DATA ANALYTICS (DA)

Data Analytics (DA) Courses

DA 6213. Data-Driven Decision Making and Design. (3-0) 3 Credit Hours.
This course introduces students to the process of making organizational
decisions using data-driven techniques. Specifically, this course
emphasizes question formulation, hypothesis development, data
analysis, model building, and model testing using business case studies.
The first component of this course focuses on data-driven decision
making using linear and logistic regression analysis. The second
component of this course focuses on time series analysis using
regression, Exponential Smoothing, ARIMA, ARIMAX, and Unobserved
Component modeling-based approaches. The third component of
this course focuses on survival analysis using non-parametric, semi-
parametric, and parametric methods. Appropriate statistical software
will be used throughout this course to demonstrate various methods.
Differential tuition: $387.

DA 6223. Data Analytics Tools and Techniques. (3-0) 3 Credit Hours.
Students will be provided the opportunity to gain education and
experience with SAS Enterprise Guide and SAS Enterprise Miner, a leading
commercial tool for analytical industry. Students will become familiar
with data preparation process, including data imports, data merge, data
cleaning, data transformation, conditional processing, data summary, and
data visualization techniques using SAS software. Statistical modeling
and machine learning are also introduced in SAS Enterprise Guide and
Enterprise Miner. Students will not become scientific programmers from
this course, nor will they learn the formalisms of programming per se;
rather, they will be provided the opportunity to learn and experience a
complete process of data analytics. Differential tuition: $387.

DA 6233. Data Analytics Visualization and Communication. (3-0) 3 Credit Hours.
Since the purpose data analytics is to inform and facilitate better data-
driven decisions, and transform data to information and knowledge, the
ability to effectively communicate data aggregations, summarizations,
and analytic findings to decision makers is very important. The ability to
communicate highly complex analyses and scientific findings to a non-
technical audience is challenging. This course will educate students on
common mistakes and success factors in technical communication, and
give them experience communicating findings orally and in writing. The
course will also focus heavily on data analytics visualization approaches
and tools. Students will be provided the opportunity to learn common
methods for data visualization for a wide variety of data types and data
analytics applications. Differential Tuition: $387.

DA 6813. Data Analytics Applications. (3-0) 3 Credit Hours.
Students will be presented a big picture understanding of data analytics,
including its purpose, common benefits and challenges, important
analytic processes, and what is needed to perform data analytics,
such as skills, tools, technology, etc. Students will be introduced to a
wide variety of data analytics applications in a wide variety of fields,
which may include some of the topics from fields such as information
technology, cyber security, bioinformatics, biomedical/health, insurance
and risk, finance, economics, accounting, business intelligence, crime
and fraud detection, marketing and customer analytics, energy and
environment, manufacturing and operations, and logistics and supply

DA 6821. Data Analytics Practicum I. (1-0) 1 Credit Hour.
This course presents students with practical knowledge, skills, and
experience needed to conduct real-world, high-quality data analytics in
an application area of interest. Students will meet formally with their
peers and the instructor for the purpose of facilitating the practicum
experience. In the first 1 credit semester of this course students will learn
how to identify the proper statistical technique to apply to a problem,
complete a set of modules that review basic statistical fundamentals
and have the opportunity to gain a first experience at data analysis
using small time series data sets. During the second 2 credit semester
of the practicum, students will engage in a project that incorporates
the following steps of the data analytics process: problem defining,
question formulation, hypothesis development, preliminary analytics,
analytical design, data acquisition, data preparation and pre-processing,
and initial data analysis as well as develop some fundamental coding
skills using a large, real world data set. In addition, they will acquire
training in analytical and statistical techniques including introduction to
social network analysis as well as an introduction to a number of other
statistical methods designed to encourage the student to explore and
learn more advanced techniques. May be repeated for credit. Differential
Tuition: $129.

DA 6822. Data Analytics Practicum I. (2-0) 2 Credit Hours.
This course presents students with practical knowledge, skills, and
experience needed to conduct real-world, high-quality data analytics in
an application area of interest. Students will meet formally with their
peers and the instructor for the purpose of facilitating the practicum
experience. In the first 1 credit semester of this course students will learn
how to identify the proper statistical technique to apply to a problem,
complete a set of modules that review basic statistical fundamentals
and have the opportunity to gain a first experience at data analysis
using small time series data sets. During the second 2 credit semester
of the practicum, students will engage in a project that incorporates
the following steps of the data analytics process: problem defining,
question formulation, hypothesis development, preliminary analytics,
analytical design, data acquisition, data preparation and pre-processing,
and initial data analysis as well as develop some fundamental coding
skills using a large, real world data set. In addition, they will acquire
training in analytical and statistical techniques including introduction to
social network analysis as well as an introduction to a number of other
statistical methods designed to encourage the student to explore and
learn more advanced techniques. Differential Tuition: $258.
DA 6823. Data Analytics Practicum I. (3-0) 3 Credit Hours.
Prerequisites: DA 6213, DA 6813, and STA 6443. This course presents
students with practical knowledge, skills, and experience needed to
conduct real-world, high-quality data analytics in an application area of
interest. Students will meet formally with their peers and the instructor
for the purpose of facilitating the practicum experience. In the first
1 credit semester of this course students will learn how to identify
the proper statistical technique to apply to a problem, complete a set
of modules that review basic statistical fundamentals and have the
opportunity to gain a first experience at data analysis using small time
series data sets. During the second 2 credit semester of the practicum,
students will engage in a project that incorporates the following steps
of the data analytics process: problem defining, question formulation,
hypothesis development, preliminary analytics, analytical design, data
acquisition, data preparation and pre-processing, and initial data analysis
as well as develop some fundamental coding skills using a large, real
world data set. In addition, they will acquire training in analytical and
statistical techniques including introduction to social network analysis as
well as an introduction to a number of other statistical methods designed
to encourage the student to explore and learn more advanced techniques.
Differential Tuition: $387.

DA 6833. Data Analytics Practicum II. (3-0) 3 Credit Hours.
Prerequisite: DA 6823. This course continues the practicum experience
in the same manner as Data Analytics Practicum I. Students will
continue their major data analytics project, focusing on the analysis
and presentation of results portion of the process. The next steps
will be detailed data analysis, conclusion drawing, report preparation
and refinement, presentation preparation and final presentation. The
practicum will culminate in a formal, completed report to the supporting
organization, as well as to data analytics peers and professors. Students
who earn a grade of "B" (3.0) or better in this course will satisfy the
comprehensive examination requirement. A student who receives a
grade of "B-" or "C+" or "C" may still satisfy this requirement by successfully
passing a comprehensive examination as set out in this catalog.
Differential Tuition: $387.