Twins TAY Yu Xuan and TAY Yu Heng both graduated in 2014 with B.Sc. (Hons) in Statistics (Minor in Financial Mathematics)

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NUS National University of Singapore | Department of Statistics and Applied Probability, Faculty of Science

Major in Statistics

The Department of Statistics and Applied Probability in NUS offers an undergraduate major in Statistics. Honours students in this major have the option to specialise either in Data Science or in Finance and Business Statistics.

A brief outline of the modules offered by the department for this major is as follows.

Level 1000

Introduction to Statistics provides students with the basic concepts in statistics.

Level 2000

Students at the second year will learn programming languages, for example the popular software package R that statisticians use, by taking **Computer Aided Data Analysis.** They will also take **Probability** and **Mathematical Statistics,** which provide a foundation for higher-level modules.

Levels 3000 and 4000

Students in their third and Honours year will take modules on important statistical techniques such as **Simulation** and **Regression Analysis**, and also modules on important statistical applications:

1. Finance and business statistics: **Applied Time Series Analysis**, **Actuarial Statistics**, **Statistical Methods for Finance**
2. Data science: **Multivariate Statistical Analysis**, **Statistical Learning** (a.k.a. Data Mining), **Bayesian Statistics**, **High-dimensional Statistical Analysis**, **Optimisation for Large-scale Data-driven Inference**
3. Medical and public health data: **Demographic Methods**, [Introduction to] **Survival Analysis**, **Statistical Methods in Epidemiology**, **Survey Methodology**
4. Industrial statistics: **Design and Analysis of Experiments**, **Statistical Quality Control**

The modules **Categorical Data Analysis**, **Computer Intensive Statistical Methods**, **Nonparametric Statistics** equip students with statistical tools to handle specific types of data.

Students will also be matched, based on their interest, to a supervisor to do a final year project, if they progress to the Honours year.

https://www.stat.nus.edu.sg/images/DSAP/Career_Page/brochure_stats.pdf

Notable Statisticians and Their Contributions

Florence Nightingale (1820—1910): British nurse, **statistician**, and social reformer.

Nightingale was an innovator in **displaying statistical data through graphs**. She devised Coxcomb pie charts on patient mortality that would influence the direction of **medical epidemiology**.

Like pie charts, the Coxcomb indicates frequency by relative area, but it differs in its use of fixed angles and variable radii.

Sir Ronald Aylmer Fisher (1890—1962): British geneticist and **statistician**.

Fisher pioneered the application of **statistical procedures** to the design of **scientific experiments**. His plant-breeding experiments led to theories about **gene dominance and fitness**.

He also developed methods of **multivariate analysis** to investigate the **linkage of genes** for different traits.

David Harold Blackwell (1919—2010): American mathematician and **statistician**.

Blackwell made significant contributions to **game theory**, probability theory, information theory, and Bayesian statistics.

He applied game theory to **military situations**. In the *duelist's dilemma*, a problem with application to the battlefield, he used **statistics** to determine the most opportune time to open fire.

Hirotugu Akaike (1927—2009): Japanese **statistician**.

Akaike formulated the **Akaike Information Criterion** (AIC), a practical criterion for the **selection of statistical models** which balances between the complexity of the model and goodness of its fit to the data.

On the occasion of his 90th birth anniversary, Google celebrated Akaike's contribution to the field of **statistics** with a Doodle.