Mathematical, Computational & Statistical Sciences (MCS) Major

For students admitted in 2017 (Class of 2021), 2018 (Class of 2022) and 2019 (Class of 2023)

Core Courses (Required)

YSC1212 Introduction to Computer Science
YSC2239 Introduction to Data Science
YSC2209 Proof

Focus Courses (Required)

Complete four courses in one of the three focus areas

Mathematics

Compulsory Courses

YSC2232 Linear Algebra
YSC3240 Foundations of Applied Mathematics YSC3206 Introduction to Real Analysis

Specialist courses, 1 required

YSC3237 Introduction to Modern Algebra
YSC4220 Ordinary and Partial Differential Equations

Computer Science

Compulsory courses

- YSC2229 Introductory Data Structures and Algorithms
- YSC3232 Software Engineering
- Either (select one):
  - YSC4230 Programming Language Design and Implementation
  - YSC3236 Functional Programming and Proving
  - YSC4231 Parallel, Concurrent and Distributed Programming

Specialist courses, 1 required

YSC2244 Programming for Data Science
YSC3236 Functional Programming and Proving

Data Science

Compulsory courses

YSC2243 Probability
YSC2232 Linear Algebra
YSC3249 Statistical Inference

Specialist courses, 1 required

YSC2244 Programming for Data Science
YSC4216 Machine Learning

Elective Courses

Select from the list of MCS courses or approved NUS courses. At least 4 Units must be taken at the 4000 level unless already taken as a focus course.

Capstone Project (Required)

YSC4103 MCS Capstone Project
This includes required participation in a Capstone Seminar Series

	Units
Core courses	15
Compulsory focus courses	15
Specialist focus courses	5
Elective courses	9 - 10
Capstone	10
Total	54 - 55

Mathematical, Computational & Statistical Sciences (MCS) Major

For students admitted in 2020 (Class of 2024) and 2021 (Class of 2025)

Core Courses (Required)

YSC1212 Introduction to Computer Science
YSC2239 Introduction to Data Science
YSC2209 Proof

Focus Courses (Required)

Complete four courses in one of the three focus areas

Mathematics

Compulsory courses

YSC2232 Linear Algebra
YSC3237 Introduction to Modern Algebra
YSC3206 Introduction to Real Analysis

Specialist courses, 1 required

YSC4206 Mathematical Signal Processing
YSC4220 Ordinary and Partial Differential Equations

Computer Science

Compulsory courses

- YSC2229 Introductory Data Structures and Algorithms
- YSC3232 Software Engineering
- Either (select one):
  - YSC4230 Programming Language Design and Implementation
  - YSC3236 Functional Programming and Proving
  - YSC4231 Parallel, Concurrent and Distributed Programming

Specialist courses, 1 required

YSC2244 Programming for Data Science
YSC3236 Functional Programming and Proving

Data Science

Compulsory courses

YSC2243 Probability
YSC2232 Linear Algebra
YSC3249 Statistical Inference

Specialist courses, 1 required

YSC2244 Programming for Data Science
YSC4216 Machine Learning

Elective Courses

Select from the list of MCS courses or approved NUS courses. At least 4 Units must be taken at the 4000 level unless already taken as a focus course.

Capstone Project (Required)

YSC4103 MCS Capstone Project
This includes required participation in a Capstone Seminar Series

	Units
Core courses	15
Compulsory focus course	15
Specialist focus courses	5
Elective courses	9 - 10
Capstone	10
Total	54 - 55