MASTER OF SCIENCE IN ANALYTICS

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Institute for Advanced Analytics
North Carolina State University

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analytics.ncsu.edu
The Institute for Advanced Analytics has been preparing data savvy professionals for leadership in a digital world since 2007. Our mission is to produce the world’s finest practitioners of analytics — individuals who have mastered complex methods and tools for large-scale data modeling, who have a passion for solving challenging problems through teamwork, guided by intellectual curiosity, honesty and integrity, and who strive to attain the highest level of professionalism through continuous self-improvement.
Today, data is everywhere. But there’s a scarcity of talent with the skills to make sense of it and create value.

The Master of Science in Analytics (MSA) is a professional degree that focuses on the tools, methods and applications of advanced analytics. Launched in 2006, it is the nation’s first full-fledged graduate degree in Analytics.

The goal of analytics is to derive and effectively communicate actionable insights from a vast quantity and variety of data. It covers a broad spectrum of activities, including data quality and management, mathematical and statistical methods for data modeling, and data visualization.

A new interdisciplinary academic unit — the Institute for Advanced Analytics — was established at NC State in 2007 to oversee the program.
As the need of analytics becomes more widespread, there is mounting demand for—and a growing shortage of—professionals with the relevant data skills coupled with an understanding of how the techniques are applied to business and the variety of critical tasks facing decision-makers.
The Master of Science in Analytics seeks to:

- enrich students with a challenging learning experience;
- give them relevant skills valued by employers;
- with a rapid time to degree completion;
- and affordable tuition with a solid return on investment.

Most importantly...

- open doors to professional employment at graduation.
The MSA is a comprehensive education that gives students:

- the necessary technical skills;
- while enhancing their ability to work effectively in teams;
- strengthening their communication and problem-solving capabilities;
- gaining hands-on experience with real world data using industry standard analytical tools.

Most importantly...

- prepare them to be productive analytical professionals from *day one!*
As the country’s first full-fledged Analytics degree, the MSA was created literally from scratch—an integrated curriculum with a unique blend of statistics, applied mathematics, computer science and business disciplines. It is a dynamic curriculum that continually evolves to meet the need.
The MSA is designed to be...

- **Intensive** – accelerating the learning curve through the intensity that comes from condensing 2-years of graduate study into the shortest possible duration;

- **Interactive** – leveraging peer-to-peer learning through teamwork threaded throughout the entire curriculum;

- **Immersive** – learning by doing, by engaging in practical problems from the real world, and being totally immersed in the subject.

**Francis**  
Class of 2016  
B.A., Economics; Mathematics  
Vanderbilt University, 2013  
Senior Data & Analytics Consultant at EY

**Sarah**  
Class of 2016  
B.S., Clinical Laboratory Science  
UNC–Chapel Hill, 2012  
Senior Associate Analytical Consultant at SAS

**Ahdieh**  
Class of 2015  
B.S., Business Management  
Babson College, 2012  
Senior Consultant, Advanced Analytics Enablement at Deloitte

**Chelsi**  
Class of 2016  
B.S., Mathematics  
Claflin College, 2014  
AVP, Operations Research Analyst at Bank of America
The MSA is...

- 10-months of full-time residential study (Mon.-Fri. / 9-to-5);
- a fully integrated curriculum with its own faculty;
- limited to 120 students, split into two 60-student sections;
- taught as a cohort, with all classes restricted to students in the program;
- delivered in a modern 30,000 sq. ft. facility for the exclusive use of our students;
- a professional degree aimed at placing its students in employment upon graduation.

The MSA isn’t...

- a menu of core and elective courses;
- overly theoretical in its focus;
- a research or teaching apprenticeship;
- intended to be a prelude to a Ph.D.;
- a business, computer science or statistics degree in disguise;
- a day longer than necessary to accomplish its goals.
The MSA is a single integrated curriculum aimed at acquiring practical skills that can be applied to real world problems, drawing upon:

- applied mathematics
- statistics
- computer science
- econometrics
- operations research
- marketing science
- communications
The MSA advantage:

- students hone their skills working on gigabyte- to terabyte-scale data problems drawn from real world organizations;
- students use industry standard software tools and can obtain professional certifications while completing their degree;
- team-based learning emulates the reality of today’s workplace and provides an opportunity to develop leadership potential;
- frequent performance evaluations and individualized coaching guide continuous self-improvement.

Manuel, Christopher, Bailey, Jennifer and Kevin
Class of 2016 Practicum Team
Cargill
Minneapolis, Minnesota
Experiential Learning: The Practicum

- students work in teams of 4-5 individuals;
- work on real world problems and data provided by industry sponsor (under confidentiality);
- highly structured, substantive work conducted over 8-months;
- culminates in final report and presentation to the sponsor;
- projects are selected from a large pool based on learning value (there is no sponsorship fee).
Since its inception, the Institute’s students have taken on 156 projects from 110 sponsors representing virtually every industry sector.

- Advertising
- Agriculture
- Airlines
- Asset Management
- Banking
- Chemicals
- Consumer Products
- E-Commerce
- Energy
- Entertainment
- Financial Services
- Healthcare
- Heavy Machinery
- Hospitality
- Insurance
- Intelligence
- Manufacturing
- National Security
- Non-Profits
- Pharmaceuticals
- Publishing
- Retail
- Social Media
- Software
- Sports
- Telecommunications
- Textiles and Apparel
- Transportation

Michael, Ashley, Alex, Cindy and Daniel
Class of 2018 Practicum Team

Revenue Management Solutions
Tampa, Florida
Class of 2018 Practicum Sponsors

- AMC Theatres (Leawood, Kansas)
- Asurion (Nashville, Tennessee)
- Central Intelligence Agency (McLean, Virginia)
- Chick-fil-A (Atlanta, Georgia)
- Direct ChassisLink (Charlotte, North Carolina)
- Disney (Orlando, Florida)
- Duke Health (Durham, North Carolina)
- Elevate (Ft. Worth, Texas)
- General Motors (Detroit, Michigan)
- M&T Bank (Buffalo, New York)
- Museum of Fine Arts, Boston (Massachusetts)
- Museum of Fine Arts, Houston (Texas)
- National Council on Compensation Insurance (Boca Raton, Florida)
- Piedmont Health (Carrboro, North Carolina)
- ProMetrics (King of Prussia, Pennsylvania)
- Putnam Investments (Boston, Massachusetts)
- Red Hat (Raleigh, North Carolina)
- Revenue Management Solutions (Tampa, Florida)
- The Home Depot (Atlanta, Georgia)
- Trillium Health (Greenville, North Carolina)
- Visionist (Columbia, Maryland)
- Volvo Trucks (Greensboro, North Carolina)
Class of 2016 students run in Krispy Kreme Challenge to raise money for the North Carolina Children’s Hospital.
MSA graduates are in high demand...

- for 10 consecutive years over 90% of the candidates have received one or more employment offers before graduation;
- in 2017, 98% had offers of employment and 93% were employed at graduation;
- candidates averaged 11 initial interviews and 2-3 job offers;
- many sectors of the economy are hiring;
- wide variety of employers, from new ventures to global enterprises.
LEADING EMPLOYERS OF MSA GRADUATES

- Accenture
- Ally Financial
- Amazon
- Ankura
- Bank of America
- BB&T
- Blue Cross Blue Shield of NC
- Boeing
- Cigna
- Citrix
- Cognizant
- Community Care of NC
- Deloitte
- eBay
- Elder Research
- Elevate
- Elicit, LLC
- EY
- Facebook
- Fifth Third Bank
- Genworth Financial
- GlaxoSmithKline
- Google
- IBM
- JP Morgan Chase
- Lash Group – AmerisourceBergen
- Liberty Mutual
- M&T Bank
- Marriott International
- Northrop Grumman
- Putnam Investments
- PwC
- Red Hat
- Rho
- RTI International
- SAS Institute
- The Home Depot
- The Walt Disney Company
- TIAA
- U.S. Government
- Visionist
- Zencos

(Top-10 employers are highlighted in RED)

Barrett, Jennifer, Elliott, Amanda and Idrees
Class of 2018 Practicum Team
General Motors
Detroit, Michigan
MSA graduates are highly valued...

- In 2017, the average base starting salary was $95,000
- over $100,000 for candidates for 3 or more years of professional experience prior to entry
- $90,000 for candidates with little or no work experience prior to entry
- base salary range: $70,000 to $140,000
- median signing bonus: $9,150
- ROI payback period: 24 months
Distribution of Alumni (n=650) by Major Employment Category

24% Data Scientist
20% Analyst
20% Consultant
18% Manager

Julia
Class of 2016
B.S.P.H., Environmental Health Sciences, UNC Chapel Hill, 2015
Advanced Analytics Data Scientist at IBM

Taylor
Class of 2016
M.A., B.S.B.A., Economics; Finance University of Alabama, 2014
Senior Business Intelligence Analyst at The Home Depot

Ryan
Class of 2016
B.S., Mechanical Engineering NC State University, 2015
Analytics Professional at General Motors

Jason
Class of 2016
M.S., Chemical Engineering, Stanford, 2000
B.S., Chemical Engineering, Washington University in St. Louis, 1998
Data Scientist at BCBS of North Carolina
57 countries of origin since the Class of 2008.
Geographic Distribution of Alumni (n=650)
Student Satisfaction Ratings

Class of 2014, 2015, 2016 and 2017 Exit Surveys

Satisfaction with learning experience

4.6/5.0

n=346
91.4% response rate

Satisfaction with employment

4.6/5.0

Likelihood to recommend MSA to prospective students

4.8/5.0
Most peer programs in analytics and data science provide little or no data on admission and student outcomes needed to make benchmark comparisons. Instead we rely on MBA programs, which provide data publicly as part of the ranking process, for benchmarking our performance.

- The MSA compares favorably to the top-5 highest ranked MBA programs with similar cohort sizes:
  - the MSA out-performed the selected MBA programs on 11 of 13 key performance metrics;
  - were the MSA ranked alongside MBA programs, the analysis suggests it would fall in a range between 21 and 29;
  - 5th consecutive year the MSA performed favorably to MBA programs of similar cohort size in the 20-30 range of the U.S. News annual ranking.

Ashley, Jared, Tom, Haani and Caroline
Class of 2018 Practicum Team
The Home Depot
Atlanta, Georgia
The Master of Science in Analytics

by the numbers...

Annual Benchmark Report
http://go.ncsu.edu/msa-benchmarks

Annual Alumni Report
http://go.ncsu.edu/msa-alumni

Annual Employment Report
http://go.ncsu.edu/msa-employment

Annual Admissions Report
http://go.ncsu.edu/msa-admissions

Elizabeth, Sarah, Daniel, Lindsay,
Matias and Adam
Class of 2018 Practicum Team
DCLI
Charlotte, North Carolina
Michael Rappa is the founding director of the Institute for Advanced Analytics and a member of the faculty in the Department of Computer Science at North Carolina State University. As head of the Institute, he leads the nation’s first Master of Science in Analytics as its principal architect. Before joining NC State as Distinguished University Professor in 1998, for nine years he was a professor at MIT. Appointed the inaugural Goodnight Director in 2015, his current position is endowed and named in honor of the University’s distinguished alumnus and prominent American business leader Dr. James Goodnight.

About the Director

Jeremy
Class of 2015
B.S., Economics, University of South Dakota–Vermillion, 2014
Predictive Modeler at Great West Casualty Company
South Sioux City, Nebraska
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