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[Chemistry Major- Course Structure & Curriculum]

Graduation Requirements

To be awarded a BSc (Hons) with a primary major in Chemistry, candidates must satisfy the following:

LEVEL	BSc (HONS) IN CHEMISTRY MINIMUM REQUIREMENTS	CUMULATIVE UNITS
1000	CM1102 Chemistry – The Central Science	4
2000	CM2112 Chemistry of Elements CM2122 Organic Chemistry in Life and Medicine CM2133 Foundations of Physical Chemistry CM2143 Basic Toolkit of Analytical Chemistry	16
3000	CM3111 Inorganic and Organometallic Chemistry CM3121 Synthesis of Natural Products and Pharmaceuticals CM3131 Applications of Physical Chemistry CM3141 Instrumental Techniques in Analytical Chemistry CM3191 Chemical Synthesis Experiments CM3192 Physical and Analytical Chemistry	24
4000	Any four (4) CM courses at Level 3000 or 4000 excluding CM3288, CM3288x, CM3289, CM3289x, CM4288 and any UPIP courses List of Level 3000 and 4000 courses that can be used to satisfy the major requirements CM3201 Principles of Chemical Processes CM3212 Transition Metal Chemistry CM3221 Organic Synthesis: The Disconnection Approach CM3222 Organic Reaction Mechanisms CM3225 Biomolecules CM3231 Quantum Chem & Molecular Thermodynamics CM3232 Phy Chem of the Solid State & Interfaces CM3251 Nanochemistry CM3252 Polymer Chemistry 1 CM3253 Materials Chemistry 1 CM3254 Sustainable Polymers and Biomass CM3255 Smart Molecules with AI and Cheminformatics CM3261 Environmental Chemistry CM3267 Computational Thinking and Programming in Chemistry	16

LEVEL	BSc (HONS) IN CHEMISTRY MINIMUM REQUIREMENTS	CUMULATIVE UNITS
	CM3296 Molecular Modelling: Theory & Practice CM4211 Advanced Coordination Chemistry CM4212 Advanced Organometallic Chemistry CM4214 Structural Methods in Inorganic Chem CM4215 Bioinorganic Chemistry CM4225 Organic Spectroscopy CM4227 Chemical Biology CM4228 Catalysis CM4236 Spectroscopy & Imaging in Biophysical Chemistry CM4238 Selected Topics in Physical Chemistry CM4241 Trace Analysis CM4242 Advanced Analytical Techniques CM4251 Characterization Techniques in Materials Chemistry CM4252 Polymer Chemistry 2 CM4253 Materials Chemistry 2 CM4254 Chemistry of Semiconductors CM4258 Advanced Polymer Science CM4269 Sustainable & Green Chemistry CM4271 Medicinal Chemistry CM4273 Computational Drug Design CM4274 The Art and Methodology in Total Synthesis CM4282 Energy Resources	
	Total:	60

To graduate with a major in Chemistry, student must have read and passed at least one of the following:
(1) CM2288/CM2288R
(2) CM3288/CM3288R/CM3288N/CM3288NR/CM3288S/CM3288SR
(3) CM4288*
(4) Any UPIP course**
(5) Any NOC Internship course
**Applicable only to students reading the Specialisation in Chemical Research*
***Students who have passed a FASSIP course before switching to a primary major in Chemistry would be deemed to have fulfilled this requirement.*

Specialisation in Chemical Research

To be awarded a Specialisation in Chemical Research, students would need to complete 20 units of the following:

Requirements	Course	units
Level 3000	CM3288 Advanced UROPS in Chemistry I or CM3288N Advanced UROPS in Nanochemistry I or CM3288R Advanced UROPS in Chemistry I (REx) or CM3288NR Advanced UROPS in Nanochemistry I (REx) or CM3288S Advanced UROPS in Sustainable Chemistry I or CM3288SR Advanced UROPS in Sustainable Chemistry I (REx)	4
Level 4000	CM4288 Final Year Research Project in Chemistry	12
Level 3000 / 4000	Any Level 3000 or 4000 CM coded course (excluding CM3289,CM3289x and UPIP courses) from the following: CM3201 Principles of Chemical Processes CM3212 Transition Metal Chemistry CM3221 Organic Synthesis: The Disconnection Approach CM3222 Organic Reaction Mechanisms CM3225 Biomolecules CM3231 Quantum Chem & Molecular Thermodynamics CM3232 Phy Chem of the Solid State & Interfaces CM3251 Nanochemistry CM3252 Polymer Chemistry 1 CM3253 Materials Chemistry 1 CM3254 Sustainable Polymers and Biomass CM3255 Smart Molecules with AI and Cheminformatics CM3261 Environmental Chemistry CM3267 Computational Thinking and Programming in Chemistry CM3296 Molecular Modelling: Theory & Practice CM4211 Advanced Coordination Chemistry CM4212 Advanced Organometallic Chemistry CM4214 Structural Methods in Inorganic Chem CM4215 Bioinorganic Chemistry CM4225 Organic Spectroscopy CM4227 Chemical Biology CM4228 Catalysis for Sustainable Chemical Synthesis CM4236 Spectroscopy & Imaging in Biophysical Chemistry CM4238 Selected Topics in Physical Chemistry CM4241 Trace Analysis CM4242 Advanced Analytical Techniques CM4251 Characterization Techniques in Materials Chemistry CM4252 Polymer Chemistry 2 CM4253 Materials Chemistry 2 CM4254 Semiconductor Devices for Sustainability CM4258 Advanced Polymer Science CM4269 Sustainable & Green Chemistry CM4271 Medicinal Chemistry CM4273 Computational Drug Design CM4274 The Art and Methodology in Total Synthesis CM4282 Energy Resources	4

Specialisation in Sustainable Chemistry

To be awarded a Specialisation in Sustainable Chemistry, students would need to pass five courses from the following:

Requirements	Course	units
Level 3000 / 4000	CM3254 Sustainable Polymers and Biomass CM3261 Environmental Chemistry CM3267 Computational Thinking and Programming in Chemistry CM3288S Advanced UROPS in Sustainable Chemistry I/CM3288SR Advanced UROPS in Sustainable Chemistry I (REx) CM4228 Catalysis for Sustainable Chemical Synthesis CM4254 Semiconductor Devices for Sustainability CM4269 Sustainable & Green Chemistry CM4282 Energy Resources	20