

# APPLIED ANALYTICS (AA)

## AA 5000 - Foundations of Analytics

**Credit(s): 0 or 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.

**Restrictions:**

Students in the Madrid, Spain campus may **not** enroll.

## AA 5100 - Information Retrieval

**Credit(s): 0 or 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 be explained and contrasted with those involving RDBMSS.

**Restrictions:**

Students in the Madrid, Spain campus may **not** enroll.

## AA 5200 - Visualization, Feedback and Dissemination

**Credit(s): 0 or 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, amps and mapping, document collections, object interaction, feedback processes, and scientific and business simulations.

**Restrictions:**

Students in the Madrid, Spain campus may **not** enroll.

## AA 5221 - Applied Analytics & Methods I

**Credit(s): 0 or 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.

**Restrictions:**

Students in the Madrid, Spain campus may **not** enroll.

## AA 5222 - Applied Analytics & Methods II: Survey Approaches

**Credit(s): 0 or 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 with a grade of C or higher

**Restrictions:**

Students in the Madrid, Spain campus may **not** enroll.

## AA 5223 - Applied Analytics & Methods II: Experimental Approaches

**Credit(s): 0 or 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 with a grade of C or higher

## AA 5250 - Project Management

**Credit(s): 0 or 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.

**Restrictions:**

Students in the Madrid, Spain campus may **not** enroll.

## AA 5300 - Advanced Analytics

**Credit(s): 0 or 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)

**Restrictions:**

Students in the Madrid, Spain campus may **not** enroll.

**AA 5750 - Contemporary Issues in Analytics****Credit(s): 0 or 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)

**Restrictions:**

Students in the Madrid, Spain campus may **not** enroll.

**AA 5800 - Simulation and Modeling****Credit(s): 0 or 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)

**Restrictions:**

Students in the Madrid, Spain campus may **not** enroll.

**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): 0 or 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.

Students in the Madrid, Spain campus may **not** enroll.

**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.

Students in the Madrid, Spain campus may **not** enroll.

**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.

Students in the Madrid, Spain campus may **not** enroll.

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

Students in the Madrid, Spain campus may **not** enroll.