M.S. in Analytics

Concentration in Data Science

Georgetown University

The Graduate School of Arts & Sciences

April 10, 2017
Presenters

Todd K. Leen, PhD
Program Director; Professor

Heather Connor
Program Coordinator

Student Participants: Arif Ali (program alum)
Jordan Bramble (2nd year student)
Data Science Overview

Curriculum

Admissions

Applicant Demographics (AY ’16-’17)

Internships and Employment

Q & A --- w/ Current and Past Students

Additional Information
What is Data Science

Data Science is rapidly growing interdisciplinary field that combines computer science, statistics, and mathematical modeling to obtain insights, knowledge, and predictive capability about processes from data.
What is Data Science

There is enormous need for talent in data science to sustain this revolution in business and industry.

In a recent report of the McKinsey Global Institute, "By 2018, the United States alone could face a shortage of 140,000 to 190,000 people with deep analytical skills as well as 1.5 million managers and analysts with the knowhow to use the analysis of big data to make effective decisions."

SOURCE: McKinsey Global Institute analysis
Georgetown Graduate Analytics

M.S. in Analytics is an interdisciplinary degree program offered by The Graduate School of Arts & Sciences
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30 Credit Program

- Online, no-cost asynchronous summer prep course on advanced Python, R, and command line programming in the summer prior to matriculation
  - Required for incoming students who do not have a computer science degree and adequate preparation
  - Can be waived on discussion with the Program Director (Todd Leen) or Program Coordinator (Heather Connor)
  - Georgetown Summer Session II (July 10 - August 11)

- The five-course, 15-credit core gives students a strong working knowledge of computer science and statistical methods central to data science.

- 15 additional elective credits offered by the Analytics program or departments throughout the graduate school.

As the data science landscape continues to change and grow, so will our core and elective offerings.
## Curriculum

<table>
<thead>
<tr>
<th>Core Courses</th>
<th>Required</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Course Number</td>
<td>Course Title</td>
<td></td>
</tr>
<tr>
<td>ANLY-501</td>
<td>Introduction to Data Analytics</td>
<td>3</td>
</tr>
<tr>
<td>ANLY-502</td>
<td>Massive Data Fundamentals</td>
<td>3</td>
</tr>
<tr>
<td>ANLY-503</td>
<td>Scientific and Analytical Visualization</td>
<td>3</td>
</tr>
<tr>
<td>ANLY-511</td>
<td>Probabilistic Modeling and Statistical Computing</td>
<td>3</td>
</tr>
<tr>
<td>ANLY-512</td>
<td>Statistical Learning for Analytics</td>
<td>3</td>
</tr>
</tbody>
</table>
## Electives Offered by the Analytics Program

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANLY-520</td>
<td>Effective Presentation for Technology &amp; Science</td>
<td>3</td>
</tr>
<tr>
<td>ANLY-531</td>
<td>Databases</td>
<td>3</td>
</tr>
<tr>
<td>ANLY-540</td>
<td>Technology &amp; Policy for Data Privacy</td>
<td>3</td>
</tr>
<tr>
<td>ANLY-550</td>
<td>Structures and Algorithms for Analytics</td>
<td>3</td>
</tr>
<tr>
<td>ANLY-561</td>
<td>Optimization</td>
<td>3</td>
</tr>
<tr>
<td>ANLY-570</td>
<td>Decision and Game-Theoretic Analysis</td>
<td>3</td>
</tr>
<tr>
<td>ANLY-905</td>
<td>Internship</td>
<td>.25</td>
</tr>
</tbody>
</table>

Additional electives coming in text processing and advanced machine learning,
## Electives

### Popular Offerings from Math & Comp Sci

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>COSC-455</td>
<td>Image Processing</td>
<td>3</td>
</tr>
<tr>
<td>COSC-572</td>
<td>Natural Language Processing</td>
<td>3</td>
</tr>
<tr>
<td>COSC-578</td>
<td>Statistical Machine Learning</td>
<td>3</td>
</tr>
<tr>
<td>COSC-589</td>
<td>Web Search and Sense-Making</td>
<td>3</td>
</tr>
<tr>
<td>MATH-412</td>
<td>Mathematics of Climate</td>
<td>3</td>
</tr>
<tr>
<td>MATH-611</td>
<td>Stochastic Simulation</td>
<td>3</td>
</tr>
<tr>
<td>MATH-640</td>
<td>Bayesian Statistics</td>
<td>3</td>
</tr>
<tr>
<td>MATH-645</td>
<td>Categorical Data Analysis</td>
<td>3</td>
</tr>
</tbody>
</table>

Electives also available in Public Policy, Business, and Biostatistics
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Applicant Demographics

Gender

- Female: 52%
- Male: 48%

Nationality

- Domestic: 19%
- International: 81%
Applicant Demographics

Average Undergrad GPA Trends

<table>
<thead>
<tr>
<th>Year</th>
<th>Applied</th>
<th>Admitted</th>
<th>Enrolled</th>
</tr>
</thead>
<tbody>
<tr>
<td>2015-16</td>
<td>3.35</td>
<td>3.38</td>
<td>3.30</td>
</tr>
<tr>
<td>2016-17</td>
<td>3.48</td>
<td>3.62</td>
<td>3.55</td>
</tr>
</tbody>
</table>
**Applicant Demographics**

**Applicant Status**
- Full Time: 94%
- Part Time: 6%

**Work Experience (years)**
- <= 1: 50%
- 1 - 3: 32%
- 3 - 5: 7%
- >= 5: 11%
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Internships, Research, and Post-Graduate Employment

• The Cawley Career Center serves Georgetown graduate students, providing guidance, coaching and interviews for both internship and post-graduation employment opportunities.

In fall 2017 we will offer a career fair specifically for Analytics students

• The Analytics program has placed interns at Lawrence Livermore National Laboratory (LLNL) and interns and graduates at multinational companies, at non-profit orgs, and at small boutique firms. We have current part-time students at area companies that are providing opportunities.
Internships, Research, and Post-Graduate Employment

- Georgetown University is developing a strategic liaison with LLNL with Analytics in a prime role.

- There are paid research opportunities on campus (e.g. Public Policy, Computer Science).

- The Analytics program is building new corporate relationships to enable curriculum expansion, internships, and post-graduate employment (e.g. Booz, Allen, Hamilton; Deloitte; Capital One …)
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Thank You for Attending!

If you have other questions that we were unable to answer during this webinar, please email

gradanalytics@georgetown.edu