Testimonials

Pursuing DSA as my second major was one of the best decisions for my career. The major is incredibly relevant to the industry, with teaching materials constantly updated to keep pace with evolving industry standards. What stood out to me the most was the professors' ability to bridge the gap between theory and practice. Their hands-on approach made complex concepts practical and actionable, equipping me with skills that are immediately applicable in real-world scenarios. This major has truly prepared me to thrive in the fast-paced, data-driven world we live in today.

CHUA TING LIN COLLIN
BSc (Econ), second major in Data Science and Analytics, Class of 2023
Data Scientist, DBS

DSA was pivotal in helping me secure 2 internships, 3 research assistantships, and my current role at Goldman Sachs. The major's keys strengths are its focus on application alongside the theory and its vast selection of electives. Almost every module has a project component, helping you shape your interests and develop a portfolio for employers. Its flexibility lets you dive into interesting subfields including statistical models, algorithms, machine learning, or big data infrastructure. If you enjoy statistics and programming (and don't want to hyperspecialize in QF), this major's right for you.

BHARAT GANGWANI
BSc (Econ), second major in Data Science and Analytics, Class of 2024
Risk Engineer, Goldman Sachs

The DSA Second Major equips students with important fundamental skills in statistics and programming through its core offerings. These skills form the foundation for a successful career within the data industry. Furthermore, the DSA programme provides students with the autonomy to personalise their course of study through a wide array of elective courses. The programme's flexibility allows students to personalise their learning journey and tailor their skillset to their specific career aspirations within the data domain, whether it be as a Data Analyst, Data Scientist or even a Data Engineer.

XAVIER HAU QIAN RUI
BSc (Econ), second major in Data Science and Analytics, Class of 2023
Data Scientist, Ubisoft Singapore

ENQUIRIES

If you want to know more about the DSA Second Major, please contact

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GENERAL INFORMATION

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https://economics.smu.edu.sg/bachelor-science-economics/curriculum/2nd-major-in-data-science-and-analytics

SMU
SINGAPORE MANAGEMENT UNIVERSITY

SCHOOL OF ECONOMICS

Second Major in Data Science and Analytics (DSA)

Overview

The digital economy generates data at high volume, velocity, and variety. As companies and organizations collect ever-increasing amounts of data, those who can effectively extract value from it will come out on top. Unlock the power of data with a DSA Second Major from the School of Economics at SMU.

Why Join the DSA Second Major?

Learn from Accomplished Faculty

- Lectures from accomplished SMU faculty
- Curriculum designed to build industry-valued skills and projects

Mentorship and Support

- Mentorship and guidance from SMU faculty and practitioners
- Support from the DSA Society at SMU

Practical, Hands-On Training

- Work on industry-relevant projects using the most in-demand programming languages for data science

Highlights

Learn industry-relevant programming languages: Gain proficiency in Python, SQL, and R—three of the most in-demand languages for data science.

Turn data into insights: Master the skills needed to query, analyze, and model large-scale data using distributed computing techniques on both on-premises and cloud clusters. Apply statistical models and machine learning algorithms to generate explainable predictions, accurate classifications, and actionable recommendations.

Sharpen your competitive edge: Equip yourself with the skills needed for the future of work, including expertise in big data technologies such as Apache Hadoop, Apache Spark, and Apache Cassandra.

Apply your skills in real-world projects: Develop the ability to effectively communicate your results to project stakeholders by documenting and explaining your analysis to both technical and non-technical audiences. Showcase your work on GitHub and GitHub Pages, and build a portfolio of projects to demonstrate your skills to prospective employers.

Join a vibrant community: All DSA Second Major students are supported in their data science journey by the DSA Society at SMU.

DSA students will:

- Gain proficiency in Python, SQL, and R
- Master the skills needed to import, wrangle, visualize, and model large-scale data
- Apply statistical models and ML algorithms to generate predictions, classifications, and recommendations
- Develop the ability to effectively communicate their results to project stakeholders
- Equip themselves with the skills needed for the future of work

Curriculum

To fulfil the requirements of the DSA Second Major, students must complete the following courses:

CORE COURSES

1. STAT201 Probability Theory and Applications
2. DSA201 Statistical Inference for Data Science
3. DSA211 Statistical Learning with R*
4. DSA212 Data Analytics with R
5. COR-IS1704 Computational Thinking and Programming**

ELECTIVE COURSES

Choose any four or five** courses in the Data Analysis (DA) List and Computing Technology (CT) List, with at least one course in each list.

- *DA LIST:*
  - > DSA301 Time Series Data Analysis/ ECON233 Economic Forecasting
  - > DSA303 Spatial Data Analysis – SMU-X
  - > DSA305 Panel Data Analysis
  - > DSA306 Big Data Analytics/ DSA307 Big Data Analytics with Spark
  - > DSA308 SQL and NoSQL Databases
  - > DSA311 Machine Learning with Applications in Economics
  - > DSA312 Data Science with Python
  - > ECON245 Applied Healthcare Analytics
  - > MKTG228 Marketing Analytics/ OPIM326 Service and Operations Analytics/ ACCT420 Forecasting and Forensic Analytics
- *CT LIST:*
  - > COR1305 Modeling and Data Analytics/ IS112 Data Management/ IS105 Business Data Management
  - > IS428 Visual Analytics for Business Intelligence/ IS415 Geospatial Analytics and Applications
  - > IS450 Text Mining and Language Processing
  - > IS424 Data Mining and Business Analytics/ IS417 Data Warehousing and Business Analytics
  - > CS420 Introduction to Artificial Intelligence
  - > CS421 Principles of Machine Learning/ IS460 Machine Learning and Applications
  - > QF210 Reinforcement Learning in Portfolio Optimisation

* Statistical Learning with R is mutually exclusive with Statistical Programming, which is a compulsory Accounting Core course for BAcc students. BAcc students can therefore take Statistical Programming instead of Statistical Learning with R to fulfil the requirements.

** Computational Thinking and Programming is also a Core Curriculum course under the Capabilities (Modes of Thinking) basket. Students may not double count this course towards both the Core Curriculum and the DSA Second Major. Therefore, students must complete (a) an alternative course to fulfil the Capabilities (Modes of Thinking) basket requirement of the Core Curriculum or (b) an extra DSA Second Major Elective. As Computational Thinking and Programming is a compulsory Core Curriculum course under the Capabilities (Modes of Thinking) basket for BSc (CL), BSc (IS) and BSc (SE) students, these students are required to complete 5 CUs of DSA Second Major Electives instead of 4 CUs.