

**NAME OF THE PROGRAMME: MASTER OF SCIENCE IN MATHEMATICS BY
RESEARCH**

Programme Type	Research
Status	Proposal
Start Date	August and January
Module	SM-5000
Description	<p>Masters of Science in Mathematics, Faculty of Science (FOS), is a programme that fosters pure and applied research in different branches of Mathematics. The Mathematics Group offers postgraduate research opportunities in a number of areas of Pure and Applied Mathematics, Statistics, Operations Research and Financial Mathematics. A particular focus initiative of the Group is the recently-established Mathematical Modelling and Simulation Cluster, which aims to pursue research in areas such as mathematical epidemiology, inventory analysis, hydrology, crop production and the properties of nanoparticles. One important resource available to the Modelling and Simulation Cluster is UBD's BlueGene supercomputer, which is currently the only supercomputer in South East Asia.</p> <p>The Programme is designed for qualified individuals, who wish to acquire advanced knowledge, as well as analytical and research skills in Pure and Applied Mathematics.</p> <p>Students interested in starting a Masters or Doctoral degree in Mathematics at UBD should in the first instance contact one or more of the staff members, and liaise with them to design a suitable research project.</p>
Research Facilities	Downloading of papers using university website, availabilities of papers and books through library, computing, printing, scanning and other such facilities are provided by the group.
Degree Requirements	Assessment for the degree is based solely on the contents of an original thesis of no more than 60,000 words, to be submitted at the end of the student's candidature. Although there is no formal coursework component in the research Masters programme, a Master's student will normally be required to audit at least two Level-4 modules in topics relevant to the proposed field of research.
Entry Requirements	At least a lower second class (or equivalent) honours Bachelor's degree in Mathematics or Mathematics Education or in a relevant area from a recognised university;
Language Requirements	Applicants whose native tongue is not English should submit evidence of English proficiency (minimum score of 550 for TOEFL, 6.0 for IELTS, credit 6 in GCE 'O' Level Examination or grade C in IGSCE English as a second language)

Programme Details

Aims and Scope	<p>The MSc Programme in Mathematics aims to make researchers and scientists with high level specialised skills in order to cope with the increased demands of governments, industries, banks, hospitals etc. Also, students wishing to continue their studies at a PhD level, have the opportunity to prepare themselves for carrying out PhD research.</p> <p>The scope of the Programme is to provide students the necessary specific scientific information, as well as to train them to develop their skills and analytical capabilities.</p>	
Structure	<p>Students conduct research on an approved research topic, under the supervision of one or more staff members. Upon completion of their research, they submit a Thesis, which normally does not exceed 60,000 words.</p>	
Language	<p>The Thesis will be written in English; any potential courses will be given in English, too.</p>	
Duration of Programme	Full-Time: minimum 12 months, maximum 24 months	Part-Time: minimum 24 months, maximum 48 months
Areas of Research/Specialisation	<p>Operator theory, Integral equations, Approximation of pseudo-differential operators; Locally convex cones, Linear approximation, Integral representations, Choquet theory, Wavelets; Numerical Analysis: Spline functions on triangulations, Refinable stable local spline basis functions, Macro-element Riesz bases; Functional differential equations, Impulsive differential/difference equations, Stability and oscillations in dynamical systems, Mathematical models of neural networks, population dynamics, epidemics, etc., Computer (or numerical) simulations of differential equations, Functional differential equations, and Impulsive differential equations; Mathematical physics and cosmology, Petrophysics modelling, Differential geometry, Population dynamics and epidemiology; Modelling and simulation, High performance computing; Computational fluid dynamics (CFD), Modelling and simulation of the application of nanofluids on heat transfer problems, Renewable/Solar energy technology, Approximant methods; Mathematical modelling of air quality and pollution, atmospheric transport, population and traffic flows; Dynamical systems and chaos, Mathematical modelling: medicine, ecology, epidemiology, Bifurcation Theory, Numerical computation; Production and inventory control, Supply chain management, Transportation and logistics, Optimization and heuristic techniques; Road Safety and driving behavior, Intelligent traffic system; Stochastic volatility, Study of Brunei's healthcare insurance claims, Numerical solutions of partial differential equation involving options, Time series models, Long-ranged dependence stochastic processes, Extension of Markowitz's portfolio optimisation method; Characterization of probability models, Bivariate statistical analysis, Parametric Estimation; Health and medical statistics, Applied statistics, Goodness-of-fit tests; Biostatistics, Survival analysis, Longitudinal data analysis;</p>	

Attendance Type	Full-Time/Part-Time			
Period of Candidature	Ful-Time:	12-24 months	Part-Time:	24-48 months
Assessment	Assessment includes examination of the Thesis by internal and external examiners. As stipulated in the relevant UBD regulations the examiners may subject a candidate to an oral examination or any other test they think necessary to assess the acceptability of the Thesis. Periodic assessment of the progress of the candidate is carried out as stipulated in the relevant UBD regulations.			
Demand	Applicants are expected to join the Programme from Brunei Darussalam and overseas. The number of applicants is expected to increase in the future.			
Future Development	The Programme is expected to attract students and to develop according to the demands of the community and the industry. New teachers that will join the Mathematics group in UBD will also add new disciplines of research. Increasing number of interdisciplinary and transdisciplinary research is expected to be developed.			

Major Areas	<ul style="list-style-type: none"> · Essential mathematics · Applied mathematics · Industrial mathematics · Statistics · operations research · Financial mathematics · Bio-mathematics.
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For More Information

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