Qualification Specification for:

OCN NI Level 3 Certificate in Laboratory Skills

- Qualification No: 610/1250/6

OCN NI Level 3 Extended Certificate in Laboratory Skills

- Qualification No: 610/1251/8

OCN NI Level 3 Diploma in Laboratory Skills

- Qualification No: 610/1252/X

Qualification Regulation Information

OCN NI Level 3 Certificate in Laboratory Skills
Qualification Number: 610/1250/6

OCN NI Level 3 Extended Certificate in Laboratory Skills
Qualification Number: 610/1251/8

OCN NI Level 3 Diploma in Laboratory Skills
Qualification Number: 610/1252/X

Operational start date: 01 August 2022
Operational end date: 31 July 2027
Certification end date: 31 July 2030

Qualification operational start and end dates indicate the lifecycle of a regulated qualification. The operational end date is the last date by which learners can be registered on a qualification and the certification end date is the last date by which learners can claim their certificate.

All OCN NI regulated qualifications are published to the Register of Regulated Qualifications (**http://register.ofqual.gov.uk/**). This site shows the qualifications and awarding organisations regulated by CCEA Regulation and Ofqual.

OCN NI Contact Details

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Foreword

This document explains OCN NI's requirements for the delivery and assessment of the following regulated qualifications:

→ **OCN NI Level 3 Certificate in Laboratory Skills**
→ **OCN NI Level 3 Extended Certificate in Laboratory Skills**
→ **OCN NI Level 3 Diploma in Laboratory Skills**

This specification sets out:

- Qualification features
- Centre requirements for delivering and assessing the qualification
- The structure and content of the qualification
- Unit details
- Assessment requirements for the qualification
- OCN NI's quality assurance arrangements for the qualification
- Administration

OCN NI will notify centres in writing of any major changes to this specification. We will also publish changes on our website at **www.ocnni.org.uk**

This specification is provided online, so the version available on our website is the most up to date publication. It is important to note that copies of the specification that have been downloaded and printed may be different from this authoritative online version.

Contents

About Regulation

OCN NI

Open College Network Northern Ireland (OCN NI) is a regulated Awarding Organisation based in Northern Ireland. OCN NI is regulated by CCEA Regulation to develop and award professional and technical (vocational) qualifications from Entry Level up to and including Level 5 across all sector areas. In addition, OCN NI is regulated by Ofqual to award similar qualification types in England.

The Regulated Qualifications Framework: an overview

The Regulated Qualifications Framework (RQF) was introduced on 1st October 2015: the RQF provides a single framework for all regulated qualifications.

Qualification Level
The level indicates the difficulty and complexity of the knowledge and skills associated with any qualification. There are eight levels (Levels 1-8) supported by three 'entry' levels (Entry 1-3).

Qualification Size
Size refers to the estimated total amount of time it could typically take to study and be assessed for a qualification. Size is expressed in terms of Total Qualification Time (TQT), and the part of that time typically spent being taught or supervised, rather than studying alone, is known as Guided Learning Hours (GLH).

Qualification Features

Sector Subject Area

2.1 Science

NOS - Cogent Laboratory Skills

Qualifications' Aim

The aim of the OCN NI Level 3 suite of Laboratory Skills qualifications will enable the learner to gain the skills and knowledge required to use laboratory equipment in order to competently perform testing and analysis activities in a laboratory environment.

Qualifications' Objectives

The objectives of the OCN NI Level 3 suite of Laboratory Skills are to enable the learner to gain the following skills and knowledge applicable to different science-based laboratory occupations including:

- working practices
- mathematics for science
- microscopy techniques
- analytical techniques
- practical organic synthesis and laboratory separation techniques
- processing scientific data by statistical analysis
- bio-medical techniques

Grading

Grading for these qualifications is pass/fail.

Qualification Target Group

These qualifications are targeted at learners who wish to develop their laboratory science skills in order to progress into laboratory-based occupations. The qualifications will also support laboratory workers who wish to enhance their current laboratory and science skills.

Progression Opportunities

The OCN NI Level 3 suite of Laboratory Skills qualifications will enable learners to progress to higher level science qualifications and/or into science related occupations.

Entry Requirements

Learners must be at least 16 years of age, have GCSE English and Mathematics or equivalent. Learners should also have a level 2 qualification in a science related discipline and/or two years relevant industry laboratory experience.

Resource Requirements

Learners must have access to appropriate equipment typically found in an industrial/scientific laboratory workplace.

Qualification Support

A Qualification Support pack is available for OCN NI centres within the login area of the OCN NI website (https://www.ocnni.org.uk/my-account/), which includes additional support for teachers, eg planning and assessment templates, guides to best practice, etc.

Delivery Languages

These qualifications are available in English only at this time. If you wish to offer these qualifications in Welsh or Irish (Gaeilge) then please contact OCN NI who will review demand and provide as appropriate.

Centre Requirements for Delivering the Qualification

Centre Recognition and Qualification Approval

New and existing OCN NI recognised centres must apply for and be granted approval to deliver the qualification prior to the commencement of delivery.

Centre Staffing

Centres are required to have the following roles in place as a minimum, although a member of staff may hold more than one role*:

- Centre contact
- Programme Co-ordinator
- Tutor
- Assessor
- Internal Verifier

*Note: A person cannot be an internal verifier for their own assessments.

Tutors

Tutors delivering the qualifications should be occupationally competent and qualified to at least one level higher than the qualifications and have a minimum of one year's relevant experience.

Assessors

The qualifications are assessed within the centre and is subject to OCN NI's quality assurance processes. Units are achieved through internally set, internally assessed, and internally verified evidence.

Assessors must:

- be occupationally competent to at least one level higher than the qualifications
- have a minimum of one year's experience in the area they are assessing
- have direct or related relevant experience in assessment
- assess all assessment tasks and activities

Internal Verification

OCN NI qualifications must be scrutinised through the centre's internal quality assurance processes as part of the recognised centre agreement with OCN NI. The centre must appoint an experienced and trained centre internal verifier whose responsibility is to act as the internal quality monitor for the verification of the delivery and assessment of the qualifications.

The centre must agree a working model for internal verification with OCN NI prior to delivery of the qualifications.

Internal Verifiers must:

- have at least one year's experience in the areas they are internally verifying
- attend OCN NI's internal verifier training if not already completed

Internal verifiers are required to:

- support tutors and assessors
- sample assessments according to the centre's sampling strategy
- ensure tasks are appropriate to the level being assessed
- maintain up-to-date records supporting the verification of assessment and learner achievement

Structure and Content

OCN NI Level 3 Certificate in Laboratory Skills
In order to achieve the qualification learners must successfully complete a minimum of **15 credits.** ****The Work Placement in a Scientific Environment unit is excluded as an option for the Certificate****.

Minimum Total Qualification Time (TQT) for this qualification:	150 hours
Minimum Guided Learning Hours (GLH) for this qualification:	105 hours

OCN NI Level 3 Extended Certificate in Laboratory Skills
In order to achieve the qualification learners must successfully complete a minimum of 26 credits from the following optional units.

Minimum Total Qualification Time (TQT) for this qualification:	260 hours
Minimum Guided Learning Hours (GLH) for this qualification:	182 hours

OCN NI Level 3 Diploma in Laboratory Skills
In order to achieve the qualification learners must successfully complete a minimum of 52 credits from the following optional units.

Minimum Total Qualification Time (TQT) for this qualification:	520 hours
Minimum Guided Learning Hours (GLH) for this qualification:	369 hours

Summary Table of Units

Unit Reference Number	OCN NI Unit Code	Unit Title	Credit Value	GLH	Level
M/650/2993	CBF833	Laboratory Working Practices	5	35	Three
R/650/2994	CBF834	Scientific Mathematics	5	35	Three
T/650/2995	CBF835	Additional Scientific Mathematics	5	35	Three
Y/650/2996	CBF836	Microscopy Techniques	5	35	Three
A/650/2997	CBF837	Laboratory Analytical Techniques	6	42	Three
D/650/2998	CBF838	Advanced Laboratory Analytical Techniques	6	48	Three
F/650/2999	CBF839	Practical Organic Synthesis and Laboratory Separation Techniques	6	42	Three
T/650/3000	CBF840	Processing Scientific Data by Statistical Analysis	5	40	Three
Y/650/3001	CBF841	Scientific Project Planning and Delivery	8	56	Three
A/650/3002	CBF842	Biomedical Analysis	5	40	Three
D/650/3003	CBF843	Work Placement in a Scientific Environment	15	105	Three

Unit Details

Title	Laboratory Working Practices
Level	Three
Credit Value	5
Guided Learning Hours (GLH)	35
OCN NI Unit Code	CBF833
Unit Reference No	M/650/2993
Unit purpose and aim(s): This unit will enable the learner to understand health and safety within a laboratory environment. The learner will also be able to complete risk assessments and handle and dispose of relevant materials.	

Learning Outcomes	Assessment Criteria
1. Be able to carry out workplace risk assessments.	1.1. Summarise how to access information on relevant workplace risks and hazards. 1.2. Demonstrate how to identify risks and hazards in the workplace including how risks may be mitigated. 1.3. Demonstrate the use of and adherence to required workplace control measures. 1.4. Carry out a risk assessment for a given activity or workspace taking appropriate mitigations as required.
2. Be able to follow health and safety procedures for scientific or technical activities.	2.1. Explain how health and safety measures in a given scientific organisation comply with relevant health and safety legislation. 2.2. Follow organisational laboratory procedures for a given scientific or technical activity in line with risk assessments. 2.3. Summarise the procedures to be followed in the event of incidents or accidents. 2.4. Summarise emergency procedures for the organisation identified in AC 2.1.
3. Be able to safely handle and dispose of materials and waste.	3.1. Explain the process for the safe storage of materials. 3.2. Demonstrate safe and appropriate handling of materials. 3.3. Demonstrate safe and appropriate disposal of waste, used and unwanted materials.
4. Be able to communicate effectively in written format within a scientific workplace.	4.1. Produce the following to communicate effectively within a scientific workplace: a) laboratory notebook b) scientific report c) scientific poster
5. Be able to maintain, calibrate and use scientific instruments.	5.1. Maintain at least four scientific instruments 5.2. Calibrate safely and accurately the scientific instruments identified in AC 5.1 5.3. Obtain accurate measurements using given methods for each of the scientific instruments identified in AC 5.1.

Assessment Guidance		
The following assessment method/s may be used to ensure all learning outcomes and assessment criteria are fully covered.		
Assessment Method	**Definition**	**Possible Content**
Portfolio of evidence	A collection of documents containing work undertaken to be assessed as evidence to meet required skills outcomes OR A collection of documents containing work that shows the learner's progression through the course	Learner notes/written work Learner log/diary Peer notes Record of observation Record of discussion
Practical demonstration/assignment	A practical demonstration of a skill/situation selected by the tutor or by learners, to enable learners to practise and apply skills and knowledge	Record of observation Learner notes/written work Learner log
Coursework	Research or projects that count towards a learner's final outcome and demonstrate the skills and/or knowledge gained throughout the course	Record of observation Learner notes/written work Tutor notes/record Learner log/diary
E-assessment	The use of information technology to assess learners' work	Electronic portfolio E-tests

Title	Scientific Mathematics
Level	Three
Credit Value	5
Guided Learning Hours (GLH)	35
OCN NI Unit Code	CBF834
Unit Reference No	R/650/2994
Unit purpose and aim(s): This unit will enable the learner to understand and be able to apply mathematical concepts to science related problems.	

Learning Outcomes	Assessment Criteria
1. Be able to perform science-based calculations.	1.1. Use scientific calculators to perform science-based calculations. 1.2. Perform science-based calculations comprising the following: a) International System of Units (SI) b) mathematical prefixes and conversions c) accuracy to given decimal places and significant figures d) use of standard form 1.3. Perform science-based calculations comprising fractions, percentages and ratios.
2. Be able to apply algebraic concepts and operations.	2.1. Apply basic algebraic functions and operations. 2.2. Transform algebraic expressions using the important identities. 2.3. Solve basic algebraic calculations.
3. Be able to collect, record and evaluate scientific data.	3.1. Collect scientific data generated manually and via computers. 3.2. Collect and record primary and secondary scientific data. 3.3. Identify and calculate errors associated with collection of primary experimental data. 3.4. Apply error minimisation methods experimental data.
4. Be able to display and interpret scientific data.	4.1. Select the appropriate formats for displaying given scientific data including: a) charts b) histograms c) graphs 4.2. Interpret trends in given scientific experimental data. 4.3. Calculate mean, mode and median for given scientific experimental data. 4.4. Calculate scientific quantities from linear and non-linear graphs obtained from primary data.

Assessment Guidance

The following assessment method/s may be used to ensure all learning outcomes and assessment criteria are fully covered.

Assessment Method	Definition	Possible Content
Portfolio of evidence	A collection of documents containing work undertaken to be assessed as evidence to meet required skills outcomes	Learner notes/written work Learner log/diary Peer notes Record of observation Record of discussion

	OR A collection of documents containing work that shows the learner's progression through the course	
Practical demonstration/assignment	A practical demonstration of a skill/situation selected by the tutor or by learners, to enable learners to practise and apply skills and knowledge	Record of observation Learner notes/written work Learner log
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E-assessment	The use of information technology to assess learners' work	Electronic portfolio E-tests

Title	Additional Scientific Mathematics
Level	Three
Credit Value	5
Guided Learning Hours (GLH)	35
OCN NI Unit Code	CBF835
Unit Reference No	T/650/2995
Unit purpose and aim(s): This unit will enable the learner to understand and be able to apply mathematical concepts to science related problems.	

Learning Outcomes	Assessment Criteria
1. Be able to apply algebraic and logarithmic functions and operations to solve scientific mathematical problems.	1.1. Illustrate how logarithms and algebraic notation may be used to express mathematical problems. 1.2. Solve given mathematical science problems using the following: a) logarithms and indices b) algebraic equations c) quadratic equations d) simultaneous equations
2. Be able to apply the rules and properties of trigonometric functions to solve scientific mathematical problems.	2.1. Illustrate how trigonometric functions are derived. 2.2. Apply trigonometric function rules and properties to solve scientific mathematical problems.
3. Be able to apply the rules and concepts of calculus to solve scientific problems.	3.1. Illustrate the key rules and concepts of calculus and how they may be used to solve mathematical problems including differentiation and integration. 3.2. Solve given science problems using differentiation. 3.3. Solve given science problems using integration.

Assessment Guidance

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Assessment Method	Definition	Possible Content
Portfolio of evidence	A collection of documents containing work undertaken to be assessed as evidence to meet required skills outcomes OR A collection of documents containing work that shows the learner's progression through the course	Learner notes/written work Learner log/diary Peer notes Record of observation Record of discussion
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Coursework	Research or projects that count towards a learner's final outcome and demonstrate the skills and/or knowledge gained throughout the course	Record of observation Learner notes/written work Tutor notes/record Learner log/diary
E-assessment	The use of information technology to assess learners' work	Electronic portfolio E-tests

Title	Microscopy Techniques
Level	Three
Credit Value	5
Guided Learning Hours (GLH)	35
OCN NI Unit Code	CBF836
Unit Reference No	Y/650/2996
Unit purpose and aim(s): This unit will enable the learner to understand how to apply microscopy techniques.	

Learning Outcomes	Assessment Criteria
1. Be able to prepare, use, and store microscopes including preparation of specimens.	1.1. Demonstrate how to care for and use different microscopes and associated equipment including: a) checking microscopes and equipment operate as required b) correctly setting up and using c) cleaning and preparation for storage d) storing appropriately e) requesting maintenance if issues identified 1.2. Make slides and apply staining protocols to the preparation of specimens.
2. Be able to safely prepare media aseptically, sterilise, disinfect and dispose of materials and specimens.	2.1. Carry out the following microscopy activities: a) prepare media aseptically b) sterilize and disinfect materials and specimens c) dispose of cultures, specimens and related materials
3. Be able to carry out microscopy for specimen examination.	3.1. Set up and use a light microscope to count and measure cells in a given specimen. 3.2. Set up and use a light microscope to observe structures of microorganisms under magnification normally and using an oil immersion lens. 3.3. Calculate the total magnification for a given specimen. 3.4. Produce three accurate, labelled biological drawings of the structures of microorganisms observed in AC 3.2.
4. Be able to carry out aseptic techniques to culture micro-organisms.	4.1. Apply aseptic techniques competently to culture micro-organisms including inoculation and preparation of growth media and measuring of microbial growth.

Assessment Guidance		
The following assessment method/s may be used to ensure all learning outcomes and assessment criteria are fully covered.		
Assessment Method	**Definition**	**Possible Content**
Portfolio of evidence	A collection of documents containing work undertaken to be assessed as evidence to meet required skills outcomes OR A collection of documents containing work that shows the learner's progression through the course	Learner notes/written work Learner log/diary Peer notes Record of observation Record of discussion
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E-assessment	The use of information technology to assess learners' work	Electronic portfolio E-tests

Title	Laboratory Analytical Techniques
Level	Three
Credit Value	6
Guided Learning Hours (GLH)	42
OCN NI Unit Code	CBF837
Unit Reference No	A/650/2997
Unit purpose and aim(s): This unit will enable the learner to understand analytical techniques required in a laboratory.	

Learning Outcomes	Assessment Criteria
1. Be able to prepare solutions, samples and serial dilutions.	1.1. Carry out the preparation of different solutions and samples including: a) calculating and weighing out of required masses b) preparing standard solutions accurately 1.2. Carry out the preparation of different serial dilutions including calculation of serial dilution factors. 1.3. Explain the difference between primary and secondary standards.
2. Be able to determine the melting point and boiling point of samples.	2.1. Measure and record the following: a) boiling point of a liquid sample b) the melting point of a solid sample 2.2. Analyse the boiling and melting points identified in AC 2.1 to the respective purities of each sample.
3. Be able to carry out and evaluate volumetric analysis techniques.	3.1. Carry out volumetric analysis using the following laboratory techniques competently: a) pipetting b) micro-pipetting c) use of a burette d) titration 3.2. Evaluate the limitations of the volumetric analysis techniques applied in AC 3.1.
4. Be able to perform basic chromatographic analysis.	4.1. Perform chromatographic analysis competently using paper chromatography and thin layer chromatography (TLC) to obtain reliable and valid results. 4.2. Prepare a developing chamber. 4.3. Separate plant pigments using TLC. 4.4. Separate amino acids by paper chromatography. 4.5. Determine retention factor (Rf) for given experimental samples.
5. Be able to carry out calorimetry.	5.1. Apply calorimetry techniques competently to measure the phase change of a given substance. 5.2. Create a cooling curve from measurements made in AC 5.1 and calculate cooling rate. 5.3. Analyse the accuracy of measurements obtained in AC 5.1 identifying possible sources of error.

6. Be able to carry out colorimetry.	6.1. Prepare at least six different concentrations from a standard solution and carry out absorptivity measurements. 6.2. Create a calibration curve from measurements made in AC 6.1. 6.3. Calculate unknown concentration of sample.

Assessment Guidance

The following assessment method/s may be used to ensure all learning outcomes and assessment criteria are fully covered.

Assessment Method	Definition	Possible Content
Portfolio of evidence	A collection of documents containing work undertaken to be assessed as evidence to meet required skills outcomes OR A collection of documents containing work that shows the learner's progression through the course	Learner notes/written work Learner log/diary Peer notes Record of observation Record of discussion
Practical demonstration/assignment	A practical demonstration of a skill/situation selected by the tutor or by learners, to enable learners to practise and apply skills and knowledge	Record of observation Learner notes/written work Learner log
Coursework	Research or projects that count towards a learner's final outcome and demonstrate the skills and/or knowledge gained throughout the course	Record of observation Learner notes/written work Tutor notes/record Learner log/diary
E-assessment	The use of information technology to assess learners' work	Electronic portfolio E-tests

Title	Advanced Laboratory Analytical Techniques
Level	Three
Credit Value	6
Guided Learning Hours (GLH)	48
OCN NI Unit Code	CBF838
Unit Reference No	D/650/2998
Unit purpose and aim(s): This unit will enable the learner to understand to how use advanced laboratory analytical techniques.	

Learning Outcomes	Assessment Criteria
1. Be able to carry out absorptivity and concentration measurements and associated calculations and plotting of graphs.	1.1 Perform absorptivity measurements using colorimetry or ultraviolet (UV) analysis for different samples requiring colouring or additives. 1.2 Illustrate absorptivity and concentration from measurements obtained in AC 1.1 in a calibration curve. 1.3 Calculate concentration of unknown sample in a matrix.
2. Be able to carry out infrared spectroscopy.	2.1 Explain how infrared spectra arise. 2.2 Carry out infrared spectroscopy including sample preparation. 2.3 Determine functional groups present through analysis of wave-numbers on given spectra.
3. Be able to analyse data from elemental analysis and mass spectroscopy.	3.1 Describe the operation of a mass spectrometer. 3.2 Calculate empirical formula from percentage elemental composition. 3.3 Identify the molecular ion peak. 3.4 Calculate the molecular formula. 3.5 Identify the main fragmentation ions from mass spectrum.
4. Be able to interpret Nuclear Magnetic Resonance (NMR) spectra.	4.1 Explain the principles of NMR and production of NMR spectra. 4.2 Illustrate the relationship between chemical shift and shielding. 4.3 Determine the number of chemically equivalent protons or carbon atoms in a molecule. 4.4 Illustrate the relationship between area under peak to the number of atoms in the molecule giving rise to the peak. 4.5 Interpret simple splitting patterns. 4.6 Demonstrate structure elucidation for simple molecules.
5. Know how to analyse high-performance liquid chromatography (HPLC) and gas chromatography (GC) chromatograms.	5.1 Explain the principles of HPLC and GC chromatography. 5.2 Illustrate how to determine the concentration of an analyte by GC and HPLC.

Assessment Guidance

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	to be assessed as evidence to meet required skills outcomes OR A collection of documents containing work that shows the learner's progression through the course	Peer notes Record of observation Record of discussion
Practical demonstration/assignment	A practical demonstration of a skill/situation selected by the tutor or by learners, to enable learners to practise and apply skills and knowledge	Record of observation Learner notes/written work Learner log
Coursework	Research or projects that count towards a learner's final outcome and demonstrate the skills and/or knowledge gained throughout the course	Record of observation Learner notes/written work Tutor notes/record Learner log/diary
E-assessment	The use of information technology to assess learners' work	Electronic portfolio E-tests

Title	Practical Organic Synthesis and Laboratory Separation Techniques
Level	Three
Credit Value	6
Guided Learning Hours (GLH)	42
OCN NI Unit Code	CBF839
Unit Reference No	F/650/2999
Unit purpose and aim(s): This unit will enable the learner to understand how to carry out the preparation and purification of organic products. The learner will also be able to demonstrate laboratory separation techniques.	

Learning Outcomes	Assessment Criteria
1. Be able to prepare and test the purity of an organic liquid.	1.1 Prepare an organic liquid competently using appropriate techniques. 1.2 Test the purity of a given organic liquid and draw conclusions, relating to purity and yield and what may have impacted on purity and yield.
2. Be able to prepare and test the purity of organic solid.	2.1 Prepare an organic solid competently using appropriate techniques. 2.2 Test the purity of an organic solid and draw conclusions, relating to purity and yield and what may have impacted on purity and yield.
3. Be able to carry out filtration.	3.1 Carry out the separation of insoluble solids from solvents using gravity and vacuum filtration.
4. Be able to carry out distillation.	4.1 Assemble and use distillation apparatus competently for the following applications: a) separating a solvent from a solution by simple distillation b) separating two miscible liquids with a close boiling point by fractional distillation c) measuring boiling points
5. Be able to carry out reflux.	5.1 Assemble and use reflux apparatus and techniques competently to produce an organic compound.
6. Be able to carry out crystallization and recrystallization.	6.1 Separate a partially soluble solid from a solution by crystallization competently. 6.2 Purify a solid by recrystallisation competently.

Assessment Guidance

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E-assessment	The use of information technology to assess learners' work	Electronic portfolio E-tests

Title	Processing Scientific Data by Statistical Analysis
Level	Three
Credit Value	5
Guided Learning Hours (GLH)	40
OCN NI Unit Code	CBF840
Unit Reference No	T/650/3000
Unit purpose and aim(s): This unit will enable the learner to understand how to display data and carry out appropriate statistical analysis of scientific data.	

Learning Outcomes	Assessment Criteria
1. Be able to display data in an appropriate format.	1.1 Display given data appropriately and accurately in each of the following formats: a) tables b) charts c) graphs
2. Be able to produce linear graphs and determine line equations and coefficient of determination (R^2) value.	2.1 Display given data with a linear trend on a graph. 2.2 Carry out regression analysis to determine the equation of the line and R^2 value for the graph displayed in AC 2.1. 2.3 Interpret results of regression analysis carried out in AC 2.2.
3. Be able to carry out statistical calculations.	3.1 Calculate the mean, median and mode for a given set of data. 3.2 Calculate the variance, standard deviation and co-efficient of variance for a given set of data. 3.3 Use the variance, standards deviation and co-efficient of variance calculated in AC 3.2 to determine precision. 3.4 Calculate the range and standard error of the mean for a given set of data. 3.5 Calculate absolute and relative error for data set identified in AC 3.4 3.6 Determine the confidence interval for a given set of data.
4. Be able to perform statistical tests on scientific data.	4.1 Perform a t-test on given data collected from a given scientific experiment. 4.2 Perform a chi-squared test to support a scientific hypothesis. 4.3 Interpret results from given statistical tests undertaken in ACs 4.1 and 4.2. 4.4 Carry out an appropriate correlation method to investigate data collected from the scientific experiment in AC 4.1. 4.5 Interpret results of correlation methods applied in AC 4.4.

Assessment Guidance

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E-assessment	The use of information technology to assess learners' work	Electronic portfolio E-tests

Title	Scientific Project Planning and Delivery
Level	Three
Credit Value	8
Guided Learning Hours (GLH)	56
OCN NI Unit Code	CBF841
Unit Reference No	Y/650/3001
Unit purpose and aim(s): This unit will enable the learner to plan, conduct and report on a given scientific project.	
Learning Outcomes	**Assessment Criteria**
1. Be able to carry out a literature search and review to produce a scientific project proposal.	1.1. Carry out a literature search and review into a given scientific area. 1.2. Analyse the outcomes of literature search and review undertaken in AC 1.1 to develop a scientific project proposal.
2. Be able to develop a plan for a practical scientific project.	2.1. Develop a project plan for a practical scientific project based on project proposal developed in AC 1.2 to include: a) timeline b) health & safety c) risk assessments d) contingency planning e) methodology f) resources and equipment g) recording and presenting results
3. Be able to safely carry out a practical scientific project.	3.1. Carry out the practical scientific project in line with plan developed in AC 2.1 using appropriate safe working practices. 3.2. Collect, analyse and record results obtained from project carried out in AC 3.1 using an accurate, methodical and scientific approach. 3.3. Evaluate data obtained in AC 3.2, selecting and applying appropriate data analysis techniques to increase accuracy, reliability and validity.
4. Be able to review the practical scientific project.	4.1. Analyse results obtained from applying data analysis techniques in AC 3.3 using an appropriate scientific methodology. 4.2. Develop and present a report on findings and conclusions, using correct and appropriate scientific terminology, protocol and formatting and drawing valid conclusions. 4.3. Evaluate the conclusions in conjunction with others including any limitations, identifying possible areas for improvement, and recommendations for further investigation .

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Portfolio of evidence	A collection of documents containing work undertaken to be assessed as evidence to meet required skills outcomes OR A collection of documents containing work that shows the learner's progression through the course	Learner notes/written work Learner log/diary Peer notes Record of observation Record of discussion
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Coursework	Research or projects that count towards a learner's final outcome and demonstrate the skills and/or knowledge gained throughout the course	Record of observation Learner notes/written work Tutor notes/record Learner log/diary
E-assessment	The use of information technology to assess learners' work	Electronic portfolio E-tests

Title	Biomedical Analysis
Level	Three
Credit Value	5
Guided Learning Hours (GLH)	40
OCN NI Unit Code	CBF842
Unit Reference No	A/650/3002
Unit purpose and aim(s): This unit will enable the learner to understand how to undertake the biomedical analysis of specimens.	

Learning Outcomes	Assessment Criteria
1. Be able to safely carry out diagnostic blood tests.	1.1 Explain the principles underpinning, procedures and reasons for carrying out blood tests. 1.2 Explain the importance of determining red blood cell counts and blood typing in haematology. 1.3 Demonstrate how to safely handle specimens and carry out the following blood tests: a) determining red blood cell count using a haemocytometer b) determining the blood type of a blood sample 1.4 Record the outcomes of tests undertaken in AC 1.3 in an appropriate format.
2. Be able to carry out microscopic analysis of tissue slides.	2.1 Explain what is meant by histology and its importance in the diagnosis of disease. 2.2 Prepare different slides for microscopic analysis. 2.3 Carry out the microscopic analysis of the slides prepared in AC 2.2. 2.4 Record the outcomes of analysis undertaken in AC 2.3 in an appropriate format.
3. Be able to carry out urine analysis.	3.1 Explain the principles underpinning, procedures and reasons for carrying out urine analysis. 3.2 Explain the importance of carrying out urine analysis in the preliminary diagnosis of illness or disease. 3.3 Carry out the following urine tests safely including specimen preparation for: a) visual analysis of urine samples b) biochemical analysis c) microscopic analysis 3.4 Record outcomes of the analysis undertaken in AC 3.3 in an appropriate format.

Assessment Guidance

The following assessment method/s may be used to ensure all learning outcomes and assessment criteria are fully covered.

Assessment Method	Definition	Possible Content
Portfolio of evidence	A collection of documents containing work undertaken to be assessed as evidence to meet required skills outcomes	Learner notes/written work Learner log/diary Peer notes Record of observation Record of discussion

	OR A collection of documents containing work that shows the learner's progression through the course	
Practical demonstration/assignment	A practical demonstration of a skill/situation selected by the tutor or by learners, to enable learners to practise and apply skills and knowledge	Record of observation Learner notes/written work Learner log
Coursework	Research or projects that count towards a learner's final outcome and demonstrate the skills and/or knowledge gained throughout the course	Record of observation Learner notes/written work Tutor notes/record Learner log/diary
E-assessment	The use of information technology to assess learners' work	Electronic portfolio E-tests

Title	Work Placement in a Scientific Environment
Level	Three
Credit Value	15
Guided Learning Hours (GLH)	105
OCN NI Unit Code	CBF843
Unit Reference No	D/650/3003
Unit purpose and aim(s): This unit will enable the learner to understand the professional, personal and interpersonal skills required in a scientific workplace.	

Learning Outcomes	Assessment Criteria
1. Be able to demonstrate appropriate workplace behaviours.	1.1 Explain the importance of and demonstrate the following workplace behaviours: a) appearance b) attendance c) punctuality 1.2 Demonstrate compliance with workplace health and safety policies and procedures including: a) Health and Safety at Work (Northern Ireland) Order 1978 b) Control of Substances Hazardous to Health Regulations (Northern Ireland) 2003 (COSHH (NI)) c) relevant workplace risk assessments d) use of personal protective equipment (PPE) e) safe manual handling f) emergency procedures g) housekeeping in accordance with organisational standard operational procedures h) adherence to internal and external regulatory requirements
2. Be able to work independently in a professional scientific environment.	2.1 Demonstrate working independently in a professional scientific environment including: a) carrying out given tasks using appropriate organisational skills and attention to detail b) good hand-eye coordination c) competent and accurate use of technical equipment d) identification, organisation and use of resources effectively e) application of scientific skills and techniques appropriate to the tasks identified above f) maintenance of accurate work records 2.2 Analyse, interpret and evaluate data including identification of results requiring further investigation or advice of other staff.

3. Be able to work collaboratively in a professional scientific environment.	3.1 Demonstrate effective team working in a professional scientific environment including: a) working harmoniously b) flexibility c) support of others d) effective use of verbal and written communications e) active participation in continuous business performance improvement

Assessment Guidance

The following assessment method/s may be used to ensure all learning outcomes and assessment criteria are fully covered.

Assessment Method	Definition	Possible Content
Portfolio of evidence	A collection of documents containing work undertaken to be assessed as evidence to meet required skills outcomes OR A collection of documents containing work that shows the learner's progression through the course	Learner notes/written work Learner log/diary Peer notes Record of observation Record of discussion
Practical demonstration/assignment	A practical demonstration of a skill/situation selected by the tutor or by learners, to enable learners to practise and apply skills and knowledge	Record of observation Learner notes/written work Learner log
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Quality Assurance of Centre Performance

External Verification

All OCN NI recognised centres are subject to External Verification. External verification visits and monitoring activities will be conducted annually to confirm continued compliance with the conditions of recognition, review the centre's risk rating for the qualifications and to assure OCN NI of the maintenance of the integrity of the qualifications.

The External Verifier will review the delivery and assessment of the qualifications. This will include the review of a sample of assessment evidence and evidence of the internal verification of assessment and assessment decisions. This will form the basis of the EV report and will inform OCN NI's annual assessment of centre compliance and risk. The External Verifier is appointed by OCN NI.

Standardisation

As a process, standardisation is designed to ensure consistency and promote good practice in understanding and application of standards. Standardisation events:

- make qualified statements about the level of consistency in assessment across centres delivering a qualification
- make statements on the standard of evidence that is required to meet the assessment criteria for units in a qualification
- make recommendations on assessment practice
- produce advice and guidance for the assessment of units
- identify good practice in assessment and internal verification

Centres offering units of an OCN NI qualification must attend and contribute assessment materials and learner evidence for standardisation events if requested.

OCN NI will notify centres of the nature of sample evidence required for standardisation events (this will include assessment materials, learner evidence and relevant assessor and internal verifier documentation). OCN NI will make standardisation summary reports available and correspond directly with centres regarding event outcomes.

Administration

Registration

A centre must register learners within 20 working days of commencement of a qualification.

Certification

Certificates will be issued to centres within 20 working days of receipt of correctly completed results marksheets. It is the responsibility of the centre to ensure that certificates received from OCN NI are held securely and distributed to learners promptly and securely.

Charges

OCN NI publishes all up to date qualification fees in its Fees and Invoicing Policy document. Further information can be found on the centre login area of the OCN NI website.

Equality, Fairness and Inclusion

OCN NI has considered the requirements of equalities legislation in developing the specification for these qualifications. For further information and guidance relating to access to fair assessment and the OCN NI Reasonable Adjustments and Special Considerations policies, centres should refer to the OCN NI website.

Retention of Evidence

OCN NI has published guidance for centres on the retention of evidence. Details are provided in the OCN NI Centre Handbook and can be accessed via the OCN NI website.

OCN NI Level 3 Certificate in Laboratory Skills
Qualification Number: 610/1250/6

OCN NI Level 3 Extended Certificate in Laboratory Skills
Qualification Number: 610/1251/8

OCN NI Level 3 Diploma in Laboratory Skills
Qualification Number: 610/1252/X

Operational start date: 01 August 2022
Operational end date: 31 July 2027
Certification end date: 31 July 2030

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