NAME OF THE PROGRAMME: MASTER OF SCIENCE BY RESEARCH (CHEMISTRY)

Programme Type	Research
Status	Proposal
Start Date	August and January
Module	SC-5000
Description	Chemistry plays an important role in developing the modern world, maintaining sustainability and improving the quality of human life. The research areas of the Chemistry Group are diverse and broad such as analytical and environmental chemistry, electrochemistry, organometallic, photochemistry, natural products and synthetic organic chemistry, catalysis and surface chemistry. Candidates will perform a research project under the supervision of staff from the Chemical Sciences Programme and frequently in collaboration with staff members from other disciplines.
Research Facilities	Postgraduate students undertake part-time or full-time research in a project supervised by one or more academic staff who are experts in their field. The expectation is that postgraduate students will publish their research in top-tier, international chemistry journals. The Chemistry Group is ably equipped with modern scientific instrumentation to achieve this outcome, including high-field NMR, CHN analyser, GC-MS, HPLC, UF-HPLC, IC, FTIR, UV-Vis spectrometers, AAS, ICP-OES, voltammetric analyzers, automated Kjedahl total protein analyzer, automated total fat analyzer, automated fibre analyzer, PCR, electrochemical analyzer, electro-chemiluminescence analyzer, ELISA reader, fluorospectrometers, etc.
Degree Requirements	A written thesis is judged acceptable by the Board of Examiners. The thesis, based on the findings of an approved original research investigation, shall not normally exceed 60,000 words. 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.
Entry Requirements	At least a Second Class (or equivalent) honours Bachelor's degree from a recognised university in a relevant discipline preferably chemistry. Shortlisted applicants may be interviewed on a case by case basis.
Language Requirements	Relevant English language requirement stipulated by UBD.
Planned Intake	10-12 students per year

Programme Details

Aims and Scope	The MSc Programme in Chemistry aims to make scientists with high level specialised training, in order to cover the increased needs of Industry in related aspects. Also, students wishing to continue their studies at a PhD level will be able to prepare for the conduction of

	PhD research on relevant topics. 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.	
Structure	Students conduct an approved research project, with 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.	
Language	The thesis will be written in English; any potential courses will also be given in English.	
Duration of Programme	Full-Time: minimum 12 months, maximum 24 months	Part-Time: minimum 24 months, maximum 48 months
Areas of Research/Specialisation	• Chemically modified electrodes. • Electro-analysis. • Aquatic environmental chemistry. • Chemical modification of ligno-cellulosic materials for environmental applications. • Monitoring of environmental pollutants such as PAHs and VOCs in air and occupational environments. • Acidity of rainwater (contribution of weak organic acids). • Heavy metals/trace metals in marine organisms and animals. • Extraction and characterization of fats and oils • Analysis of food additives, vitamins and minerals • Soil chemistry; pollution and solid waste • Natural Products • Environmental conservation: Use of local food waste as potential biosorbents for the removal of environmental pollutants. • Study of medicinal and aromatic plants in Brunei Darussalam. • Analysis of nutrient compositions of fruits and vegetables in Brunei Darussalam. • Investigation of the structural and functional attributes of parasitic plants (Mistletoes and Dodders) in Brunei Darussalam. • Study of the optimization of biodiesel production. • Investigation of nutrient contents of local biomass and their potential as biosorbents of pollutants. • Green chemistry using clay catalysis. • Catalysis Chemistry • Chemistry of Schiff bases. • Green technology; Organometallic emitters from natural products. • Dye-sensitized solar cells. • Design, synthesis and structural characterization of potentially new bioactive sulfur-nitrogen chelating agents and their metal chelates. • Utilization of sago waste for water purification systems. • Catalytic transfer hydrogenation. • New catch-release catalysts for fine chemical synthesis.	

	• Electrochemistry. • Fabrication of small centres using nanostructured materials. • Spectroscopy • Photo-catalysis. • Biotechnology • New generation nucleic acids and protein biosensors. • Novel chemical biology and biomaterials approaches. • Point-of-care (POC) micro-devices. • Agro/food-based applied biotechnology. • DNA/protein bioinformatics and bioengineering. • Synthesis and characterisation of mixed metal Oxides. • Hydrothermal synthesis. • Solid state materials chemistry particularly perovskites and doped titanium dioxides. More areas will be provided upon arrival of new staff
Attendance Type	Full-Time/Part-Time
Period of Candidature	Full-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, as the programme develops a track record.
Future Development	The programme is expected to attract students and to develop according to the demands of the community and the industry. New supervisors that will join Chemical sciences Group in UBD will also add new disciplines of research. Increasing number of interdisciplinary and transdisciplinary research is expected to be developed.

Major Areas	Analytical and environmental chemistry, electrochemistry, organometallic, photochemistry, natural products and synthetic organic chemistry, catalysis and surface chemistry.

For More Information

Contact	Programme Leader in Chemical Sciences, Faculty of Science (FOS), UBD