Cross-Disciplinary Programme (XDP)
Data Science and Economics

DIFFERENCES WITH OTHER PROGRAMMES

1. **What is the difference between Data Science and Economics (DSE) and Data Science and Analytics (DSA)?**

   DSE is Cross-Disciplinary Programme (XDP) where the data science methods and techniques are customised for economic problems and taught in an integrated way. Compared to DSA, the programme has clear objectives and domain areas of expertise, e.g. data science applications in financial technology (FinTech) and other areas of economics, including the digital economy. In contrast, DSA focuses on data science methods that have no specified implementation environments. The integration between quantitative techniques and domain knowledge is important for tackling economic questions appropriately.

2. **What is the difference between DSE and taking DSA with a second major in economics (and vice versa)?**

   Courses in DSE are customised for economic problems and taught in an integrated way. In other words, the DSE programme is more than 1 (Economics) +1 (Data Science). Several new courses have been carefully designed for the programme by combining economic, mathematical, statistical and computing methods to solve specific modern digital economy problems.

3. **What is the difference between DSE and Business Analytics in the School of Computing?**

   In the DSE programme, new courses have been carefully designed for the programme by combining economic, mathematical, statistical and computing methods to solve specific modern digital economy problems. Compared to business analytics, the training in mathematics, statistics and economics is more rigorous and students are taught not only the ‘how’ but also the ‘why’. Our students are trained not only to implement current methods/tools for solving existing problems but also to have enough understanding for solving future problems they may face during their careers.

4. **What is the difference between DSE and Quantitative Finance (QF)?**

   There is some overlap between DSE and QF in terms of data science applications in finance, since finance is an important part of the digital economy, especially in Singapore. DSE focuses on a broader set of problems, including non-financial applications such as e-commerce and policymaking, while QF is solely focused on financial problems, such as portfolio optimisation, trading strategies, etc.

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PROGRAMME INFORMATION

5. **Does this XDP allow students to choose any courses from both DSA and Economics to fulfil programme requirements?**

   There is a specific list of courses that is required for DSE. Please refer to the Data Science and Economics major requirements here.

6. **Will DSE train students more in programming or economics?**

   DSE is an integrated education programme blending relevant skills in data science, economics, mathematics and computing. The course tree of the DSE programme is carefully designed, including dedicated new courses that equip students with the necessary and relevant programming skills for tackling real-life problems in economics and finance.

7. **Are the mathematics/statistics courses difficult?**

   The entry requirements for the programme require a good mathematics background, so students should be well-equipped to tackle the technical courses. We refer to those courses as challenging (instead of difficult) and they will feel rewarding once students see the application of fundamental methods to the solution of real-life economic problems.

8. **Can DSE students earn credit units from internships?**

   Yes, DSE students can participate in credit-bearing internships under the Undergraduate Professional Internship Programme (UPIP). For details, refer to science.nus.edu.sg/undergraduates/internships/upip/.

9. **Can DSE students take up a second major/minor?**

   Yes, students can do that as long as the intended double major or major-minor combination is not prohibited.

10. **How many units does a second major comprise of?**

    Second majors typically consist of 40 units. Up to 16 units of double-counting may be allowed between a second major and the primary major.

11. **What are the main programming languages used in the DSE programme?**

    Students will be introduced to programming and relevant libraries in Python, R, Stata and some other languages depending on the course.

12. **Where can I find the full course description for DSE?**

    Please refer to the Data Science and Economics major requirements here.

    For course descriptions, please go to nusmods.com/courses.

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APPLICATION / ADMISSION

13. **What is the cohort size of DSE?**

    About 100.

14. **Does the first-choice-bonus apply to prospective students who choose DSE?**

    Yes. For details, refer to nus.edu.sg/oam/admissions/first-choice-bonus-points.

15. **What is the Indicative Grade Profile (IGP) for DSE? Is it the same as Economics and Data Science and Analytics?**

    DSE is a direct admission programme. The IGP for DSE is different from that for Economics or DSA. Detailed information for IGP can be found here.

CAREER PROSPECTS

16. **What are the career prospects of DSE graduates?**

    There are very broad and exciting career prospects. With the knowledge and skills of economics and appropriate data science methods, we expect our graduates will be particularly successful in numerous sectors e.g. government, financial service, FinTech, e-commerce, among others. The business world is shifting towards data-driven decision- making and economics is a science about making such decisions.

    From past experience, economics graduates with strong technical skills went into data-related positions in ministries, technology companies such as Shopee and Grab, major Singapore banks, hedge funds, consultancy companies etc. It is also a good platform for students who are considering graduate studies in economics later on (next question).

17. **Are there any available postgraduate programmes offered for DSE students?**

    A DSE degree would give students a very good platform to go into Master or PhD degrees in Economics, Finance, Machine Learning or Analytics, both locally and overseas. There are some successful postgraduate programmes in NUS, such as Machine Learning and Data Science, and Quantitative Finance offered by the Department of Mathematics, Faculty of Science, Digital Finance offered by the Department of Computer Science, School of Computing and AIDF, and Financial Engineering offered by the Risk Management Institute. Current NUS graduates in economics with technical skills have a strong graduate placement record at the best programmes worldwide.