BED (HONS) SCIENCE EDUCATION - CK413

Programme Requirements

Code	Title	Credits
Year 1		**60**
Students take modules to the value of **60** credits in **one** of the following routes:		
Route 1 (Biology and Chemistry)		
Students take **60** credits as follows:		
Core Modules		
Biology		
BC1001	Introduction to Biochemistry and the Biological Basis of Disease (5)	
BL1002	Cells, Biomolecules, Genetics and Evolution (5)	
BL1004	Physiology and Structure of Plants and Animals (5)	
BL1006	Habitats and Ecosystems (5)	
MB1003	Microbiology in Society (5)	
Chemistry		
CM1200	Fundamentals of Modern Chemistry Part 1 (10)	
CM1201	Fundamentals of Modern Chemistry Part 2a (10)	
CM1203	Teaching Chemistry Concepts (5)	
Education		
ED1101	Introduction to Science Education (5)	
ED1102	Introductory Teaching Practice Placement Science Education (5)	
Route 2 (Physics and Mathematics) [1]		
Students take **60** credits as follows:		
Core Modules		
Physics		
PY1052	Introductory Physics I (10)	
PY1053	Introductory Physics II (10)	
Mathematics		
AM1052	Introduction to Mechanics (5)	
AM1053	Introduction to Mathematical Modelling (5)	
MA1058	Introduction to Linear Algebra (5)	
MA1059	Calculus (5)	
MS2013	Geometry (5)	
ST1051	Introduction to Probability and Statistics (5)	
Education		
ED1101	Introduction to Science Education (5)	
ED1102	Introductory Teaching Practice Placement Science Education (5)	
Route 3 (Computer Science and Mathematics) [1]		
Students take **60** credits as follows:		
Core Modules		
Computer Science		
CS1115	Web Development 1 (5)	
CS1117	Introduction to Programming (15)	
Mathematics		
AM1052	Introduction to Mechanics (5)	
AM1053	Introduction to Mathematical Modelling (5)	
MA1058	Introduction to Linear Algebra (5)	
MA1059	Calculus (5)	
MS2013	Geometry (5)	
ST1051	Introduction to Probability and Statistics (5)	
Education		
ED1101	Introduction to Science Education (5)	
ED1102	Introductory Teaching Practice Placement Science Education (5)	
Route 4 (Chemistry and Mathematics) [1]		
Students take **60** credits as follows:		
Core Modules		
Chemistry		
CM1200	Fundamentals of Modern Chemistry Part 1 (10)	
CM1201	Fundamentals of Modern Chemistry Part 2a (10)	
CM1203	Teaching Chemistry Concepts (5)	
Mathematics		
AM1052	Introduction to Mechanics (5)	
MA1058	Introduction to Linear Algebra (5)	
MA1059	Calculus (5)	
MS2013	Geometry (5)	
ST1051	Introduction to Probability and Statistics (5)	
Education		
ED1101	Introduction to Science Education (5)	
ED1102	Introductory Teaching Practice Placement Science Education (5)	
Route 5 (Computer Science and Chemistry)		
Students take **60** credits as follows:		
Core Modules		
Computer Science		
CS1021	Relational Databases I (5)	
CS1115	Web Development 1 (5)	
CS1117	Introduction to Programming (15)	
Chemistry		
CM1200	Fundamentals of Modern Chemistry Part 1 (10)	
CM1201	Fundamentals of Modern Chemistry Part 2a (10)	
CM1203	Teaching Chemistry Concepts (5)	
Education		
ED1101	Introduction to Science Education (5)	
ED1102	Introductory Teaching Practice Placement Science Education (5)	
Year 2		**60**
Students take modules to the value of **60** credits in **one** of the following routes:		
Route 1 (Biology and Chemistry)		
Students take **60** credits as follows:		
Core Modules		
Biology		
AE2001	Fundamentals of Ecology (5)	
MB2905	Fundamentals of Microbiology (5)	
ML2901	Introductory Molecular Biology (5)	
PS2001	Introduction to Plant Biotechnology (5)	
Chemistry		

CM2001	Main Group and Transition Element Chemistry (5)
CM2002	Intermediate Stereochemistry, Reactivity and Mechanisms in Organic Chemistry (5)
CM2005	Structures and Reactions of Main Group Compounds (5)
CM2008	Structure, Bonding and Quantum Mechanics (5)
Education	
ED2103	Fundamental Principles of Science Education (10)
ED2104	Introduction to Science Education Teaching Placement (10)
Route 2 (Physics and Mathematics)	
Students take **60** credits as follows:	
Core Modules	
Physics	
PY2101	Classical Mechanics (5)
PY2102	Introduction to Quantum Physics (5)
PY2103	Electrostatics and Magnetostatics (5)
PY2108	Experimental Methods I (5)
Mathematics	
AM2071	Transform and Variational Methods (5)
MA2071	Multivariable Calculus (5)
MS2005	Discrete Mathematics (5)
MS3001	Introduction to Abstract Algebra (5)
Education	
ED2103	Fundamental Principles of Science Education (10)
ED2104	Introduction to Science Education Teaching Placement (10)
Route 3 (Computer Science and Mathematics)	
Students take **60** credits as follows:	
Core Modules	
Computer Science	
CS1110	Computer Hardware Organization (5)
CS1111	Systems Organisation (5)
CS2214	Multimedia (5)
CS2513	Intermediate Programming (5)
Mathematics	
AM2071	Transform and Variational Methods (5)
MA2071	Multivariable Calculus (5)
MS2005	Discrete Mathematics (5)
MS3001	Introduction to Abstract Algebra (5)
Education	
ED2103	Fundamental Principles of Science Education (10)
ED2104	Introduction to Science Education Teaching Placement (10)
Route 4 (Chemistry and Mathematics)	
Students take **60** credits as follows:	
Core Modules	
Chemistry	
CM2001	Main Group and Transition Element Chemistry (5)
CM2002	Intermediate Stereochemistry, Reactivity and Mechanisms in Organic Chemistry (5)
CM2005	Structures and Reactions of Main Group Compounds (5)
CM2008	Structure, Bonding and Quantum Mechanics (5)
Mathematics	
AM2071	Transform and Variational Methods (5)
MA2071	Multivariable Calculus (5)
MS2005	Discrete Mathematics (5)
MS3001	Introduction to Abstract Algebra (5)
Education	
ED2103	Fundamental Principles of Science Education (10)
ED2104	Introduction to Science Education Teaching Placement (10)
Route 5 (Computer Science and Chemistry)	
Students take **60** credits as follows:	
Core Modules	
Computer Science	
CS1110	Computer Hardware Organization (5)
CS1111	Systems Organisation (5)
CS2214	Multimedia (5)
CS2513	Intermediate Programming (5)
Chemistry	
CM2001	Main Group and Transition Element Chemistry (5)
CM2002	Intermediate Stereochemistry, Reactivity and Mechanisms in Organic Chemistry (5)
CM2005	Structures and Reactions of Main Group Compounds (5)
CM2008	Structure, Bonding and Quantum Mechanics (5)
Education	
ED2103	Fundamental Principles of Science Education (10)
ED2104	Introduction to Science Education Teaching Placement (10)
Year 3	**60**
Students take modules to the value of **60** credits in **one** of the following routes:	
Route 1 (Biology and Chemistry)	
Students take **60** credits as follows:	
Core Modules	
Biology	
BL2001	Plant and Animal Genetics (5)
BC2001	Biomolecules (5)
ZY2000	Vertebrate Diversity (5)
Chemistry	
CM2003	Energetics and Kinetics (5)
CM2004	States of Matter (5)
CM2007	Spectroscopy (5)
Education	
ED3101	Science Education II (15)
ED3102	Teaching Practice Placement Science Education II (15)
Route 2 (Physics and Mathematics)	
Students take **60** credits as follows:	
Core Modules	
Physics	
PY2107	Experimental Physics I (5)
PY3101	Optics (5)

PY3103	Electromagnetism (5)
PY3107	Experimental Physics II (5)
Mathematics	
AM3051	Vector and Tensor Methods (5)
MA4403	Discrete Time Financial Models (5)
Education	
ED3101	Science Education II (15)
ED3102	Teaching Practice Placement Science Education II (15)

Route 3 (Computer Science and Mathematics)

Students take **60** credits as follows:

Core Modules

Computer Science	
CS3500	Software Engineering (5)

Plus **three** modules from the following:

CS1021	Relational Databases I (5)
CS1116	Web Development 2 (5)
CS1069	Network and Internet Technologies (5)
CS2213	Data Analytics for Digital Humanities I (5)
CS2515	Algorithms and Data Structures I (5)
CS3062	Computing in Society (5)
Mathematics	
AM3051	Vector and Tensor Methods (5)
MA4403	Discrete Time Financial Models (5)
Education	
ED3101	Science Education II (15)
ED3102	Teaching Practice Placement Science Education II (15)

Route 4 (Chemistry and Mathematics)

Students take **60** credits as follows:

Core Modules

Chemistry	
CM2003	Energetics and Kinetics (5)
CM2004	States of Matter (5)
CM2007	Spectroscopy (5)
Mathematics	
AM1053	Introduction to Mathematical Modelling (5)
AM3051	Vector and Tensor Methods (5)
MA4403	Discrete Time Financial Models (5)
Education	
ED3101	Science Education II (15)
ED3102	Teaching Practice Placement Science Education II (15)

Route 5 (Computer Science and Chemistry)

Students take **60** credits as follows:

Core Modules

Computer Science	
CS3500	Software Engineering (5)

Plus **two** modules from the following:

CS1069	Network and Internet Technologies (5)
CS1116	Web Development 2 (5)
CS2213	Data Analytics for Digital Humanities I (5)
CS2515	Algorithms and Data Structures I (5)
CS3062	Computing in Society (5)
Chemistry	
CM2003	Energetics and Kinetics (5)
CM2004	States of Matter (5)
CM2007	Spectroscopy (5)
Education	
ED3101	Science Education II (15)
ED3102	Teaching Practice Placement Science Education II (15)

Year 4 **60**

Students take modules to the value of **60** credits in **one** of the following routes:

Route 1 (Biology and Chemistry)

Students take **60** credits as follows:

Core Modules

Education	
ED4101	Science Education III (10)
ED4102	Teaching Practice Placement Science Education III (20)
ED4103	Conceptual Foundations in School Placement Research Portfolio A (5)
ED4104	Conceptual Foundations in the Philosophy and History of Education (5)
ED4105	Conceptual Foundations in the Psychology and Sociology of Education (5)
ED4106	Conceptual Foundations in Curriculum and Assessment (5)
ED4107	Conceptual Foundations in Inclusive Education (5)
ED4108	Conceptual Foundations in School Placement Research Portfolio B (5)

Route 2 (Physics and Mathematics)

Students take **60** credits as follows:

Core Modules

Education	
ED4101	Science Education III (10)
ED4102	Teaching Practice Placement Science Education III (20)
ED4103	Conceptual Foundations in School Placement Research Portfolio A (5)
ED4104	Conceptual Foundations in the Philosophy and History of Education (5)
ED4105	Conceptual Foundations in the Psychology and Sociology of Education (5)
ED4106	Conceptual Foundations in Curriculum and Assessment (5)
ED4107	Conceptual Foundations in Inclusive Education (5)
ED4108	Conceptual Foundations in School Placement Research Portfolio B (5)

Route 3 (Computer Science and Mathematics)

Students take **60** credits as follows:

Core Modules

Education	
ED4101	Science Education III (10)

ED4102	Teaching Practice Placement Science Education III (20)
ED4103	Conceptual Foundations in School Placement Research Portfolio A (5)
ED4104	Conceptual Foundations in the Philosophy and History of Education (5)
ED4105	Conceptual Foundations in the Psychology and Sociology of Education (5)
ED4106	Conceptual Foundations in Curriculum and Assessment (5)
ED4107	Conceptual Foundations in Inclusive Education (5)
ED4108	Conceptual Foundations in School Placement Research Portfolio B (5)
Route 4 (Chemistry and Mathematics)	
Students take **60** credits as follows:	
Core Modules	
Education	
ED4101	Science Education III (10)
ED4102	Teaching Practice Placement Science Education III (20)
ED4103	Conceptual Foundations in School Placement Research Portfolio A (5)
ED4104	Conceptual Foundations in the Philosophy and History of Education (5)
ED4105	Conceptual Foundations in the Psychology and Sociology of Education (5)
ED4106	Conceptual Foundations in Curriculum and Assessment (5)
ED4107	Conceptual Foundations in Inclusive Education (5)
ED4108	Conceptual Foundations in School Placement Research Portfolio B (5)
Route 5 (Computer Science and Chemistry)	
Students take **60** credits as follows:	
Core Modules	
Education	
ED4101	Science Education III (10)
ED4102	Teaching Practice Placement Science Education III (20)
ED4103	Conceptual Foundations in School Placement Research Portfolio A (5)
ED4104	Conceptual Foundations in the Philosophy and History of Education (5)
ED4105	Conceptual Foundations in the Psychology and Sociology of Education (5)
ED4106	Conceptual Foundations in Curriculum and Assessment (5)
ED4107	Conceptual Foundations in Inclusive Education (5)
ED4108	Conceptual Foundations in School Placement Research Portfolio B (5)
Total Credits	**240**

[1] Students must have a minimum grade of H3 in Leaving Certificate Mathematics to enter this route.

Examinations

Full details and regulations governing Examinations for each programme will be contained in the *Marks and Standards Book* and for each module in the *Book of Modules*.