

ANALYTICS (M.S.)

<https://gradschool.unh.edu/analytics/program/ms/analytics>

Description

Beginning in the 2020-2021 academic year, the MS in Analytics program will no longer be accepting new students. Current MS in Analytics students will continue to have access to the same high-quality education and resources until they graduate.

The curriculum for the one-year interdisciplinary, full-time M.S. in Analytics program begins in May on the Durham, NH campus. The 36-credit program is comprised of ten core analytics and data science courses and two cluster electives.

Electives can be taken in many areas of applied focus such as, but not limited to, health care, business, environmental sciences, sports management, and others.

The program rests primarily on the coding languages of R and Python, but also SAS and SQL. Students receive training in a multitude of quantitative tools and algorithms such as machine learning and deep learning. They also get exposed to computational and analytic environments such as enterprise systems to streaming and distributed cloud systems. A sample of the module-based curriculum map, that stays relevant to changing technology may be seen [here](#).

The practicum courses are designed to instruct on two primary areas of content. One is to apply the core tools to a real-world project. The second is to provide useful exposure to the processes and professional development of the student in the role of analytics professional. Students will have the opportunity to learn methodologies such as LEAN and Agile project management. Students will also be exposed to conceptual mapping for data practitioners such as design thinking. They will do this both within projects should they or the host choose, or as added learning. View [Practicum projects here](#).

Flow of the MS in Analytics Program

The Master of Science in Analytics **begins each May**. Each of the three semesters build in level of mastery.

Summer (Beginner Analytics)

The initial semester, brings together both the Graduate Certificate in Analytics (GCA) students and the M.S. students, to learn side by side. In the summer, students learn the basics of statistical and mathematical thinking, programming in three languages, and the foundations of data cleaning, visualization, and presentation. Each day, students will begin with instruction and spend the remainder of the day working on homework and project assignments, culminating in a team project around a social justice issue. In addition, a number of “soft” skills are introduced such as LEAN project management and Agile training. And finally, students are exposed to a host of industry partners and perspectives on the rapidly changing world of analytics and data science through our guest speaker series.

Fall and Spring (Intermediate and Advanced Analytics and Data Science)

These semesters mirror one another, yet build in tools and applications. Students spend their mornings in class and in the afternoon collaborating in groups on projects, professional development

and networking with industry partners/sponsors. Building on the knowledge gained in summer, they work toward the completion of the capstone practicum in spring. The Fall semester is spent on project scoping, background, data transfer, and understanding policies and procedures in place via the host or by the type of data being used. In Spring students are engaged in data mining, modelling and storytelling with outcomes for ultimate presentation back to the host site.

Students will also receive opportunities to further develop professional skills and certifications around LEAN should they choose.

Cluster Areas of Focus

The Cluster Course electives consists of two required courses, taken in the fall and spring semesters. The final curriculum objective is to allow for specialization in a targeted area of student interest to provide students with a deeper knowledge in the subject area of their choice. Current cluster options include health, accounting, decision science, finance, marketing, economics, sports, human & technology interface, or self-designed focus.

Key Program Highlights

- Consists of 12 courses, 36 credit hours, 2 specialization electives
- 1-year STEM masters or a 3-month certificate option
- Gain expertise in advanced machine learning, text analytics, programming, visual analytics, and big data framework.
- Curriculum stays relevant to the ever changing technology with an ability for the students to choose their specialization (i.e. Health/Business/Sports)
- Students from diverse backgrounds – not just technical fields
- Work hands-on, team-based learning

Requirements

Degree Requirements

- 36 credits completed with a cumulative grade point (GPA) average of 3.0 or higher and grades higher than B-.
- Passing grade on Practicum Project – Student demonstrates synthesized learning from the curriculum into the analysis of a team project which includes applied skills in data cleaning, data mining, and analysis, professionalization, including presentation skills, conceptual mapping of questions, conveying of data and analytic limitations, and project scoping, as well as communication, messaging, and professional development skills.
- Satisfactory attendance

Code	Title	Credits
Required Courses		
DATA 800	Introduction to Applied Analytic Statistics	3
DATA #801	Foundations of Data Analytics	3
DATA #802	Analytical Tools and Foundations	3
DATA #803	Introduction to Analytics Applications	3
DATA 900	Data Architecture	3
DATA 901	Analytics Applications I	3
DATA 911	Analytics Practicum I	3
DATA 902	Analytics Methods	3
DATA 903	Analytics Applications II	3
DATA 912	Analytics Practicum II	3
Cluster Elective I		3

Cluster Elective II	3
Total Credits	36

Degree Plan

Sample Degree Plan

Course	Title	Credits
First Year		
Summer		
DATA 800	Introduction to Applied Analytic Statistics	3
DATA #801	Foundations of Data Analytics	3
DATA #802	Analytical Tools and Foundations	3
DATA #803	Introduction to Analytics Applications	3
Credits		12
Fall		
DATA 900	Data Architecture	3
DATA 901	Analytics Applications I	3
DATA 911	Analytics Practicum I	3
Cluster Elective I		3
Credits		12
Spring		
DATA 902	Analytics Methods	3
DATA 903	Analytics Applications II	3
DATA 912	Analytics Practicum II	3
Cluster Elective II		3
Credits		12
Total Credits		36