Requirements for Major in Data Science and Economics

Applicable to cohorts AY2021/2022 and after

Levels	Major Requirements	Cumulative Major Units
Level 1000 (8 Units)	Pass - DSE1101 Introductory Data Science for Economics[1] - EC1101E Introduction to Economic Analysis	8
Level 2000 (40 Units)	Pass - CS2040 Data Structures and Algorithms[2] - DSA2101 Essential Data Analytics Tools: Data Visualisation - DSA2102 Essential Data Analytics Tools: Numerical Computation - EC2101 Microeconomic Analysis I - EC2102 Macroeconomic Analysis I - MA2001 Linear Algebra I - MA2002 Calculus - MA2311 Techniques in Advanced Calculus *or* MA2104 Multivariable Calculus - ST2131/MA2116/MA2216 Probability - ST2132 Mathematical Statistics	48
Level 3000 (24 Units)	Pass - DSA3102 Essential Data Analytics Tools: Convex Optimisation - DSE3101 Practical Data Science for Economics - EC3101 Microeconomic Analysis II - EC3102 Macroeconomic Analysis II - EC3304 Econometrics II - ST3131 Regression Analysis	72
Level 4000 (24 Units)	Pass - DSE4101 Capstone Project in Data Science and Economics I - EC4305 Applied Econometrics - Four additional courses from the following: + DSA4264 Sense-Making Case Analysis: Public Policy and Society *or* DSA4265 Sense-Making Case Analysis: Economics and Finance + DSE4201 Capstone Project in Data Science and Economics II[3] + DSE4211 / QF4211 Digital Currencies + DSE4212 / QF4212 Data Science in FinTech + DSE4231 Topics in Data Science and the Digital Economy + EC4308 Machine Learning and Economic Forecasting + FE5213 Quantitative Macroeconomics and Finance with Python	96

[1] DSE1101 will be read in fulfilment of the Data Literacy requirement under the CHS Common Curriculum.

[2] CS1010S Programming Methodology, the pre-requisite of CS2040, will be read in fulfilment of the Digital Literacy requirement under the CHS Common Curriculum.

[3] The scope of DSE4101 can be optionally extended by 4 Units using DSE4201 Capstone Project in Data Science and Economics II, subject to the approval of the DSE programme committee.

09-Feb-24

Sample Study Plan — Data Science and Economics

Year 1		Year 2		Year 3		Year 4	
Sem 1	Sem 2	Sem 1	Sem 2	Sem 1	Sem 2	Sem 1	Sem 2
Humanities	Social Sciences	Writing	Communities and Engagement	EC3101 Microeconomic Analysis II or EC3102	EC3102 Macroeconomic Analysis II or EC3101	EC4305 Applied Econometrics	DSE4101 Capstone Project in Data Science and Economics I
Scientific Inquiry I	Asian Studies	Scientific Inquiry II	Artificial Intelligence	MA2311 Techniques in Advanced Calculus/ MA2104 or CS2040	EC3304 Econometrics II	Major 21	Major 23
Digital Literacy (CS1010S)	Design Thinking	MA2001 Linear Algebra I	CS2040 Data Structures and Algorithms or MA2104 Multivariable Calculus	DSA2102 Essential Data Analytics Tools: Numerical Computation or DSA2101	DSE3101 Practical Data Science for Economics	Major 22	Major 24
DSE1101* Introductory Data Science for Economics	MA2002 Calculus	ST2131 Probability	DSA2101 Essential Data Analytics Tools: Data Visualisation or DSA2102	ST3131 Regression Analysis or ST2132	DSA3102 Essential Data Analytics Tools: Convex Optimisation	UE 3	UE 5
EC1101E Introductiion to Economic Analysis	EC2101 Microeconomic Analysis I or EC2102	EC2102 Macroeconomic Analysis I or EC2101	ST2132 Mathematical Statistics or ST3131	UE 1	UE 2	UE 4	UE 6

* DSE1101 fulfils the Data Literacy requirement

** DSE3101 is only offered in Semester 2 of every year. Students planning to go for the Student Exchange Programme (SEP) in Semester 1 of their 3rd year of study should read DSA2101 and ST2132 before they embark on SEP. Alternatively, they can map an approved course read during SEP to ST2132.

Note on CHS Common Curriculum courses:

1) *Students are strongly encouraged to complete all CHS Common Curriculum courses in their first two years except for the following 3 courses:*

- *Communities and Engagement course – can be taken from Years 2 to 4**
- *Two Interdisciplinary courses – can be taken in Years 3 and 4*

***Important note on workload: Semester vs. Year-long C&E courses*

- *Some C&E courses, usually the field/project-work courses, are regular intense 4-Unit courses with work completed within one semester.*
- *Other C&E courses, especially the service-work courses, are spread out over two consecutive semesters, or up to one year, that is,* ***Semester 1 through Semester 2 to Special Term 2****; or* ***Semester 2 through the Special Terms to Semester 1 of following Academic Year (AY)****. You may click* ***here*** *for more details on the service-work courses.*
- *For those students who read the year-long C&E courses which extend till Special Term (during the summer break) after their 8th semester, please note that grades are awarded at the end of Special Term 2, which means your degree will be conferred in end-Aug, and you will join the Commencement ceremony in the following year instead of the same AY of completion of the course. For more details, please check out the FAQ* ***here****.*
- *As such, students who prefer to take such year-long C&E courses instead of semester-long courses (where the latter might have limited capacity in each semester) are encouraged to plan in advance. You may do so by including the C&E course in your study plan earlier in your candidature; for example, during Year 2 of study.*
- *This would allow students to plan for other enrichment programmes (such as Student Exchange programmes, NOC and/or UPIP/Internships) during Year 3 instead of delaying this requirement to Year 4 when students will need to devote time for their job search in the final semester as they complete the remaining graduation requirements.*
- *For more enquiries, please check out the* ***FAQ****, or email the C&E team at* ***AskCnE@nus.edu.sg****.*

2) *The actual pre-allocation may differ from the sample study plan. For the actual pre-allocation pairings, please click here.*