PROF-705: Contexts and Trends

Course Description (Catalog Description):
The gateway course for students enrolled in the MS in Professional Studies: City Sciences program in Dubai. The course provides students with opportunities to interact about topical issues related to the city as a unit of analysis, while discovering foundational knowledge about the interdisciplinary history of modern cities, urban economics, city development and planning theory, urban ecology, demography, and applied problem-solving and research methods related to the study of urban systems. Through a comparative approach, students will develop foundational understanding of urbanism in the context of the Middle East. Students use this course as a means of exploring different issues and themes informing the development of their capstone project and further study in the field of City Sciences.

Learning Outcomes:
Students who successfully complete this course will be able to:

- Develop and express ideas orally and in writing using English to increase knowledge, foster understanding or promote change. (Student advising, class discussion and/or written assignments)
- Develop a habit of mind characterized by comprehensive exploration of issues, ideas, artifacts and events before accepting or formulating an opinion or conclusion. (Student advising, class discussion and/or written assignments)
- Develop understanding and disposition that reflects making connections among ideas and experiences with synthesis and transference to new complex situations. (Student advising, class discussion and/or written assignments)
- Design, evaluate and implement a strategy to answer an open-ended question or achieve a desired goal. (Student advising, class discussion and/or written assignments)
- Judge right and wrong human conduct on the basis of personal values, social contexts and applicable professional standards professional concentrations. (Student advising, class discussion and/or written assignments)
ARCH-752 Urban and Regional Planning

Course Description (Catalog Description):
Urban and Regional Planning will be an exploration of the relationship between urban-regional form, process and performance. The structure of urban areas, their expansion, and the impact of their development on social and ecological systems will be studied, all within the context of local, historical, vernacular and cultural conditions. Universal concepts of incentive zoning, floor area ratios, form-based zoning, and land-use planning; emphasizing components of planning practice particularly in areas of “hyper-urbanization” are also explored. Students will work at a variety of scales, and learn the importance of scale hierarchy in planning and design. Students will interact with local planning professionals and stakeholders, and conduct fieldwork and research singly and in teams. Students will learn to apply historical models and sustainability standards to generate an original planning project.

Learning Outcomes:
Students who successfully complete this course will be able to:
- Understand the major influences and planning trends.
- Gain familiarity with data sources, analytical techniques, and effective interpretation.
- Acquire the ability to create alternative urban-regional design concepts as part of a team.
- Understand the municipal project approval process.
- Apply current planning theory to an urban-regional design problem.
NSSA-789 Infrastructure for City Sciences

➢ Course Description (Catalog Description):

The thinking within modern cities has changed dramatically in the past decade with the emergence of information and communication technologies (ICT). Previously, the existence of useful infrastructure was considered to be a powerful factor in influencing development. Presently, an adequate and flexible infrastructure is considered to be a requirement for any modern city. Its absence is a sign of underdevelopment. This course presents current and future ICT development along with techno-economic deployment scenarios and provides breadth in understanding the limits and potential of communication technologies.

➢ Learning Outcomes:

Students who successfully complete this course will be able to:

- Describe common utilities and infrastructure services in modern cities. (Written Assignment)
- Trace the communication flow across the components within mobile communication systems. (Written Assignment)
- Explain common computer protocols. (Written Assignment)
- Describe challenges and solutions to security. (Project)
- Make technological predictions of next generation networks and explain their role in modern cities (research-based paper)
- Describe the current technical limitations in wireless systems (Written Assignment)
PROF-770-CAPSTONE PROPOSAL SEMINAR

- **Course Description (Catalog Description):**

  (The) seminar course provides a structured context to enable students in the MS in Professional Studies degree program to prepare a formal Capstone Project Proposal as a prerequisite for entering the final course in the program, PROF-775 Capstone Project. Activities include researching and defining a real-world, multidisciplinary problem or opportunity; providing a justification as to how the student’s multidisciplinary education has prepared him/her to be uniquely qualified to address the defined problem; proposing a solution to the defined problem (a project) that consists of a problem statement, a set of deliverables, a timeline, and an evaluation methodology for assessing the success of the completed project; and establishing a formalized mentor/mentee relationship with an individual with relevant subject matter expertise who can guide and evaluate the student’s work in the subsequent course, ROF-775 Capstone Project.

- **Learning Outcomes:**

  At the end of this course, a student will be able to:

  - Develop required Capstone Project components including, but not limited to, abstract, problem background, project description.
  - Demonstrate a critical and creative understanding of how one’s professional concentrations can be applied and integrated into a Capstone Project
  - Illustrate how one’s Project meets the five learning objectives outlined in Context & Trends (professional communications; ethical reasoning; critical thinking; problem solving; integrated (interdisciplinary) learning.
PROF-775 CAPSTONE PROJECT

- **Course Description (Catalog Description):**

  The capstone project course for students enrolled in the MS in Professional Studies Degree program. With individualized advising from a CMS (approved) project mentor, students participate in a real-world problem-solving project carried out in an organizational setting. Problems selected for project work relate to a student’s professional course concentrations. Course requirements involve completing a literature review, writing a project proposal, engaging in online discussion with CMS faculty advisor and other CMS capstone students, a variety kinds of field work activities, writing a full draft and final academic reports and making a (PowerPoint) presentation. Registration completed on behalf of students following faculty review of acceptable capstone project proposal.

- **Learning Outcomes:**

  At the end of this course, a student will be able to:
  
  - Develop and express ideas orally and in writing using English to increase knowledge, foster understanding or promote change.
  - Develop a habit of mind characterized by comprehensive exploration of issues, ideas, artifacts and events before accepting or formulating an opinion or conclusion.
  - Develop understanding and disposition that reflects making connections among ideas and experiences with synthesis and transference to new complex situations.
  - Design, evaluate and implement a strategy to answer an open-ended question or achieve a desired goal.
  - Judge right and wrong human conduct on the basis of personal values, social contexts and applicable professional standards professional concentrations.
BUSI-710-PROJECT MANAGEMENT

Course Description (Catalog Description):
Addresses project management from a multidisciplinary perspective, covering the fundamental nature of and techniques for managing a broad range of projects—public, commercial, and non-profit. Topics include Project Environment, Planning, Conflict Resolution, Budgeting, Scheduling, Resource Allocation, Monitoring /Controlling, and Project Termination. Addresses the behavioral and quantitative facets of project management. Incorporates the use of spreadsheets, project management software, and simulation for risk analysis software. Introduces the Framework and 9 Knowledge Areas of A Guide to the Project Management Body of Knowledge (PMBOK®Guide) as defined by the Project Management Institute (PMI). Students should have elementary management experience.

Learning Outcomes:
At the end of this course, a student will be able to:

- Describe the unique nature of projects and the way many organizations utilize projects.
- Apply project management techniques and methods to simulated “real life” projects.
- Apply the fundamental concepts and techniques embodied in project management.
- Recognize the Project Management Framework and apply the PMBOK Knowledge Areas.
- Synthesize discrete groups of information into a meaningful composite through oral presentations.
- Experience the behavioral facets of Project Management.
- Appraise problematic project management situations to determine the best solutions.
Course Description (Catalog Description):

With the increasing frequency of globalization, mergers, and acquisitions, international projects are becoming more prevalent and approaching the norm for many organizations. This course addresses a wide range of international projects—based in different industries and multiple countries. It deals with cultural and social differences within firms; cultural and social differences among countries and within countries; languages and dialect variations; different management practices and structures; religious practices; legal, regulatory, and reporting requirements; technology and infrastructure differences in different regions; and time zone differences. Incorporates aspects of A Guide to the Project Management Body of Knowledge (PMBOK® Guide).

Learning Outcomes:

At the end of this course, a student will be able to:

- Explain the unique characteristics and constraints of an international project.
- Analyze the business challenges a project manager faces when conducting a global project in a given country.
- Synthesize discrete groups of information into a meaningful composite
- Experience the behavioral facets of global project management
- Gain experience in creating a realistic Project Plan for a typical international project.
- Appraise global project problems to determine the best solutions.
PUBL-810-TECHNOLOGY, POLICY AND SUSTAINABILITY

Course Description (Catalog Description):
This main theme of this course is the theory and practice of public policy, with a focus on technology and sustainability/environmental policy. We will discuss a variety of topics that are both worthy of deep philosophical consideration and of great practical importance to the formation and execution of policy, including the application of Benefit-Cost Analysis, methods of dealing with risk and uncertainty, theories of organizational behavior, and approaches for integrating sustainability into a policy framework. While there will be some discussion meant to build on discrete policy analysis skills, the primary goal of the course is to examine the standard set of policy analysis tools and assumptions with a critical eye.

Learning Outcomes:
At the end of this course, a student will be able to:

- Describe the major approaches towards policy analysis (such as Benefit-Cost analysis, Decision Analysis, and Multi-attribute Decision Making), their strengths and weaknesses, and determine their appropriateness for different situations.
- Be sensitive to the issues of values, professional responsibility, and ethics in policy analysis, potentially improving the value of their (inevitable) contributions to the public good.
- Identify and describe faulty applications of public policy, and effectively argue for better choices and better outcomes.
- Understand the ways that organizations and individuals understand risk and make decisions, and apply that knowledge when discussing or designing public policy instruments.
PUBI 709 - PUBLIC ADMINISTRATION AND MANAGEMENT

Course Description (Catalog Description):
This course provides an in-depth look at the evolution of public administration theory and practice. Starting with the basic structure of the U.S. Constitution, the course examines how the key tensions facing local, state, and federal public administrators changed over time with both changes in social science and changes in public administration practice. Topics include public organization theory, public budgeting, citizen engagement, e-government, public-private partnerships, and recent innovations in management practice.

Learning Outcomes:
At the end of this course, a student will be able to:

- Understand how the construction of U.S. federal public administration occurred within the gaps of the Constitution.
- Understand the historical evolution of public administration theory.
- Understand the tensions between public administration capacity and the political control of that capacity.
- Understand the role of budgeting processes in shaping public administration and management.
- Critically evaluate contemporary public administration reforms such as e-government, collaborative management, New Public Management, contracting out, comparative democratic governance, globalization, and citizen engagement.
- Learn a variety of conflict management, facilitation, and negotiation skills relevant to collaborative public management practices.
ARCH-762-INDUSTRIAL ECOLOGY FUNDAMENTALS

Course Description (Catalog Description):

This course provides an introduction to the field of Industrial Ecology, a systems-based, multidisciplinary study of the material and energy flows in industrial processes, and how these processes interact with natural systems. Learning outcomes include:

- Understanding Industrial Ecology in the context of the principles of Sustainability (environment, economy, society).
- Comprehending the analogy between industrial and natural systems, and how biology offers a context in which to understand complex industrial systems.
- Developing an understanding of material and energy flow analysis.
- Developing a working knowledge of life cycle assessment (LCA), particularly in regards to applying tools specific to the built environment (e.g., ATHENA, REVIT, BEES, etc.).
- Analyzing the operation and performance of the Golisano Institute for Sustainability in the context of the principles of Industrial Ecology.

In the process of achieving these outcomes, the course material will be delivered with an emphasis on application to the built environment. Moreover, as future sustainability professionals, your effectiveness and success will depend strongly on your communication skills. Thus, written and oral communication will be emphasized throughout the semester.

Learning Outcomes:

At the end of this course, a student will be able to:

- Define and describe industrial ecology. Testing
- Demonstrate the relationships among production consumption, sustainability, and industrial ecology.
- Explain how industrial ecology serves as a framework for the consideration of environmental and sustainability related aspects of science and technology.
- Define and describe the tools applications, and implications of industrial ecology.
- Apply industrial ecology as a framework for the consideration of environmental and sustainability-related aspects of science and technology.
- Compare and contrast characteristics of industrial and ecological systems that relate to sustainability and understand the implications of this eco-industrial analogue.
- Analyze material flows in an industrial ecosystem to demonstrate mastery of material flow analysis as an essential tool in industrial ecology.
- Compile and analyze inventory and environmental impact data for a product or process across its life cycle to demonstrate mastery of life cycle assessment as an essential tool in industrial ecology.
- Analyze and discuss sustainable design approaches, benefits, and challenges in a team-based setting.
ARCH-761-UNDERSTANDING SUSTAINABILITY

Course Description (Catalog Description):

This course will introduce graduate students to fundamental concepts related to interaction of humans and nature, sustainability challenges facing society, and systems-based approaches required to create sustainable solutions. Students will understand critical thinking and the scientific method and be prepared to identify problems in sustainability and formulate appropriate solutions based in scientific research, architecture, or applied science. Students who successfully complete this course will understand:

- Multiple perspectives on the fundamental concepts in sustainability,
- The scientific basis behind current sustainability challenges and solutions, and
- How to quantitatively and qualitatively evaluate sustainability at the systems level.

Learning Outcomes:

At the end of this course, a student will be able to:

- Understand multiple perspectives on the fundamental concepts in sustainability.
- Understand the scientific basis behind current sustainability challenges and solutions.
- Understand relationships among and limitations to disciplinary and transdisciplinary approaches to sustainability.
- Understand role of scholarly literature in sustainability and demonstrate ability to perform review and critique of scholarly literature.
ARCH-763-SUSTAINABLE BUILDING METRICS

Course Description (Catalog Description):

This course introduces students to prevailing metrics and assessment tools pertaining to the built environment and supports integration of these metrics into Integrated Building Systems courses in the Master of Architecture Program. The course explores measurement methods and calculations for the built environment, performance metrics and assessment methodologies over the building life-cycle, green building design guides and application of green building rating systems (especially LEED). Students will apply sustainable building concepts and evaluation methods through assignments and a final project.

Learning Outcomes:

At the end of this course, a student will be able to:

- Describe the scientific measurement methods used in the evaluation of the built environment.
- Perform scientific measurements and calculations that relate to the built environment.
- Describe and utilize the assessment tools used in the evaluation of the built environment.
- List the main design guidelines for applicable green building standards.
- Complete select aspects of major green building certification systems.