Graduate Certificate in Analytics for Professionals

The need to understand programming, create complex charts and mine data is no longer limited to a few specialized positions within a company. Unless you have these skills, “Big Data” can present a Big Problem.

That’s why we created an online Graduate Certificate in Analytics for Professionals. This certificate program will give you the skills critical for success in the era of Big Data. Companies value and need employees with skills to manage, analyze, and interpret data. Working professionals can complete the program without putting their careers or lives on hold while still benefitting from the expertise and student-first focus of Miami University. The program leverages our expertise in Information Systems, Business Analytics, and Statistics to offer integrative courses that prepare graduates to handle structured and unstructured data sets, develop models, and predict outcomes in a data-rich environment.

Why Analytics?
The ability to effectively leverage large amounts of data has become a necessary skill in most industries. The field of Analytics emerged during a time when large and diverse data became pervasive, and the technology to analyze this data became widely available. Using analytics to guide decision-making is no longer an option that some companies choose, it has become necessary for the survival of organizations. Similarly, mid-career professionals risk being left behind unless they possess current analytics skills.

Trained by outstanding faculty in the practical use and application of analytics, students will learn to:

Frame problems analytically;
Acquire and manage high volume, high velocity data sets;
Use commercial and open-source software tools to analyze data;
Create, analyze, and interpret predictive models;
Integrate these skills to deliver a comprehensive solution.

This part-time program is offered over the course of a year in four 10-week courses:

Introduction to Predictive Analytics
Managing Data for Business Analytics
Statistical Programming and Data Visualization
Predictive Analytics and Data Mining
WHEN DOES THE PROGRAM START?
The program kicks off on Saturday, June 4 where you will meet your professors and classmates at the Miami University campus in Oxford. You will also have a chance to meet with students finishing this year’s program. The first online class, Introduction to Predictive Analytics also starts then.

ARE THERE ANY ENTRY REQUIREMENTS?
The only requirement is an undergraduate degree and a college level basic statistics course.

HOW LONG DOES IT TAKE TO COMPLETE?
The certificate program includes four 10-week classes spread over a one year period. Every class available in the program is a 3-credit graduate course.

IS THE PROGRAM 100% ONLINE?
The classes are all online, but there are five Saturday in-person meetings during the program.

WHAT DOES THE CERTIFICATE PROGRAM COST?
The cost is $950 per credit hour with a $14 technology fee per credit hour.

WHAT IF I HAVE QUESTIONS FOR MY PROFESSOR?
There are schedule online office hours. You are also welcome to call your professor or visit their on-campus office. “Online” does not mean “on your own.”

HOW DO I REGISTER?
You can apply at www.miamioh.edu/graduate-studies/admission. Apply as a non-degree seeking student. This indicates you are interested in a certificate and not seeking an advanced degree.

For More Information about the Miami University Graduate Certificate in Analytics for Professionals, Professionals, visit miamioh.edu/fsb/academics/isa/ or email Dr. Skip Benamati at benamajh@miamioh.edu.
Courses and Learning Outcomes

ISA/STA 635 Introduction to Predictive Analytics - Introduction to foundational statistical methods and techniques relevant to predictive statistical modeling. Topics include simple and multiple linear regression models, logistic regression models, nonlinear regression, and classification and regression trees. Widely used statistical software will be introduced and used extensively in the course.

Learning Outcomes
- Propose, fit and evaluate basic statistical models employing different response variable types.
- Use appropriate computing software to perform model fitting.
- Effectively communicate the results of fitting basic statistical models.

ISA 636 Managing Data For Business Analytics - A survey of approaches to efficiently organize, store, query, and generate reports from both structured and unstructured data. The course will cover and use frameworks that use relational databases, distributed computing, cloud-based systems for analyzing business information data. An emphasis will be laid on producing information and effectively communicating the results. Managing big data in organizations, and visualizing big data is introduced.

Learning Outcomes
- Retrieve, generate reports and dashboards for structured data using SQL and visualization.
- Explain and use Big Data processing approaches such as Map-Reduce.
- Analyze big data using both relational algebra and SQL based languages.
- Work with NoSql databases to store, and retrieve unstructured data.
- Analyze and report from unstructured data such as text, social media and geographic data.

STA 637 Statistical Programming and Data Visualization – Introduction to programming concepts, techniques and strategies for preparing, managing and displaying data in the context of statistical analysis. Topics include cleaning, combining, extracting and reshaping data sets; invoking statistical procedures and managing the results as data sets; creating appropriate production-quality tabular and graphical displays of data and results of analysis. Emphasis on widely used software packages for statistical analysis and visualization.

Learning Outcomes
- Apply basic computer programming concepts.
- Prepare, combine, extract and reshape datasets, both structured and unstructured for display and analysis.
- Create appropriately annotated tables and graphs in multiple formats for analyses and presentations.

ISA/STA 638 Predictive Analytics and Data Mining - An in-depth look at predictive modeling using decision trees, neural networks, logistic regression and ensemble methods. Best practices for building, comparing, and implementing predictive models are presented. Other topics include unsupervised learning techniques such as cluster analysis, segmentation analysis, market basket, and sequence analysis. Emphasis on use of software and real-world applications.

Learning Outcomes
- Understand when a predictive model/supervised learning method is appropriate and utilize the predictive modeling process to aid in decision making.
- Be able to develop, validate and apply an appropriate supervised/unsupervised learning method in support of decisions.
- Be able to compare predictive models using graphical and statistical measures such as ROC curves, lift charts, gain charts, average squared error, misclassification, etc.
- Understand and be able to use unsupervised learning methods such as cluster and segment analysis, market basket analysis and sequence analysis.

Apply at www.miamioh.edu/graduate-studies/admission