APPLIED ANALYTICS (AA)

AA 5000 - Foundations of Analytics  
Credit(s): 3 Credits  
This course is an introduction to the field of Analytics, with an emphasis on its applications in different domains of business and organizational operations. Concepts covered include Data; Information; Knowledge; Big Data and Analytics; Data Governance; Information Visualization and Representation; Evidence-Based Decision-Making; Information Retrieval; and Legal, Ethical and Privacy-related issues associated with Analytics.

AA 5100 - Information Retrieval  
Credit(s): 3 Credits  
This course provides a foundation in retrieval of information from different types of data sources, such as Relational Database Management Systems (RDBMSS); Key-Value Data Stores; and Semi-Structured and Unstructured Text. Students develop the key competencies necessary for designing data structures associated with each of the above—mentioned data sources and in accessing data stored in those sources. The primary areas of emphasis will be RDBMSS and Structured Query Language. Key-value data stores and data—stores for storing unstructured data will be introduced and the problem areas where they are applicable will explained and contrasted with those involving RDBMSS.

AA 5200 - Visualization, Feedback and Dissemination  
Credit(s): 3 Credits  
This course will expose students to visualization and presentation techniques designed for the interpretation of data, improved comprehension, communication, and decision making. Students will use current software tools to analyze data, design interfaces and create interactive visualization and presentation applications. Topics will include data and image models, design and evaluation of reporting structures, maps and mapping, document collections, object interaction, feedback processes, and scientific and business simulations.

AA 5221 - Applied Analytics & Methods I  
Credit(s): 3 Credits  
This course focuses on the elements of research design and descriptive statistics. Topics include different types of research designs, probability theory, reliability and validity, and basic descriptive statistics. At the conclusion of this course, students will understand the basics of research design and how to conduct basic data cleaning and descriptive statistical analyses.

AA 5222 - Applied Analytics & Methods II: Survey Approaches  
Credit(s): 3 Credits  
This course expands on AA 5221 Applied Analytics & Methods I by focusing on (1) the development of a data collection strategy that can be employed in applied survey research and (2) the utilization of inferential statistics most relevant to applied survey research, such as multiple linear regression. Students will also learn to become better consumers of research that utilizes more advanced statistical techniques such as mediation, moderation, and path analysis.

Prerequisite(s): AA 5221

AA 5223 - Applied Analytics & Methods II: Experimental Approaches  
Credit(s): 3 Credits  
This course expands on AA 5221 Applied Analytics & Methods I by focusing on (1) the development of a data collection strategy that can be employed in applied experimental and quasi-experimental research and (2) the utilization of inferential statistics most relevant to applied experimental and quasi-experimental designs, such as analysis of variance. Students will also learn to become better consumers of research that utilizes more advanced statistical techniques such as discriminant function analysis and repeated measures ANOVAs.

Prerequisite(s): AA 5221

AA 5250 - Project Management  
Credit(s): 3 Credits  
This course introduces students to the processes involved with managing a corporate level project from its beginning through implementation and ongoing maintenance. The course will cover current project management methodologies and processes, which include plan assessment, strategy formulation, implementation, quality control, and administration. In addition, the student will develop and review project plans from a corporate level project. The goal of the class is for the student to be able to understand and communicate the basics of managing projects, as well as the competitive advantage these projects bring within the business and industry.

AA 5300 - Advanced Analytics  
Credit(s): 3 Credits  
This course covers several commonly-used advanced analytical methods involving statistical learning. Applications of these methods on datasets drawn from several fields will be emphasized, alongside a coverage of visualizations of data and results. Students will also learn how to automate tasks in various phases statistical analyses, and in creating useful visualizations of data and results. (Offered as needed)

Prerequisite(s): AA 5000; (AA 5222 or AA 5223)

AA 5500 - Foundations of Analytics  
Credit(s): 3 Credits  
This course provides a foundation in retrieval of information from different types of data sources, such as Relational Database Management Systems (RDBMSS); Key-Value Data Stores; and Semi-Structured and Unstructured Text. Students develop the key competencies necessary for designing data structures associated with each of the above—mentioned data sources and in accessing data stored in those sources. The primary areas of emphasis will be RDBMSS and Structured Query Language. Key-value data stores and data—stores for storing unstructured data will be introduced and the problem areas where they are applicable will explained and contrasted with those involving RDBMSS.

AA 5500 - Advanced Analytics  
Credit(s): 3 Credits  
This course is a survey of recent technological advances in the area of Analytics. Theoretical foundations of the concepts and their applications in specific business and organizational domains are emphasized. Students will be introduced to specific Analytics techniques that are used currently by practitioners: Predictive Modeling; Data Mining; Marketing Analytics; Web Analytics; Risk Analytics; Text Analytics; and Academic and Learning Analytics.

Prerequisite(s): AA 5000; (AA 5222 or AA 5223)

AA 5800 - Simulation and Modeling  
Credit(s): 3 Credits  
Students will learn concepts drawn from probability, statistical modeling, bootstrapping, design of computational experiments, and sensitivity analysis of models outputs and their application in evidence-based decision-making. Additionally, students will learn techniques for creating and executing simulation models efficiently using appropriate scripting/programming techniques. Students will apply these concepts for addressing problems drawn from a diverse set of organizational and social situations.

Prerequisite(s): AA 5000; (AA 5221 or ORLD 5020); (AA 5222, AA 5223, or ORLD 5030)
AA 5900 - Applied Analytics Project I
Credit(s): 3 Credits
The goal of the Applied Analytics Project I is to prepare students in
the design of an applied research project within an organizational
setting. Students will revisit competencies emphasized in the Applied
Analytics program and reflect on the ways in which they have developed
themselves within those competency areas. Specific attention will be
paid to strengths and weaknesses of the student and to opportunities for
programmatic improvement.
Prerequisite(s): AA 5100; AA 5200; AA 5250; ORLD 5020; ORLD 5030
Restrictions:
Enrollment limited to students in the Schl for Professional Studies
college.
Attributes: Prof. Studies Students Only

AA 5930 - Special Topics
Credit(s): 3 Credits (Repeatable for credit)

AA 5950 - Applied Analytics Project II
Credit(s): 3 Credits
The goal of the Applied Analytics Project II is for students to use the
skills they acquired during the Applied Analytics program to analyze
and implement the plan for an applied research project that they have
proposed in IF 590. The outcome of this course will be a pilot project,
a proof-of-concept, or prototype that has the potential to affect and/or
promote knowledge discovery and dissemination in an organizational
context.
Attributes: Prof. Studies Students Only

AA 5961 - Applied Analytics Master's Project - I
Credit(s): 1 Credit
This is the first course in a three-part sequence of courses that together
require students to design and implement a master's research project in
analytics, demonstrating their mastery of the knowledge and skills
they have acquired over their course of study in the MS Applied Analytics
program. At the end of this credit hour, students will have identified an
organizational problem that can be addressed through analytics, defined
the problem unambiguously and rigorously, and provide a report on the
appropriate research and context for the problem and its potential set of
solutions. Permission must be granted by the program director. Offered
annually.
Restrictions:
Enrollment limited to students in the Schl for Professional Studies
college.

AA 5962 - Applied Analytics Master's Project - II
Credit(s): 1 Credit
This is the second course in a three-part sequence of courses that
together require students to design and implement a master's research
project in analytics, demonstrating their mastery of the knowledge and
skills they have acquired over their course of study in the MS Applied
Analytics program. At the end of this credit hour, students will have
created a research design and its associated implementation plan for
addressing the organizational problem that was identified and described
in AA 5961. Permission must be granted by the program director.
Prerequisite(s): AA 5961
Restrictions:
Enrollment limited to students in the Schl for Professional Studies
college.

AA 5963 - Applied Analytics Master's Project - III
Credit(s): 1 Credit
This is the third and final course in a three-part sequence of courses that
together require students to design and implement a master's research
project in analytics, demonstrating their mastery of the knowledge
and skills they have acquired over their course of study in the MS
Applied Analytics program. At the end of this credit hour, students will
have implemented an analytics project to address an organizational
problem, written a formal report using a structure that is appropriate
for decision-makers who will benefit from the result of the project
implementation, and produced a reflection report of their (students')
experiences in implementing their projects and its implications for their
future. Permission must be granted by the program director.
Prerequisite(s): AA 5962
Restrictions:
Enrollment limited to students in the Schl for Professional Studies
college.

AA 5980 - Independent Study
Credit(s): 1 or 3 Credits (Repeatable for credit)