# COURSE DETAIL

| PROBABILITY AND MATHEMATICAL STATISTICS |
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| **Country**<br>New Zealand |
| **Host Institution**<br>University of Waikato |
| **Program(s)**<br>University of Waikato |
| **UCEAP Course Level**<br>Upper Division |
| **UCEAP Subject Area(s)**<br>Statistics |
| **UCEAP Course Number**<br>110 |
| **UCEAP Course Suffix** |
| **UCEAP Official Title**<br>PROBABILITY AND MATHEMATICAL STATISTICS |
| **UCEAP Transcript Title**<br>PROB & MATH STATS |
| **UCEAP Quarter Units**<br>6.00 |
| **UCEAP Semester Units**<br>4.00 |

**Course Description**
This paper introduces probability theory and the mathematical theory of statistics. It covers mathematical concepts and theory that underpin the statistical distributions, inference and important results in statistics. This course is almost entirely mathematical in nature. The first half starts with a rigorous introduction to probability theory. Topics include the axioms of probability, conditional probability and independence, random variables, discrete distributions, continuous distributions, expectations and variances, and special distributions. In the second half, building upon the tools and background in the first half, more advanced topics are studied, such as convergence of random variables, moment generating functions, characteristic functions, and their applications to the foundational results in mathematical statistics; namely the law of large numbers and the central limit theorem. If time permits additional topics such as maximum likelihood theory may be covered.

**Language(s) of Instruction**
English

**Host Institution Course Number**
STATS322

**Host Institution Course Title**
PROBABILITY AND MATHEMATICAL STATISTICS

**Host Institution Course Details**

**Host Institution Campus**

**Host Institution Faculty**

**Host Institution Degree**

**Host Institution Department**
Computation and Mathematical Sciences

**Course Last Reviewed**

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