation, and network evolution over time. | Tba | CA1 |
| School of Professional Studies (SPS) | Sports Management | SPRT PS5240 | Business Intelligence In Sports | | X | | This course examines the history and future of companies growing their customer relationship management (CRM) tool. From the early stages of data collection, to the data explosion witnessed in recent year, this course examines the tools needed to make informed decisions on customers. This business strategy aimed at understanding, anticipating and responding to customer needs in order to expand the customer relationship based on customer's actions and data points. | Refer to Directory of Classes or contact instructor for more information | CA1 |
| School of Professional Studies (SPS) | Sports Management | SPRT PS5350 | Fundamentals Of Sports Analytics | | X | | This course is an introduction to the application of analytic tools and techniques used to aid sports decision-makers. The structure of the course examines the use of analytics to four main areas of interest: player performance measurement, in-game decision-making, player selection and team/roster construction, and sports administration such as marketing, pricing, contracts, stadium management, etc. Emphasis is placed on how the application of analytics has altered the decision processes of sports organizations.

Fundamentals of Sports Analytics provides a needed skill set for today's sports managers and leaders. Having a basic understanding of analytical tools and their application to sports issues is essential for the success of anyone pursuing a career in the field of sports management. | Refer to Directory of Classes or contact instructor for more information | CA1 |
| School of Professional Studies (SPS) | Strategic Communication | SCOM PS5165 | Influence: Behavioral Science And Communication | X | | X | This course places students at the intersection of two converging fields, behavioral economics and communication, to teach them how our predictable irrationality can become a competitive advantage in persuading people, groups and organizations to take favorable actions. Through lectures, case analysis, and group projects, students learn and apply a variety of psychological principles to communication thinking, planning and leadership. Students are challenged to think broadly about communication — advertising, public relations, social media, content and internal communication — in their application of cognitive bias and heuristics principles including anchoring, framing, loss aversion, group biases, time-discounting and choice overload. | Refer to Directory of Classes or contact instructor for more information | CA2 |

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School of Professional Studies (SPS)	Strategic Communication	SCOM PS5121	Activating Employees		X		Through strategic internal communication, employees are focused on driving business results and encouraged to act as brand ambassadors on behalf of their organization, building the organization's reputation. This course focuses on communication from the inside-out, addressing the opportunities, challenges, and issues communication professionals face today in dealing proactively and reactively with internal stakeholders. How can leaders build credibility with employees in an authentic way? How do you influence your CEO to take a leadership position and act as the champion of the employee communication effort? How can an internal communication strategy ensure truthful and respectful communication during times of change?	Yes	CA2, CA3
School of Professional Studies (SPS)	Strategic Communication	SCOM PS5280	Global Communication For Professionals	X		X	The global knowledge economy, cross-border market permeability, and worldwide talent mobility have accelerated the rise of multinational and domestic organizations comprised of individuals from many different cultural and linguistic backgrounds. As these trends strengthen, so, too, does the likelihood that the 21st-century worker will spend a significant part of her/his professional career in a multicultural workplace. While such diversity affords great benefits to organizations, their employees and clients, it is often accompanied by a rise in communication misfires and misunderstandings that can undermine individual, team, and organizational performance.	Refer to Directory of Classes or contact instructor for more information	CA2
School of Professional Studies (SPS)	Strategic Communication	SCOM PS5270	Content Strategy: Achieving Business Goals Through Content		X		Sitting at the intersection of business strategy, digital development, user experience, communication, and publishing, content strategy has emerged over the last few years as a discipline examining the purpose behind content (in all manifestations) and how it supports business, organizational, and user goals. While it originated in digital web design and user experience, content strategy now encompasses a much broader set of considerations and addresses content creation, distribution, and governance across multiple channels, especially the interplay among digital, social, and traditional media. Content strategy provides a holistic approach for unlocking the value behind content and for increasing its effectiveness in achieving business and organizational objectives. This course will present the fundamentals of content strategy and explore the discipline's approaches, techniques, and tools that course participants can apply directly to the content situation in their own organization. It will draw parallels with – and highlight distinctions among – traditional communication strategy, publishing, and content strategy, and provide students with a framework to create a sustainable program grounded in meaningful, actionable content.	Yes	CA3
School of Professional Studies (SPS)	Strategic Communication	SCOM PS5480	Gender And Communication In The Workplace	X		X	Gender and Communication in the Workplace offers professionals across sectors and industries the knowledge and skills needed to identify the social and linguistic practices enacted at work, and the opportunity to advance the interests of those who run up against barriers to advancement as a result of prejudice and stereotyping.	Yes	CA2
School of Professional Studies (SPS)	Strategic Communication	COMM PS5160	Political Communications	X		X	This course is designed either for students who wish to embark on or further careers in politics and for those interested in exploring the dynamic field of political communication. Three themes anchor the course material: 1.) strategic communication, or deliberate and goal-oriented communication, which enables professionals to analyze and execute political strategy; 2.) message, which enables the crafting and critique of more or less effective political communication; and 3,) research, which political professionals use to formulate, shift and optimize their strategies.	Refer to Directory of Classes or contact instructor for more information	CA2
School of Professional Studies (SPS)	Strategic Communication	COMM PS5190	Critical Conversations	X		X	Effective dialogue is one of the single most important activities of leaders today. Whether you are confronting a team member who is not keeping commitments, critiquing a colleague's work, disagreeing with a spouse about financial decisions, or telling someone no, critical conversations are often avoided or handled in clumsy ways. This course will provide the theory underpinning these conversations, diagram their structure, and provide specific strategies for approaching them successfully.	Yes	CA2
School of Professional Studies (SPS)	Strategic Communication	COMM PS5170	Crisis Communications	X			This course covers the basic elements of crisis communication and the procedures for creating crisis communications plans and for reacting to crises when they occur. How best to develop various plans for different critical audiences and understand the most effective strategies for communicating your organization's message during a crisis is explored. The course examines various types of crises that can occur with corporations and nonprofit organizations and the differences and similarities among them. How to avoid the classic and common pitfalls of crisis communication are addressed, as are ethical issues that arise during crises. Numerous case studies are discussed in class and exercises both in and outside of class are assigned so students gain experience in crisis communication situations.	Refer to Directory of Classes or contact instructor for more information	CA2

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School of Professional Studies (SPS)	Sustainability Management	SUMA PS5220	Sustainable Entrepreneurship	X			Entrepreneurship is all the rage in conversations on Wall Street and Main Street. Everyone and their neighbor seems to want the glitz and glamour of starting a successful company and being their own boss, but few take the plunge because of the inherent risks and tiresome challenges of developing an early-stage company. This course applies entrepreneurial thinking to different business models as seen through a social, environmental, and economic sustainability perspective. The course will explore the relationship between society's need for business development and costs to the environment. You will study ways in which sustainable entrepreneurship can significantly diminish dependency on fossil fuels and toxic substances. The course will challenge you to conceive and pitch a sustainable entrepreneurial or intrapreneurial business concept. Guest lectures, readings, case studies, activities, and group work will support the development of your entrepreneurial venture. This course is distinctive from others at Columbia in several ways. This course puts sustainability concepts to work by inspiring students to think about value creation through the lens of ecological and social stewardship; then to test market their ideas, evaluate the business landscape, and create a thoughtful business plan and execution strategy. The class is appropriate for those with an interest in the unique challenges of starting a social good or clean technology company. This course requires business and technical proficiency gained in a competitive undergraduate program or commensurate professional experience. During the course, students will work in teams to formulate a business solution around a sustainability issue. All teammates will need to understand their solution, including technical and scientific aspects, and the mechanisms by which you develop a company and market your solution. This is an elective course and is approved to satisfy "Area 5 – General and Financial Management" requirement for the M.S. in Sustainability Management curriculum. Registration is open to students from the School of Professional Studies; School of International and Public Affairs; Graduate School of Arts and Sciences; SEAS Graduate Programs; and Graduate School of Architecture, Planning, and Preservation.	Yes	CA3
School of Professional Studies (SPS)	Sustainability Management	SUMA PS5025	Corporate Sustainability Reporting And Strategy	X			This course is designed for those who will hold positions in corporations with responsibilities for mapping and managing Environmental, Social and Governance (ESG)issues relating to a business, setting sustainability goals, communicating progress towards goals, and engaging with stakeholders, including civil society organizations, suppliers, customers, and investors. While a sustainability report is a snapshot in time of a company's performance against sustainability goals, the sustainability reporting process, is a continuous improvement cycle designed to embed sustainability within the corporation. This course will explore the interplay between corporate sustainability strategy and reporting. Expectations for how today's companies operate are rapidly evolving. It is increasingly recognized that by implementing sustainability management mechanisms, companies can better manage physical, regulatory, technological, and reputational risks, as well as create value through efficiencies and innovation. Embedding sustainability into the corporate DNA necessitates corporations to expand their horizons for strategic planning. Implementing sustainability reporting practices enables corporations to do just that.	Yes	CA1, CA3
School of Professional Studies (SPS)	Sustainability Management	SUMA PS5033	Decision Models & Management	X			This course provides an introduction to computer-based models for decision-making. The emphasis is on models that are widely used in diverse industries and functional areas, including finance, accounting, operations, and marketing. Applications will include advertising planning, revenue management, asset-liability management, environmental policy modeling, portfolio optimization, and corporate risk management, among others. The applicability and usage of computer-based models have increased dramatically in recent years, due to the extraordinary improvements in computer, information and communication technologies, including not just hardware but also model-solution techniques and user interfaces. Twenty years ago working with a model meant using an expensive mainframe computer, learning a complex programming language, and struggling to compile data by hand; the entire process was clearly marked "experts only." The rise of personal computers, friendly interfaces (such as spreadsheets), and large databases has made modeling far more accessible to managers. Information has come to be recognized as a critical resource, and models play a key role in deploying this resource, in organizing and structuring information so that it can be used productively.	Yes	CA1

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School of Professional Studies (SPS)	Sustainability Management	SUMA 5255	Statistics, Data Analysis, And Coding For Sustainability Science	X			Data science is an exciting new field of applied research that takes advantage of the ever-growing volume of data being collected to support of decision-making in both the public and private sectors. Similar to traditional statistical analysis, these new approaches have limits and issues that are important tounderstand before application to problem solving. This course aims to introduce the common methodsused in data science, best practices in data management, and the basic scripting skills required tostart analyzing data in R and Python. After introducing foundational scripting and data analysismethods, a case study approach will be used to highlight both what can be accomplished with dataanalysis and the limits of the data and methods used. Lab exercises will teach basic skills inscripting in Python and R and then move to a common approach for data analysis: adapting existingscriptsand software libraries to solve applied data problems. The requirement to understand the interaction of social and natural systems requires data-driven policy decisions, and the ongoing assessment of policies requires rigorous, reproducible assessments of effectiveness for promoting sustainability. Both requirements can be met in part by data science approaches that are applicable to the natural and social sciences and reproducible inacademic and applied settings. Data science techniques have been developed to derive insight fromlarge volumes of available data that are often collected for purposes other than the interests ofthe data scientist. This flexibility in approach means that the techniques used in data science arewell adapted to support gaining insights from data relevant for sustainability science. This course has been designed to introduce these techniques in anticipation of increased use in promoting sustainability.	Yes	CA1
School of Professional Studies (SPS)	Sustainability Science	SUSC PS5060	Data Analysis And Visualization In Sustainability	X			Data science is an exciting new field of applied research that takes advantage of the ever-growing volume of data being collected to support of decision-making in both the public and private sectors. Similar to traditional statistical analysis, these new approaches have limits and issues that are important to understand before application to problem solving. This course aims to introduce the common methods used in data science, best practices in data management, and the basic scripting skills required to start analyzing data in R and Python. After introducing foundational scripting and data analysis methods, a case study approach will be used to highlight both what can be accomplished with data analysis and the limits of the data and methods used. Lab exercises will teach basic skills in scripting in Python and R and then move to a common approach for data analysis: adapting existing scripts and software libraries to solve applied data problems. The requirement to understand the interaction of social and natural systems requires data-driven policy decisions, and the ongoing assessment of policies requires rigorous, reproducible assessments of effectiveness for promoting sustainability. Both requirements can be met in part by data science approaches that are applicable to the natural and social sciences and reproducible in academic and applied settings. Data science techniques have been developed to derive insight from large volumes of available data that are often collected for purposes other than the interests of the data scientist. This flexibility in approach means that the techniques used in data science are well adapted to support gaining insights from data relevant for sustainability science. This course has been designed to introduce these techniques in anticipation of increased use in promoting sustainability. The course has no perquisites; however, an understanding of statistics and probability will be very useful background, and any previous programming or scripting skills will be applicable to the lab assignments.	Yes	CA1
School of Professional Studies (SPS)	Technology Management	TMGT PS5115	Accounting And Finance For Technology		X		An exploration of the central concepts of corporate finance for those who already have some basic knowledge of finance and accounting. This case-based course considers project valuation; cost of capital; capital structure; firm valuation; the interplay between financial decisions, strategic consideration, and economic analyses; and the provision and acquisition of funds. These concepts are analyzed in relation to agency problems: market domination, risk profile, and risk resolution; and market efficiency or the lack thereof. The validity of analytic tools is tested on issues such as highly leveraged transactions, hybrid securities, volatility in initial public offerings, mergers and acquisitions, divestitures, acquisition and control premiums, corporate restructurings, and sustainable and unsustainable market inefficiencies.	Refer to Directory of Classes or contact instructor for more information	CA1, CA3

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School of Professional Studies (SPS)	Technology Management	TMGT PS5135	Enterprise Information Security: Threats And Defense		X		Competition, espionage, theft, sabotage, and warfare, traditionally carried out "in the field" have erupted online. State-sponsored cyber-attacks target critical infrastructure, financial systems, government agencies, political adversaries, retail, and consumer databases, and the intellectual property of technology firms. This course covers the defensive techniques that address perimeter and data security. Business model relationships to security architecture are examined, in particular managing vulnerability introduced through mergers and acquisitions, and Active Directory migrations. Service and Administrative account management and other aspects of network design will be analyzed. Students will investigate recent newsworthy cases and devise countermeasures aimed at both incident prevention and effective CIRT (Cyber Incident Response) management.	Refer to Directory of Classes or contact instructor for more information	CA1, CA3
School of Professional Studies (SPS)	Technology Management	TMGT PS5118	Behavioral Challenges In Technology Management		X		An in-depth study of the intricacies of managing technical personnel and management teams in a fast paced and evolving business environment. Emphasis is placed on key challenges including the management of multiple technology projects, software development processes, and communications among technology managers and senior managers, developers, programmers, and customers.	Refer to Directory of Classes or contact instructor for more information	CA2
School of Professional Studies (SPS)	Technology Management	TMGT PS5120	Operations Management In It		X		This course provides an examination of the role the technology leader plays in the daily operations and performance management of an organization. The course focuses on how tech leaders can manage both up and down within their organizations through critical examination of current IT topics such as Outsourcing, Cloud Computing, Enterprise Architecture (as a strategy), Information Security, Risk Management, IT Governance, and determining/communicating the business value of IT. Students leave the course with a deep understanding of the dramatically different priorities, skills, and actions required to succeed as an IT leader.	Refer to Directory of Classes or contact instructor for more information	CA1, CA2
School of Professional Studies (SPS)	Technology Management	TMGT PS5136	Cybersecurity Strategy And Executive Response		X		With high profile cybersecurity breaches and incidents occurring on an almost daily basis, cybersecurity strategy is a board-level topic. From Target Corporation to Sony Corporation, Chief Executive Officers (CEOs) and other c-suite executives are being held accountable for breaches of data, which has in turn driven interest at the board level in cybersecurity strategy, incident response, and technology risk management. Under the working assumption that a corporation's risk appetite, of which cybersecurity is one pillar, must drive its cybersecurity strategy and associated incident response, this course seeks to provide students with the tools needed to build, deliver and implement a cybersecurity strategy, obtain executive and board-level consensus around the proposed strategy, and develop an associated "cyber playbook" to respond to security incidents.	Refer to Directory of Classes or contact instructor for more information	CA1, CA3
School of Professional Studies (SPS)	Technology Management	TMGT PS5141	Creating Value In The Experience Economy		X		One of the most fundamental changes wrought by the advent of interactive digital media has been creation of a partnership between the entertainment provider and the consumer. This evolution is marked by the democratization of creativity, acting, and the capturing and conveyance of human experience by the consumer. All of this is driven by the need and desire of the consumer to evoke and capture meaningful experiences. The merging of "work" and "play," where every business is viewed as a theatrical experience, transcends the long-held belief that high-quality goods at competitive prices alone is the mark of success. Customization of service leads to transformative experiences, the kind we capture, convey, remember, and talk about long after they have occurred. Such is the aspiration of businesses seeking to reach the 21st century digital citizen marketplace. This course looks at myriad examples of successful – and unsuccessful – applications of these principles.	Refer to Directory of Classes or contact instructor for more information	CA3
School of Professional Studies (SPS)	Technology Management	TMGT PS5170	Re-Engineering And The Systems Development Life Cycle		X		This course provides students with the knowledge and techniques needed to lead major re-engineering projects, including reassessment of legacy systems and changing existing business processes. Understanding the differences between reengineering and continuous improvements and benchmarking is covered up-front together with common obstacles to business reengineering success (e.g., resistance to change, etc.) in an effort to drive towards a specific reengineering model. Legacy architectures from de-composable to non-decomposable are covered, and the role of gateways as well. The principles of distributed computing, i.e., object orientation, standards and the enterprise information architecture are covered as well as distributed systems designs and the level of performance testing needed to support them. Case studies are used to reinforce topics.	Refer to Directory of Classes or contact instructor for more information	CA1, CA3

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School of Professional Studies (SPS)	Technology Management	TMGT PS5180	Leading Disruptive Change In The Digital Economy	X			This course enables students to understand the impact of IT on an organization's transformative objectives. Students learn how to integrate IT as the key driver for business process change and for continuous improvement in incremental gains and for selective reengineering to effectuate substantial breakthroughs in process performance. Students will develop an in-depth understanding of how technology can have a push-effect on an organization's processes and of the factors that must be in-synch to facilitate such an effect, e.g., organizational desire for change, corporate culture, and the strategic role that IT leaders must play in working together with the lines of business to effectuate this change.	Refer to Directory of Classes or contact instructor for more information	CA1, CA3
School of Professional Studies (SPS)	Technology Management	TMGT PS5200	Machine Learning & Artificial Intelligence	X	X		This course provides a broad overview of applied analytics frameworks and methods to help organizations turn data into informative insights. The chain of inferences leading from data collection to utilization for decision-making represents a comprehensive and coherent validation framework for the use of data to inform real-life problems. The course covers tools for addressing a set of claims about a problem based on data: exploratory data analysis, multivariate regression, causal inference, network analysis, and predictive analytics. It also introduces computational methods in natural language processing and machine learning and how these methods are integrated and deployed within modern database frameworks to turn organizations in data-savvy organizations. AAM helps students to recognize which applied analytic frameworks and methods to use to make smarter and better decisions and producing better results for their organizations. Students learn how different analytic methods are used to address critical data issues facing an organization and how best to apply those methods. Students learn how to conduct in-depth strategic analytic analysis of business problems and communicate those results to all levels of an organization — both technical and non-technical audiences. Students will have the opportunity to apply these analytic methods to real problems in specific industries associated with their area of interest.	Refer to Directory of Classes or contact instructor for more information	CA1
School of Professional Studies (SPS)	Technology Management	TMGT PS5400	Modern Database Architecture		X		This course provides coverage of modern database architecture and how organizations extract, transform, and load data to set the foundation for deep analytics within their organization. Students will develop a broad understanding of cloud-based computing environments such as Amazon's AWS and Microsoft's Azure, MapReduce and data parallel applications using Hadoop, noSQL databases such as MongoDB. Students will learn how to develop a strong working knowledge of relational and non-relational databases, structured and unstructured data, as well as scalability and performance issues as they relate to modern applied analytics. Students will cover different types and scales of data and how to apply the best database framework for their organization's analytic needs. The course will provide case studies from industry and students will apply their knowledge to architect real business solutions, not only the optimal architectural framework but the total costs, including hardware, software and human costs, to implement such a solution.	Yes	CA1
Mailman School of Public Health	(Health Policy and Management)	P8212	Digital Health Revolution (1.5 Points)		X		Digital health is the use of any and all digital resources to improve health by making it safer, more efficient, maximize outcomes and lower costs. It is transforming the delivery of healthcare and behaviors of all health sectors. The size and scope are fast growing and difficult to define at this point in its history. The Covid-19 pandemic has magnified the importance and uses of digital health. This course provides an overview of digital healthcare in the US, focusing on how and why digital health is revolutionizing healthcare for providers, patients and payors. Students will be equipped with the vocabulary, concepts and tools to understand the dynamic aspects of digital healthcare in today's environment, including its definition, its role in improving patient outcomes, provider satisfaction, reduction in costs and why this is accelerating. Students are encouraged to take the perspective of the executive and policy-maker in class discussions. In addition, the course surveys current digital tools and investment strategies in digital health.	Refer to Directory of Classes or contact instructor for more information	CA3
Mailman School of Public Health	(Health Policy and Management)	P8213	Health Claims Data Analytics: Real World (1.5 Points)		X		Integrated individual-level health claim, biometric and risk data have many business uses across insurance, consulting, disease management, engagement and other digital healthcare organizations. The purpose of this course is to provide training to meet the data analytical job demands of these organizations with practical, hands-on experience exploring real corporate longitudinal data.	Refer to Directory of Classes or contact instructor for more information	CA1

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Teacher's College (TCOL)	Organization & Leadership (ORL)	ORLA 5025	Ecology Of Data-Driven Leadership	Tba	Tba		This course relies upon systems theory and its application to school systems. The course teaches prospective leaders the use of databases of various kinds to pursue a systematic inquiry in the health and productivity of the ecology of the school. It explores various approaches to data mining, model building, and ultimately the "art of improvisational leadership." The course teaches students how to distinguish the different purposes for which data can be used and misused and relies heavily on the use of cases, simulations and exercises, including those with complex feedback systems. Familiarity with spreadsheets and simple statistics is helpful.	Refer to Directory of Classes or contact instructor for more information	CA1
Teacher's College (TCOL)	Organization & Leadership (ORL)	ORLD 4085	Management And Leadership Skills In Practice	Tba	Tba		This course develops skills as a manager and leader using a cognitive-science based approach to skills development. Taking a hands-on, experiential approach, the purpose is to demystify the notion of management, provide students with feedback about their own management potential, and facilitate their personal and intellectual growth as a skilled leader. To paraphrase the father of modern management, Peter Drucker: Only three things happen naturally in organizations: friction, confusion and underperformance. Everything else requires management and leadership. In this course, students will learn how to more effectively lead and motivate groups while understanding, as Paul Hawkes said, "Good management is the art of making problems so interesting and their solutions so constructive that everyone wants to get to work and deal with them."	Refer to Directory of Classes or contact instructor for more information	CA3
Teacher's College (TCOL)	Organization & Leadership (ORL)	ORLD 5054	Strategy Development As A Learning Process In Organizations	Tba	X		This course provides a comprehensive view of organizational strategy from a learning perspective. Students examine various models for facilitating the development of strategic initiatives through learning interventions.	Refer to Directory of Classes or contact instructor for more information	CA2, CA3
Teacher's College (TCOL)	Organization & Leadership (ORL)	ORLD 5060	Learning And Technology In Organizations	Tba	Tba		This course is designed to help students understand the rapidly changing role of intelligent technology for organizational learning about strategy and capacity building. The course draws on a combination of research case studies together with the existing theories on organizational learning in the workplace to address the complex dilemmas faced by human resource managers and corporate executives regarding the impact of technology on employee learning and management. The objectives of this course are presented in four integrated competency units: first, the ways in which IT has revolutionized learning in organizations; second, the alternative ways technology can be used to support distance learning; third, technology as it supports knowledge management; and, fourth, how technology changes organizational functioning and management.	Refer to Directory of Classes or contact instructor for more information	CA1, CA3
Teacher's College (TCOL)	Organization & Leadership (ORL)	ORLD 5061	The Learning Organization	Tba	Tba		This course focuses on the practice of organization learning as a system of discrete components including learning and development programs, HR systems, corporate universities, executive coaching, using consultants, action learning programs, and OD, among others. Attention is given to action science as a framework for understanding OL at the individual, group, and organizational levels. Cases and readings balance theory and practice to demonstrate how leaders strive to integrate learning to increase organizational agility.	Refer to Directory of Classes or contact instructor for more information	CA3
Teacher's College (TCOL)	Organization & Leadership (ORL)	ORLJ 5115	Social Networks & Performance	X			This course allows students to understand how social networks influence performance in a wide variety of settings. Relevant topics in the application of social network ideology are explored, such as motivated goal pursuits, leadership processes, and the structure of group and organizational networks. The course also explores important interpersonal processes through a social network lens, such as human conflict, emotional contagion, and helping behavior.	Refer to Directory of Classes or contact instructor for more information	CA1, CA2
Teacher's College (TCOL)	Organization & Leadership (ORL)	ORLD 5540	Social Entrepreneurship & Leadership	Tba	Tba		Social Entrepreneurship can be simply defined as the application of the mindset, processes, tools, and techniques of business entrepreneurship to the pursuit of a social and/or environmental mission. Social entrepreneurship brings to bear the passion, ingenuity, innovativeness, perseverance, planning bootstrapping abilities, and focus on growth characteristic of business entrepreneurs on the work of meeting our society's most pressing challenges. Incorporated into each class will be implications for how entrepreneurs learn (entrepreneurial learning theory) through practice. The course will concurrently address the necessary skills needed to start a social enterprise including how to develop a business plan with a social/societal benefitting focus. Students will develop a comprehensive business plan for a social enterprise of their choosing throughout the semester, as well as a Pitch.	Refer to Directory of Classes or contact instructor for more information	CA3

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Teacher's College (TCOL)	Organization & Leadership (ORL)	ORLJ 5250	Equity, Diversity & Inclusion In Teams And Organizations	Tba	Tba		This course covers foundational and current research on equity, diversity and inclusion (E, D & I) in work teams and their larger organizational systems. Students in this course will learn effective, evidence-based practices and have opportunities for skill-building and hands-on learning related to issues of E, D & I in today's workplace. Students will also engage in critical self-reflection to increase understanding of their own identities and knowledge about how who they are shapes how they navigate in diverse workplaces. The class format will include lecture, discussion, experiential learning and activities/exercises to increase practice skills in E, D & I.	Refer to Directory of Classes or contact instructor for more information	CA2, CA3
Teacher's College (TCOL)	Organization & Leadership (ORL)	ORL 5362	Group dynamics: A systems perspective	X			The course explores social processes in groups and their impact on individual behavior. In addition to a series of lectures/discussions, students are required to participate in an experiential group relations conference or to conduct a self-study project on group relations. Special fee is required.This class gives students the opportunity to develop an in-depth understanding of group dynamics from a systemic perspective and to learn about their own behavior in groups. Readings, lectures, and discussions will address dynamics as they occur in varied groups, systems and contexts including the business world, educational institutions, healthcare systems, the military, religious institutions, and in community and family life. The interplay of power, authority, socio-political identities, and group dynamics is emphasized. Group Relations Conference: Nov 17-19. Students MUST attend all sessions or do alternative project. Students outside of Social-Organizational Psychology should contact John Handal to be placed on a waitlist. Faculty should not be contacted for override requests.	Refer to Directory of Classes or contact instructor for more information	CA1, CA3
Teacher's College (TCOL)	Organization & Leadership (ORL)	ORL 6011	Advanced System Management	Tba	Tba		Managing systems requires the generation of useful information for decision-making. This course focuses on using information for strategic planning and management of systems in healthcare.	Refer to Directory of Classes or contact instructor for more information	CA1, CA3
Teacher's College (TCOL)	Organization & Leadership (ORL)	ORL 6502	Dynamic Networks and Systems	X			Doctoral seminar. This seminar examines various theoretical and empirical approaches to the study of complex systems. Example topics include traditional systems theory, social network analysis, dynamic network theory, social interaction analysis, and simulations of complex systems. A variety of frameworks are addressed that span individual, dyadic, group, organizational, and international levels.	Refer to Directory of Classes or contact instructor for more information	CA1, CA3