Statistics

DIFFERENCES WITH OTHER PROGRAMMES

1. **What's the difference between statistics and mathematics?**

   Mathematics deals with numbers, curves, surfaces, figures, images, etc., in all their generalities, ranging from the most abstract theories to the most concrete methods and algorithms, whereas statistics deals with the collection and analysis of data and information in surveys, experiments, databases, etc., in order to reach conclusions or decide on a suitable course of action. Dick de Veaux has likened mathematics to music and statistics to literature. Mathematics has a cold and austere beauty, which deals with a clean, axiom-driven world of logic.

   Statistics, on the other hand, is about trying to make sense of a noisy and chaotic world, in which there are only shades of grey. Like other quantitative subjects - physics, engineering, economics - statistics has a mathematical foundation, which is why students studying statistics take courses in mathematics in their first year.

PROGRAMME INFORMATION

2. **What is statistics?**

   Statistics is the science of uncertainty. It involves applying quantitative principles to the collection, analysis, and presentation of information in a variety of subject areas, such as biology, economics, insurance, investment, engineering, medicine, public health, psychology, physics, marketing, education, and sports. Good statisticians are skilled programmers and problem solvers, with a good understanding of uncertainty and mathematics, skills that are in much demand in the job market.

3. **Why study statistics in NUS?**

   The NUS Department of Statistics and Data Science is the only university department in Singapore which offers a degree programme in statistics. We are one of the world's leading statistics departments with many faculty members who are internationally acclaimed, and several with joint appointments at the Duke-NUS medical school, the Department of Mathematics, and the Saw Swee Hock School of Public Health. A wide array of courses covering the theory and application of statistics is taught by faculty members who are dedicated to a student-oriented approach to teaching and learning. Teaching is supported by state-of-the-art computing resources - you will become proficient in a variety of statistical and computational software.

4. **What minors and second majors can statistics students consider reading to add value to their learning experience?**

   The College of Humanities and Sciences (CHS) offers an enhanced undergraduate experience for students in the Faculty of Science (FoS) and the Faculty of Arts and Social Sciences (FASS). You can read majors offered by both faculties, as well as other faculties / schools / colleges in NUS (subject to meeting subject prerequisites). Within CHS, students have access to a flexible curriculum structure where you can choose to pursue any Major, Second Major, Major-Minor and specialisation pathway according to your interests, aptitude and career aspirations.

   Because statistics is founded on mathematical principles, utilises programming and algorithms, and is widely applied to problems in business and economics, you can consider reading a Minor or Second Major in Data Analytics (CHS-Faculty of Science (FOS)), Mathematics (CHS-FoS), Economics (CHS-Faculty of Arts and Social Sciences), Management (NUS Business School), Business Analytics (School of Computing (SoC)) or Computer Science (SoC).

5. **What specialisations are offered for statistics?**

   You have the option to pursue specialisations in **Data Science** and/ or **Finance and Business Statistics**. **Data science** focuses on computing concepts and skills to manage the collection, storage and analysis of voluminous data while **finance and business statistics** focuses on the application of statistics to the areas of investment and financial analysis, insurance, marketing research and management. You fulfill the specialisation requirements by reading five additional elective courses from a prescribed list on top of the Statistics Major.

APPLICATION/ADMISSION

6. **What are the admission requirements for the programme?**

   Applicants should have a good pass in H2 Mathematics or H2 Further Mathematics. Students without these prerequisites are required to read the bridging course in Mathematics (MA1301 or MA1301X).

CAREER PROSPECTS

7. **What are the career opportunities for statistics graduates?**

   The world is becoming more quantitative and data-focused. Many professions, organisations and businesses depend on numerical measurements to make decisions in the face of uncertainty. Therefore, statistics graduates may look forward to being employed as statisticians in government agencies, the medical and pharmaceutical industries, manufacturing and engineering companies, banking and financial institutions, research and development, and educational institutions. Furthermore, there are many jobs that do not bear the word "statistician" but will significantly rely on the knowledge and skills acquired from studying statistics. These include business, risk and financial analysts, quality assurance or pharmaceutical engineers, marketing professionals, banking and telecommunication executives, actuaries, and data scientists, amongst others. The more entrepreneurial graduates have also set up their own business ventures.
   Statistics graduates who are interested in pursuing a career in teaching may refer to moe.gov.sg/careers/become-teachers for more information about teaching in primary schools or in secondary schools/Junior Colleges (JCs). NUS Statistics graduates are able to teach mathematics in secondary schools/JCs. Do note that the Ministry of Education (MOE) generally requires applicants to have two teaching subjects for secondary schools/JCs.