MSDS New Student FAQ

Northwestern
SCHOOL OF
PROFESSIONAL STUDIES

Contents

1. What are my degree requirements?

Your degree program and specialization are reflected in your CAESAR records. Master's degree program curricula organized by academic year can be found under the Resources page > Curriculum Archive section. You must follow the curriculum in place the academic year you were admitted. Example Academic Year: Fall 2018, Winter 2019, Spring 2019, Summer 2019 = 2018-19.

Please contact advising for degree progress audits throughout your time as a student to ensure you are following the correct requirements!

2. Where can I find a list of MSDS course descriptions and prerequisite information?

To find a list of all MSDS courses with descriptions and prerequisite information, expand each course on the MSDS Curriculum & Specialization page.

3. What order should I take my courses?

Please view the Course Planning webpage > Data Science (MSDS) for recommended plans and contact your adviser if you have questions. Students may tailor these plans to fit their needs as long as prerequisites are followed.

On the Course Planning page, please note that there are separate tracks for students with prior programming experience vs. students with limited programming experience. Students with limited programming experience should start out in MSDS 430 Python for Data Science (introduces students to Python; will count as one of your MSDS Electives). Please see the "What if I have limited programming experience?" section, below, for more resources.

4. How many courses do students take per term?

MSDS students generally take one or two courses per term. There are four 10-week terms in an academic year: Fall, Winter, Spring, and Summer.

5. How many hours per week should I dedicate to coursework?

Estimate about 15-20 hours of work per week in each course (varies based on programming experience and academic preparation).

6. What if I need to take a term off?

If you need to take a term off, please add SPS 512 "Continuous Registration" (a free, non-credit course) in CAESAR by the add deadline to maintain your active student status. Students can add SPS 512 a maximum of four consecutive terms.

Students are discontinued after a year of no registration activity and must re-apply to resume their studies.

The master's program is flexible in terms of course planning and taking quarters off, but overall, students must complete the program within 5 years. Example: start term – Winter 2015, end term – end of Fall 2019.

7. What programming languages are used in courses?

MSDS 400: Python
MSDS 401: R
MSDS 402: None
MSDS 410: R
MSDS 411: R
MSDS 413: R
MSDS 420: Python and SQL
MSDS 422: Python and TensorFlow
MSDS 430: Python
MSDS 432: Python and SQL
MSDS 434: Python (Flask, Pandas, and Sci-Kit Learn or TensorFlow/Keras)
MSDS 436: Python
MSDS 440: Python and Javascript
MSDS 450: R
MSDS 451: R
MSDS 452: Python
MSDS 453: Python with TensorFlow/Keras
MSDS 454: R
MSDS 455: Varies (usually R)
MSDS 456: R
MSDS 457: R
MSDS 458: Python (libraries Sci-Kit Learn and TensorFlow with Keras)
MSDS 460: Python and R with Excel
MSDS 462: Python with TensorFlow/Keras (OpenCV)
MSDS 464: Python (TensorFlow, Keras, PyTorch & OpenAI Gym)
MSDS 470: None
MSDS 472: None
MSDS 474: None
MSDS 475: None
MSDS 480: None
MSDS 490/491: Varies
MSDS 498: None, or may vary by instructor

This list may change as the MSDS program develops. Course languages by section are listed at the bottom of course descriptions.

The two main programming languages used in the MSDS program are R and Python. MSDS 401 introduces students to R. Analytics and Modeling students use R in specialization courses MSDS 410 and 411. The analytics and modeling electives utilize R.

MSDS 430 is an elective course that provides an introduction to Python (recommended first course for students with limited programming experience; counts as an elective). MSDS 400 has optional Python assignments. The core courses, MSDS 420 and 422, use Python. Data Engineering and Artificial Intelligence courses are taught in Python with various libraries.

8. What if I have limited programming experience?

If you have limited programming experience, we recommend taking MSDS 430 "Python for Data Science" in your first term to prepare for courses like MSDS 420 and MSDS 422. Note that MSDS 430 will count as one of your MSDS Electives.

Other resources:

Lynda.com (now called LinkedIn Learning) – Northwestern has a partnership with Lynda.com to provide free unlimited access to online tutorials. Please navigate to this webpage for further information on the partnership and log-in credentials. Our professors recommend Python Essential Training (on Python 3) by Bill Weinman. You can also find R and SQL tutorials on Lynda.com.

   o   Log-in directions: https://www.northwestern.edu/hr/workplace-learning/lynda/ > full library > Sign In > Sign in with your organization portal > type in "northwestern.edu" > login with your NetID and password

The Math Place Tutoring – The Math Place website has more information on scheduling appointments. Email: spsmathplace@northwestern.edu

Teaching Assistants (TAs) are also excellent resources for programming language and course support.

Learning Studios are self-paced, self-directed, and individualized online tutorials to support SPS students. The Studios are optional, non-credit, and zero-tuition courses housed in Canvas with no registration requirements in CAESAR. Keep an eye out for Learning Studios on R and Python.

9. Where can I find the MSDS course schedule for each term?

Course schedules by term with section information are published here on the Data Science program page.

Next steps: note important dates, register for classes in CAESAR, order books, and become familiar with Canvas.

10. What does the course day and time listed under "Optional Sync" mean?

Distance learning courses are organized in Canvas and do not necessarily have weekly lectures like traditional on-ground classes, i.e. the structure is asynchronous. The day of the week and time listed (central time) is the time-frame for any synchronous sessions the instructor has scheduled, such as online lectures or office hours. Some instructors have sync sessions every other week while others have fewer. Sync sessions are always optional and recorded for later access to accommodate the schedules of working students.

If students would like more interaction from instructors, they should feel free to reach out directly. Overall, graduate students are expected to work independently to grasp challenging concepts and lessons, and proactively seek assistance from instructors, TAs, and colleagues as a means of fostering a productive learning environment.

11. How are online distance learning courses organized?

Canvas is the Learning Management System where online courses are organized with syllabi, assignments, readings, discussions boards, and instructor messages. You will also be invited to a general "Data Science" program site where advising will post announcements, important dates, and resources. Please take some time to read the Academic Advising and Career Services modules during your first term.

12. Need IT support regarding your email address, Canvas, Net ID, password, or minimum system requirements?

The SPS Help Desk Support Center is available seven days a week from 8am to midnight (central time). The Help Desk provides assistance with Net ID affiliated systems such as Canvas and NU Validate.

NU IT provides technical support and guidance on University services and resources:
Phone: 847-491-4357
consultant@northwestern.edu

If you have further questions, please email MSDS Advising at <u>datascience-advising@northwestern.edu</u>!