

IAT Institute of Animal Technology

IAT Level 2 Diploma in Laboratory Animal Husbandry Syllabus

Introduction

This document supports all those involved in the delivery, assessment and verification of their qualifications. It should be implemented and referenced in conjunction with the IAT policies and procedures; these can be found on the IAT website www.iat.org.uk

The European Federation of Animal Technicians



EFAT believe that the learning outcomes listed in the Institute of Animal Technology IAT Level 2 Diploma in Laboratory Animal Science and Technology Syllabus satisfies the requirements under Article 23 of Directive 2010/63/EU Competence of personnel, as stated in 2. The staff shall be adequately educated and trained before they perform any of the following functions: (c) taking care of animals; or (d) killing animals, plus the associated Education and Training Framework for EU Function Group C Modules for Animal Carers see http://ec.europa.eu/environment/chemicals/lab_animals/pdf/guidance/education_training/en.pdf

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Institute of Animal Technology (IAT)

The Institute acts as the professional body for persons engaged in laboratory animal breeding, care and welfare. The Institute's qualifications provide opportunities for learners to gain accreditation for the individual competencies and level of understanding of the underpinning knowledge required to practice animal technology. The names and addresses of the officials of the Council of the Institute, and Board of Moderators are printed in the current edition of the Institute's Journal, Animal Technology and Welfare, ISSN 0264-4754.

Questions of a general nature arising from this scheme should be directed to Secretary of the Board of Moderator's. Email: iat101@btconnect.com or via the Institute's website www.iat.org.uk

Rationale for examination process

The IAT aims to provide an internationally recognised programme to ensure that animal technologists:

- are prepared to meet their legal and ethical responsibility in providing high standards of welfare for laboratory animals
- demonstrate appropriate standards of knowledge, behaviour and competence for career advancement and election to the professional body

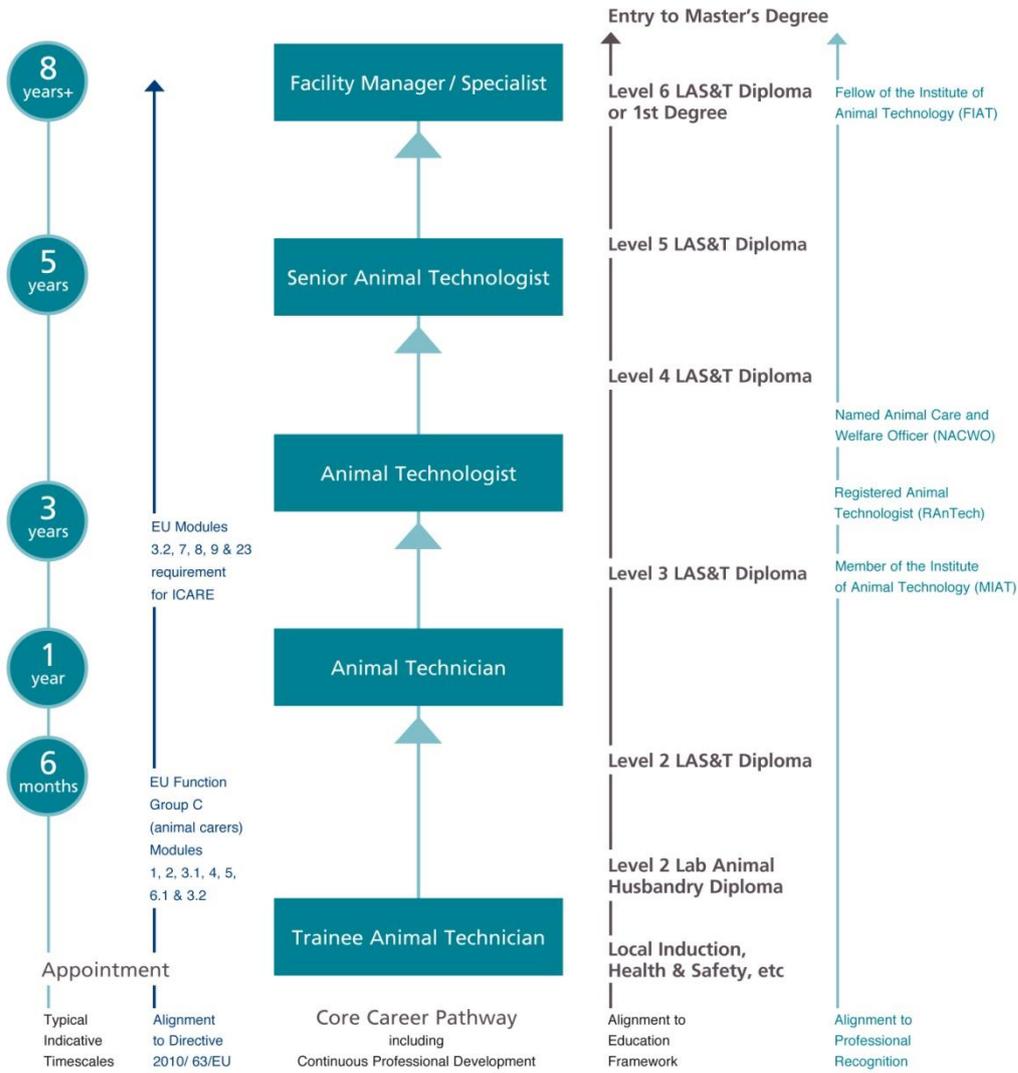
The development of IAT qualifications have been driven through consultation with employers, IAT members, educationalists, Lantra and the wider scientific community. Successful completion of IAT qualifications allows progression on to the next level of qualification.

Career Pathways for Animal Technologists



Institute of Animal Technology

The Career Pathway for Animal Technologists



Please see the IAT website www.iat.org.uk for course content and providers. Further details on our Further and Higher Education programmes will be published in the April issue of *Laboratory Animals*.

For interactive version go to [.www.iat.org.uk](http://www.iat.org.uk)

Objectives of assessment process

This qualification is designed to:

- Recognise learning and prepare the learner for further learning and training and to develop knowledge and skills in animal technology
 - Prepare learners for further learning and training by establishing a broad and relevant base of knowledge and skills in animal technology
 - Develop knowledge and skills in laboratory animal science and technology specialists' areas which enhance the learners' ability to take independence and autonomy in their work role.
- Encourage updating of skills and knowledge and continuing professional development (CPD)
 - Relates knowledge and skills to legal, technical, process or best practice requirements in the field of laboratory animal science and technology
 - Develop knowledge and skills in order to gain recognition at a higher level or in a different role
 - Develop knowledge and skills relevant to a particular specialisation within an occupation or set of occupations

The broad objectives of the assessment process are to:

- Provide a sound theoretical knowledge and/ or the practical abilities of the principles that underpin the practice of laboratory animal sciences and technology, and to improve the welfare of animals and the quality of the animal work necessary to fulfil the increasingly demanding role of animal technologist under the legislation protecting animals used for experimental or other scientific purposes
- Assist learners effectively to demonstrate competence in the execution of practical skills
- Foster a spirit of independent learning, enquiry and continuing professional development
- Externally assess the learning that has taken place and its application to the practice of laboratory animal science and technology
- Provide the basis of career progression as a qualified animal technologist
- Provide a coherent and balanced education appropriate to the level of professional membership
- Provide a qualification that is recognised by employers and competent authorities
- Provide a portable qualification preparing learners for further professional development transferable between jobs and countries

Grading the IAT units

Each assessment is graded as a pass, merit, distinction or referral. The grade is based on the learning outcomes and assessment criteria. To achieve the grade, learners must meet the learning outcomes and assessment criteria associated with the particular grade being awarded.

- To gain a pass, learners must achieve all of the learning outcomes and assessment criteria associated with the pass grade.
- To gain a merit, learners must achieve all of the learning outcomes and assessment criteria associated with the pass and merit grade.
- To gain a distinction, learners must achieve all of the learning outcomes and assessment criteria associated with the pass, merit and distinction grade.

If learners fail to achieve all of the learning outcomes and assessment criteria associated with the pass grade, the unit is referred and a learner is given one chance only to bring the work up to appropriate standard. Should a learner be unable to meet the pass criteria on their referral they will fail the unit and will have to re-register to take the unit again.

Learning outcomes and assessment criteria may be covered in one or more assessments.

Each unit must be capable of independent assessment even if an assessment covers more than one unit. Where an assessment covers more than one unit, it should be possible for the learner to achieve all of the units independently, so they could achieve some of the units even if they fail to achieve all of the units being assessed in a single assessment.

Grades are designed to encourage learners to develop high cognitive, communication and psychometric skills in preparation for further learning and career advancement. It is important that learners are aware that they need to meet all of the learning outcomes and assessment criteria and that they are given one chance to rectify any minor omissions, as one omission can reduce a distinction standard piece of work to a pass or even a referral grade. Resubmissions are designed to ensure that learner's receive the grade that accurately reflects the level of their performance.

The final grade for each unit will be displayed on the final certificate and the notification of performances. There is no overall grade for the qualification.

Centres should provide the learner and moderator with a grid mapping the learning outcomes and assessment criteria against the assessments for each unit, so it is clear how the learner can successfully complete each unit.

Assessment and verification

The principal objective of the assessment process for each unit will be to ensure learners have reached the appropriate standard to meet the learning outcome for the unit.

The primary interface with the learner is the Centre Assessor whose job it is to assess the evidence presented by the learner. The Centre Assessor should provide an audit trail showing how the judgement of the learner's overall achievement has been arrived at.

The Centre's assessment plan, to be agreed with the IAT Moderator, should include a matrix for each qualification showing how each unit is too assessed against relevant criteria and which specific pieces or pieces of work will be identified in relation to each unit. It should also show how assessment is scheduled into the delivery programme.

In designing the individual tasks and activities, Centres must ensure that:

- The selected assessment task/activity is relevant to the content of the unit
- There are clear instructions given to learner as to what is expected
- Learners are clearly told how long the assessment will take (if it is a timed activity) and what reference or other material they may use (if any) to complete it
- The language used in the assessment is free from any bias
- The language and technical terms used are at appropriate level for the learners

In addition to specific assessment criteria in each unit, the learner's work must be:

- Accurate, current and authentic
- Relevant in depth and breadth
- And must also show the learner's:
 - clear grasp of concepts
 - ability to link theory to practice, and
 - ability to communicate clearly in the relevant discipline at the expected level for the qualification

The IAT specifies specific assessment strategies for some units, where no specific strategy is specified assessment methods can be decided by the Centre in agreement with the IAT moderator. Where modules lend themselves to assessment of competence in the workplace, these are highlighted in the above table. Centres may assess learners via competence in the workplace or through academic assessment. Assessment of competence should be carried out ideally by a Registered Animal Technologist (RAnTech) or a suitable qualified person with appropriate training in assessing work based learning.

Industry has specifically requested some modules have unit tests to encourage learners to develop skills in memorising key professional data and developing skills in working to time constraint pressures. These units are also shown in the table above.

Those units marked as academic can be assessed through a variety of assessment methods. Assessment methods can include, but are not restricted to:-

- case studies
- role play
- time constrained tests
- examinations
- assignments
- reports
- integrated work activities
- viva voce
- projects
- presentations

It is important to ensure consistency of assessment and that demands made on learners are comparable within and between Centres.

Centres are encouraged to use a range of methods to ensure that all the learning outcomes and assessment criteria are met and to enhance learners' development.

Regardless of the method used to assess the learning there must be a clear evidence trail on how the decision on the learner achievement was reached and this must be available for the IAT Moderator and External Verifier to check on their visits.

All assessments must be internally verified prior to use. All assessed work must be internally verified before grades are given to the learners.

Centres and learners are encouraged to use methods of presenting data, analysis and information other than straightforward narrative text. In the appropriate contexts, tables, graphs, pie charts, diagrams and illustrations are just as demanding on the learner.

Animals to be covered

The table below shows the animal species that should be covered in the unit. Each unit covers the principles of animal technology and good animal welfare; the principles should be supported with examples from across the range of species listed in the table below, in order that learner get a broad understanding of the industry. Assessment should be based on the species and techniques that are most relevant to an individual learner, but they should be encouraged to explain the relevance of the animal, routine and procedures they use and discuss other options that may be available.

Small rodents	Large rodents and lagomorphs	Carnivores	Farm animals	Birds	Amphibians and fish	Primates	Reptiles
Rat Mouse hamster	Guinea pig Rabbit	Cat Dog Ferret	Cattle Sheep/Goat Pig Horse/Donkey	Chicken Quail Small cage birds	Fish Frog	New & Old world	Chelonian Snake Lizard

Approved Centres

An IAT Approved Centre will have adequate facilities and expertise, alone or in conjunction with local employers, to teach the syllabus and to provide facilities for assessment.

Centres wishing to offer IAT qualifications must be approved by the Institute of Animal Technology. Application for admission as an Approved Centre shall be made through the Secretary to the Board of Moderators.

All Centres must be able to provide sufficient evidence that they have suitably qualified staff, resources and management systems necessary to effectively deliver and assess all of the assessment criteria for the IAT units and qualifications they offer.

They must also demonstrate how they will recognise/ authenticate the eligibility of exemptions and/or any other prior learning and how they will apply these appropriately when registering learners' results with the IAT as the awarding body.

On registration, the IAT Moderator will check the eligibility of the learner to undertake the chosen level of qualification, learners not eligible for their chosen level by means of previous qualifications will not be registered. The IAT will issue the learner with a Unique Learner Number (ULN) to those who have not been previously issued with a ULN and will, on successful completion of a unit, record the credits in the learner record.

IAT Approved Centres will be listed on the IAT website iat.org.uk

Moderators

Each Centre has a Moderator appointed by the Board of Moderators. The Moderator will visit the Centre as necessary to assess and approve the Centre is complying with IAT and Ofqual policies and assessments are fair and appropriate and to monitor learner progression

The Moderator becomes the link between the Centre and the Board of Moderators. The Moderator meets regularly to discuss problems arising out of the system and to maintain standards.

The Board of Moderators reserves the right to call a learner to an additional oral examination if they have good cause to suspect that any assessment submitted is not the work of the learner or to require the learner to sit a further supervised assessment.

Exemptions and Credits

Learners may be credited with a unit in a variety of ways.

- Successful completion of the assessment covering the unit learning outcomes and grading criteria.
- Recognition of prior learning and achievement.
- Successful completion of other recognised certificated qualifications covering the unit content at an equivalent or higher level.

Recognition of Prior Learning and Achievement

The Qualification is based on the principles of credit accumulation and transfer. Learners have the opportunity to build their achievements from a single unit into a full qualification. The IAT will publish on its website examples of which units and qualifications from other awarding bodies can be recognised for credit transfer and exemptions.

There may be instances where learners will wish to claim recognition of prior learning which has not been formally assessed and accredited. In those instances Centres are free, after discussion and agreement with the Moderators, to support these learners in their effort to achieve recognition of prior learning (RPL) through the policies set out on the IAT website.

Registration

The IAT will register learners and maintain records of a learner's progress once a completed registration has been received. Learners will be able to follow their progress via the Institute's database. Learners must have access to theoretical instruction and formative assessment to support their development. At registration a Learner must indicate an approved Centre from which they intend to receive tuition.

Timing of Courses and Assessments

Courses may be devised to any timescales to suit local conditions and the designated length of the components. Assessments which are devised by the Centres require approval by the Moderator.

Special Needs

Learners who provide evidence of special needs (either educational or medical) will be offered support under the Institute's Policies of supporting Learners with special needs. Details can be found on the Institute's website www.iat.org.uk

Fees

The Institute charges a learner registration fee.

Details can be found on the Institutes' website www.iat.org.uk

Certificates

Learners successfully completing a unit will be provided with a notification of performance, annually. When a learner has successfully completed all of the units required for the qualification they will be notified in writing and presented with a qualification Certificate.

Certificates are printed quarterly per annum. Submission dates for results and dates for Certification will be published on the Institutes' website www.iat.org.uk

Qualification title

IAT Level 2 Diploma in Laboratory Animal Husbandry

Structure for IAT Level 2 Diploma in Laboratory Animal Husbandry

All units are mandatory.

Qualification	Unit title	Credit Value	Ofqual No.	Guidance on assessment methodology
IAT Level 2 Diploma in Laboratory Animal Husbandry 600/0558/0	Laboratory animal housing and routines	12	F/602/5879	Written assessment
	The production of Laboratory animals	8	T/602/5880	Unit test
	Laboratory animal nutrition	4	A/602/5881	Written assessment
	Introduction to ethics	4	TBC	Written assessment
	Introduction to laboratory animal facility legislation	8	TBC	Unit test
	Laboratory animal health and husbandry	12	J/602/5883	Written assessment

Explanatory Note

One credit in each unit represents 10 hours of learning time.

Learning time is the amount of time a learner is expected to take, on average, to complete the learning outcomes of the unit to the standard defined by the assessment criteria.

Guided learning hours refers to the total amount of time that the learner has in any form of supported study. Learning time includes all the time needed to achieve a unit, including supported study, homework, assessment time and preparation time.

The difference between the learning time and guided learning hours is not absolute as, in addition, learners will also be learning in the workplace with the support of colleagues and often with the support of their teachers.

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TITLE	LABORATORY ANIMAL HOUSING AND ROUTINES		
OFQUAL NO:	F/602/5879	LEVEL	2
CREDIT VALUE	12 credits	Unit guided learning hours	60
Details of the relationship between the unit and relevant national occupational standards or other professional standards or curricula (if appropriate)	O29N AT 1 CU2, 3, 32, 33, 34, 38, 39		
Location of the unit within the subject/sector classification system	Animal Technology		
ADDITIONAL INFORMATION ABOUT THE UNIT			
Unit purpose and aim(s)	<p>The aim of this unit is to provide the learner with the ability to demonstrate the knowledge and understanding of the principles of laboratory animal husbandry and welfare.</p> <p>This unit is designed to introduce learners to the principles of laboratory animal husbandry and welfare. Learners should appreciate that animals bred for, and used in, scientific procedures must receive the highest standards of care and welfare and recognise how they can contribute to this in their daily tasks. Learners are encouraged to follow safe working practices in the animal unit.</p>		

	Learning Outcomes	Assessment Criteria
	The learner will:	The learner can:
1	Know/understand suitable routines and husbandry practices for the maintenance and care for a range of laboratory animals.	<p>1.1. Describe appropriate routines and husbandry practices for two different species.</p> <p>1.2. Explain the importance of regular husbandry routines.</p> <p>1.3. Define scientific and technical terms relating to the housing and care of laboratory animals.</p>
2	Know/understand the consequences for the animal resulting from inappropriate environmental conditions.	<p>2.1. Identify appropriate environmental conditions for two different named species.</p> <p>2.2. Describe the effects on the animals if appropriate environmental conditions are not maintained.</p> <p>2.3. Know which Codes of Practice describe suitable environmental conditions for laboratory animals.</p> <p>2.4. Know who to contact in the event of inappropriate environmental conditions being suspected or identified.</p>
3	Describe appropriate methods for identifying a range of animals.	<p>3.1. Select appropriate methods for identifying laboratory animals given specific conditions.</p> <p>3.2. Describe methods for identifying animals.</p>
4	Know relevant health and safety legislation and practices.	4.1. Describe how the health and safety of the animals and people is maintained.

Unit contents and assessment

Laboratory animal housing and routines

ANIMAL HOUSING AND ANIMAL FACILITY MATERIALS

Materials: properties and uses of materials commonly found in the animal facility

Animal housing: design features of cages and pens e.g. containment of the animal, provision for the animal's needs, ease of use and of servicing, economic considerations, compliance with any experimental, legal or breeding requirements, stocking densities

Organisation of cages and pens: permanent, flexible, mobile, partitions, shelves, racks, independently ventilated cages; animal facility barriers: definition, purpose, examples of barriers

THE ENVIRONMENT

Optimum conditions: comfort and well-being of the animals, legislation, Codes of Practice, animal welfare, control experimental variables

Recording conditions: methods for recording temperature and humidity, equipment and techniques, limitations

Effects of the environment on the animal: light, noise, temperature, humidity, other animals, personnel; environmental enrichment: examples, benefits, uses

ROUTINE CARE

Routine procedures: importance of routines, habits of the animals, conditions in which they are housed, purposes for which they are kept

Tasks: work routines suitable for the care and welfare of animals, procedures, frequency, reasons, local health and safety instructions

BEDDING AND NESTING MATERIALS

Bedding materials: ideal properties, compare and contrast uses of a range of materials, recognition of good and bad samples

Nesting materials: ideal properties, compare and contrast uses of a range of materials, recognition of good and bad samples

HYGIENE

Hygiene: definition, reasons for good hygiene

Disease causing agents: nature and size of agents (e.g. viruses, bacteria, fungi, protoctista, invertebrate parasites (internal and external), prions, susceptibility of agents to methods of sterilisation and disinfection

Personal hygiene: reasons for good hygiene, protective clothing, washing, showering, air showers, reporting of ill health in oneself or animals

Cleaning procedures: unit, rooms, animal accommodation, cage washers, equipment, compares methods (dusting, sweeping, mopping, wet and dry vacuum-cleaning, hosing, high-pressure hosing with water and with steam)

Definitions: sterilisation, pasteurisation, disinfection, fogging, fumigation

Disinfection and sterilisation: describe and compare methods for sterilising and disinfecting animal accommodation, equipment, consumables and waste in the animal facility (e.g. disinfectants, autoclaves, cage and bottle washing machines, incinerators), health and safety with chemicals

Chemical disinfectants: ideal properties, compare properties and uses, dilution concentrations

IDENTIFICATION

Ideal characteristics: harmless to the animal, simple to apply, easy to decipher, sufficiently permanent, compliant with breeding or experimental and legal requirements

Methods: describing physical characteristics of the animal, diagrams or photographs, ear punching, fur clipping, applying stains, tattooing, transponders; uses and limitations of each method

	Learning Outcomes	Assessment Criteria		
		Pass	Merit	Distinction
1	Know/understand suitable routines and husbandry practices for the maintenance and care for a range of laboratory animals.	<p>1.1. Describe appropriate routines and husbandry practices for two different species.</p> <p>1.2. Explain the importance of regular husbandry routines.</p>	Describes in detail the importance of regular husbandry routines.	Explain why routines are not identical for all species.
2	Know/understand the consequences for the animal resulting from inappropriate environmental conditions.	<p>2.1. Identify appropriate environmental conditions for two different named species.</p> <p>2.2. Describe the effects on the animals if appropriate environmental conditions are not maintained.</p> <p>2.3. Know which Codes of Practice describe suitable environmental conditions for laboratory animals.</p> <p>2.4. Know who to contact in the event of inappropriate environmental conditions being suspected or identified.</p>	Explain how poor environmental conditions lead to poor animal welfare.	Explain, with examples, how poor environmental conditions lead to poor animal welfare.
3	Describe appropriate methods for identifying a range of animals.	<p>3.1. Select appropriate methods for identifying laboratory animals given specific conditions.</p> <p>3.2. Describe methods for identifying animals.</p>	Describe, in detail, how the methods are applied and identify any particular welfare problems.	Justify the choice of method.
4	State relevant health and safety legislation and practices.	Describe how the health and safety of the animals and people is maintained.		

TITLE	THE PRODUCTION OF LABORATORY ANIMALS		
OFQUAL NO:	T/602/5880	LEVEL	2
CREDIT VALUE	8 credits	Unit guided learning hours	40
Details of the relationship between the unit and relevant national occupational standards or other professional standards or curricula (if appropriate)	O29N AT 4 CU2,36		
Location of the unit within the subject/sector classification system	Animal Technology		
ADDITIONAL INFORMATION ABOUT THE UNIT			
Unit purpose and aim(s)	<p>The aim of this unit is to provide the learner with the ability to demonstrate the knowledge and understanding of methods used in the production of animals for scientific purposes.</p> <p>This unit is designed to give learners an overview of the production of animals for scientific purposes.</p>		

	Learning Outcomes	Assessment Criteria
	The learner will:	The learner can:
1	Know suitable methods for producing animals for a range of scientific procedures.	1.1. Describe methods for supplying laboratory animals. 1.2. Select suitable production methods given specific conditions. 1.3. Define scientific and technical terms relating to the production of laboratory animals.
2	Know relevant health and safety legislation and practices.	2.1. Describe how the health and safety of the animals and people is maintained.

Unit contents and assessment

The production of laboratory animals

Definitions: colony, closed colony, monogamous pairs, harems, in-breeding, inbred strain, random-breeding, out-breeding, genetically altered, mutants, oestrous cycle, oestrus, post-partum oestrus, puberty, age at first mating, mating, dated mating, mating season, breeding season, ovulation, super-ovulation, fertilisation, implantation, placenta, embryo, embryo transfer, foetus, gestation, parturition, lactation, fostering, cross-fostering, weaning, pre-weaning mortality rate, economic breeding life, culling

Breeding data: breeding season, type of oestrous cycle, length of oestrous cycle, duration of oestrus, the detection of oestrus, mechanism of ovulation, gestation period, average litter size, recurrence of oestrus following parturition, birth, weanling, first mating, full-grown adults

Breeding systems: monogamous pairs, harems, arranged mating, factors affecting choice of system e.g. natural behaviour of animals, economic considerations, scientific needs

Record keeping: economic management of colony, genetic status, legal requirements, identity and birth date, identities and birth dates of both parents, date(s) of mating(s), for each litter - date of birth, number born and sexes and bodyweights of offspring weaned, identity and fate of offspring

Future breeding stock: physical signs, health status, parents' breeding record, genotype

	Learning Outcomes	Assessment Criteria		
		Pass	Merit	Distinction
1	Know suitable methods for producing animals for a range of scientific procedures.	1.1. Describe methods for supplying laboratory animals. 1.2. Select suitable production methods given specific conditions. 1.3. Define scientific and technical terms relating to the production of laboratory animals.	Describe, in detail, methods for producing laboratory animals. Uses scientific terms associated with the supply of laboratory animals appropriately.	Justify the choice of the chosen methods.
2	State relevant health and safety legislation and practices.	Describe how the health and safety of the animals and people is maintained.		

TITLE	LABORATORY ANIMAL NUTRITION		
OFQUAL NO:	A/602/5881	LEVEL	2
CREDIT VALUE	2	Unit guided learning hours	4 credits
Details of the relationship between the unit and relevant national occupational standards or other professional standards or curricula (if appropriate)	O29N CU2, 33, 34,35		
Location of the unit within the subject/sector classification system	Animal Technology		
ADDITIONAL INFORMATION ABOUT THE UNIT			
Unit purpose and aim(s)	<p>The aim of this unit is to provide the learner with the ability to demonstrate the knowledge and understanding of methods used for ensuring animals receive a balanced diet.</p>		

	Learning Outcomes	Assessment Criteria
	The learner will:	The learner can:
1	Know how water and a balanced diet are provided for laboratory animals.	1.1. Describe how a diet must be stored to ensure its quality when fed to laboratory animals. 1.2. Identify food pests and describe the potential damage they cause. 1.3. Describe methods for presenting good quality food and water to animals. 1.4. Define scientific and technical terms relating to the nutrition of laboratory animals.
2	Know relevant health and safety legislation and practices.	2.1. Describe how the health and safety of the animals and people is maintained.

Unit contents and assessment

Laboratory animal nutrition

Balanced diet: definition, ingredients/recipes, water

Provision of food: hoppers, baskets and open containers for foodstuffs in different physical forms, sizes and designs, number of animals, scientific requirements

Provision of water: bottles, automatic water systems, open bowls, troughs, importance of regular cleaning and water changing, mechanics of water bottles and bottle tops, correct filling of water bottles

Measuring food intakes: calculate food consumption, wastage

Food pests and contamination: moths, mites, weevils, beetles (including cockroaches) and moulds which may affect animal foodstuffs, signs of infestation, damage to nutritional quality, contamination via wild birds and rodents

Diet storage: properties of ideal store, simple routines for protecting foodstuffs from contamination and deterioration, rotating stock, expiry dates

	Learning Outcomes	Assessment Criteria		
		Pass	Merit	Distinction
1	Know how water and a balanced diet are provided for laboratory animals.	1.1. Describe how a diet must be stored to ensure its quality when fed to laboratory animals. 1.2. Identify food pests and describe the potential damage they cause. 1.3. Describe methods for presenting good quality food and water to animals. 1.4. Define scientific and technical terms relating to the nutrition of laboratory animals.	Explain how poor storage conditions can cause deterioration in laboratory diets.	Explain, with appropriate examples (including food pests), how poor storage conditions can cause deterioration in laboratory diets.
2	State relevant health and safety legislation and practices.	Describe how the health and safety of the animals and people is maintained.		

TITLE	INTRODUCTION TO LABORTORY ANIMAL SCIENCE ETHICS		
OFQUAL NO:	TBC	LEVEL	2
CREDIT VALUE	4 credits	Unit guided learning hours	60
Details of the relationship between the unit and relevant national occupational standards or other professional standards or curricula (if appropriate)	O29N AT 6 CU2,36		
Location of the unit within the subject/sector classification system	Animal Technology		
ADDITIONAL INFORMATION ABOUT THE UNIT			
Unit purpose and aim(s)	<p>The aim of this unit is to provide the learner with the ability to demonstrate the knowledge and understanding of the <i>Ethical considerations</i> of using animals for scientific purposes.</p> <p>The unit introduces ethical principles applied to animals used in research.</p>		

	Learning Outcomes	Assessment Criteria
	The learner will:	The learner can:
1	Know how the concerns over the use of laboratory animals are minimised.	1.1. Describe methods for implementing refinement, reduction and replacement (3Rs) techniques. 1.2. Describe methods for scientific research that do not involve the use of animals
2	Understand that there is a broad range of ethical, welfare and scientific perspectives on the use of animals in scientific procedures, and that thinking on all of these matters evolves over time and is influenced by culture and context.	2.1 Discuss different arguments for and against the use of animals as research models.

Unit contents and assessment

INTRODUCTION TO LABORATORY ANIMAL SCIENCE ETHICS

3R's: Underpinning theory, application and examples

Ethical considerations: animal welfare, animal rights, benefits of animal experimentation and evolution of ethical arguments of animal experimentation.

	Learning Outcomes	Assessment Criteria		
		Pass	Merit	Distinction
1	Know how the concerns over the use of laboratory animals are minimised.	1.1. List arguments for and against the use of animals as research models. 1.2. Describe methods for implementing refinement, reduction and replacement techniques.	Describe examples of the 3Rs in practice.	Describe how the implementation of the 3Rs is encouraged.
2	Understand that there is a broad range of ethical, welfare and scientific perspectives on the use of animals in scientific procedures, and that thinking on all of these matters evolves over time and is influenced by culture and context.	Discuss different arguments for and against the use of animals as research models.	Describe how ethical standards have changed animal welfare over time.	Apply relevant theory to a work based example

TITLE	INTRODUCTION TO LABORATORY ANIMAL FACILITY LEGISLATION		
OFQUAL NO:	TBC	LEVEL	2
CREDIT VALUE	8 credits	Unit guided learning hours	60
Details of the relationship between the unit and relevant national occupational standards or other professional standards or curricula (if appropriate)	O29N AT 6 CU2,36		
Location of the unit within the subject/sector classification system	Animal Technology		
ADDITIONAL INFORMATION ABOUT THE UNIT			
Unit purpose and aim(s)	<p>The aim of this unit is to provide the learner with the ability to demonstrate the knowledge and understanding of the legislation controlling the use of animals for scientific purposes.</p> <p>The unit introduces principles applied to animals used in research, describes appropriate methods of euthanasia and specifically introduces health and safety legislation and practices.</p>		

	Learning Outcomes	Assessment Criteria
	The learner will:	The learner can:
1	Identify the broad provisions of the legislation controlling the use of research animals.	2.1. Define the main terms of the legislation. 2.2. Describe the main provisions of the legislation. 2.3. Explain the roles of individuals named in the legislation.
2	Know appropriate methods of euthanasia.	3.1. Select and describe appropriate methods for the euthanasia of specified animals under specified conditions. 3.2. Describe methods for confirming death.
3	Know relevant health and safety legislation and practices.	4.1. Identify potential health and safety hazards in an animal facility and indicate safeguards that protect staff. 4.2. Define their responsibilities under this legislation.

Unit contents and assessment

Introduction to laboratory animal facility legislation

Legislation protecting laboratory animals

Main provisions: ensure that protected animals are used for scientific procedures only if there is no alternative, ensure that the potential benefits resulting from the procedure justify the use of animals, avoid unnecessary suffering

Legislative enforcement and responsibilities

EUTHANASIA

Reasons for killing experimental animals: ill health, stock control, scientific procedure, legislation, to eliminate suffering

Routes of administration: intravenous, intraperitoneal, inhalation, sub-cutaneous, per-cutaneous, oral; legal control

Techniques: physical methods, chemical methods, equipment, training, signs indicating death, confirmation of death, disposal of bodies

Factors affecting choice of method: statutory requirements, species, age and size of animal, number of animals to be killed, temperament of animal, skill of operator, availability of apparatus, safety of other animals and the operator, fate of the cadaver

GOOD LABORATORY PRACTICE

GLP: outline GLP regulations, state reasons for using SOPs (standard operating procedures), protocols, study directors

HEALTH AND SAFETY

Health and Safety legislation: main provisions, responsibilities Control of Substances Hazardous to Health Regulations

Health and safety in the laboratory animal facility: personal hygiene, local rules, warning signs, personal protective equipment, lone working, chemical, physical and biological hazards, laboratory animal allergens, training, training and induction records, Occupational Health Department or Supervisor

Fire protection: fire hazards, fire doors, fire extinguishers, escape routes, assembly points

Accident procedures: actions of person not qualified in First Aid, actions of person qualified in First Aid, reporting procedure on accidents

Security: personal and work based

	Learning Outcomes	Assessment Criteria		
		Pass	Merit	Distinction
1	Identify the broad provisions of the legislation controlling the use of research animals.	2.1. Define the main terms of the legislation. 2.2. Describe the main provisions of the legislation. 2.3. Explain the roles of individuals named in the legislation.	Describe how the legislation is applied in the work place.	Demonstrate a thorough understanding of how the legislation is applied in the workplace.
2	Know appropriate methods of euthanasia.	3.1. Select and describe appropriate methods for the euthanasia of specified animals under specified conditions. 3.2. Describe methods for confirming death.	Explain the factors that effect the choice of method of euthanasia in given situations.	Justify the choice of methods.
3	State relevant health and safety legislation and practices.	4.1. Identify potential health and safety hazards in an animal facility and indicate safeguards that protect staff. 4.2. State their responsibilities under this legislation.	Describe how the legislation is applied in the work place.	Demonstrate a thorough understanding of the how the legislation is applied in the workplace.

TITLE	LABORATORY ANIMAL HEALTH AND HUSBANDRY		
OFQUAL NO:	J/602/5883	LEVEL	2
CREDIT VALUE	12 credits	Unit guided learning hours	60
Details of the relationship between the unit and relevant national occupational standards or other professional standards or curricula (if appropriate)	O29N AT3, 4, 9		
Location of the unit within the subject/sector classification system	Animal Technology		
ADDITIONAL INFORMATION ABOUT THE UNIT			
Unit purpose and aim(s)	<p>The aim of this unit is to provide the learner with the ability to demonstrate the knowledge and understanding of the theory supporting good animal husbandry practice.</p> <p>This unit is designed to give learners the opportunity to develop their knowledge of the theory supporting good animal husbandry practice.</p>		

	Learning Outcomes	Assessment Criteria
	The learner will:	The learner can:
1	Know methods available to safely handle and sex a laboratory animal.	<p>1.1. Select suitable methods for handling and determining the sex of a named species of laboratory animal.</p> <p>1.2. Describe suitable methods for handling and determining the sex of a named species of laboratory animal.</p> <p>1.3. Correctly identify the sex of the animal.</p>
2	Know/understand methods to estimate the age of a named species of laboratory animal with reasonable accuracy.	<p>2.1. Describe methods for determining the age, with reasonable accuracy, of a juvenile and adult animal of a named species of laboratory animal.</p> <p>2.2. Estimate, with reasonable accuracy, the age of a juvenile and adult animal of a named species of laboratory animal.</p>
3	Know/understand suitable procedures for the safe handling and restraint of a named species for common scientific procedures.	<p>3.1. Describe suitable procedures for restraining a named species of a laboratory animal for common scientific and husbandry procedures.</p> <p>3.2. Describe the use of appropriate procedures given specified conditions.</p>
4	Identify signs of ill health in a named species and describe suitable remedial actions.	<p>4.1. Describe the normal condition of a named species in rest and in movement.</p> <p>4.2. Describe the process for examining an animal logically and thoroughly.</p> <p>4.3. Explain common problems that may be found and describe suitable remedial actions.</p> <p>4.4. Describes signs which could indicate an animal is in pain and explains the role of analgesics in controlling pain in laboratory animals.</p>
5	Know relevant health and safety legislation and practices.	5.1. Explain how the health and safety of the animals and people is maintained.

Unit contents and assessment

Laboratory animal husbandry and health

HANDLING LABORATORY SPECIES

Health and safety: compliance with legislation and local rules, personal protective equipment, reporting bites, scratches and other injuries, reporting animal welfare concerns

Techniques: procedures and equipment for handling and restraining for common scientific procedures and detailed health checks

SEXING LABORATORY ANIMALS

Observable characteristics and techniques: procedures and equipment for sexing laboratory animals

ESTIMATING AGE

Observable characteristics: describes the appearance and behaviour of animals at key stages in their development

HEALTH CHECKS

Healthy animal: normal behaviour and appearance, personal protective equipment, reporting bites, scratches and other injuries, reporting animal welfare concerns

Observations: signs of common disease, clinical signs, subsequent action

Health checking: observation at rest and in movement, detailed examination procedure, clinical signs, records and reporting, subsequent action, further investigation

	Learning Outcomes	Assessment Criteria		
		Pass	Merit	Distinction
1	Know methods available to safely handle and sex a laboratory animal.	1.1. Select suitable methods for handling and determining the sex of a named species of laboratory animal. 1.2. Describe suitable methods for handling and determining the sex of a named species of laboratory animal. 1.3. Correctly identify the sex of the animal.	Describe, in detail, suitable methods for handling and determining the sex of a named species of laboratory animal.	Explain how health and safety and good animal welfare are maintained at all times.

2	Know/understand methods to estimate the age of a named species of laboratory animal with reasonable accuracy.	<p>2.1. Describe methods for determining the age, with reasonable accuracy, of a juvenile and adult animal of a named species of laboratory animal.</p> <p>2.2. Estimate, with reasonable accuracy, the age of a juvenile and adult animal of a named species of laboratory animal.</p>	Describe the factors that limit the degree of accuracy in estimating the age of the animal without knowing its date of birth.	Explain how health and safety and good animal welfare are maintained at all times.
3	Know/understand suitable procedures for the safe handling and restraint of a named species for common scientific procedures.	<p>3.1. Describe suitable procedures for restraining a named species of a laboratory animal for common scientific and husbandry procedures.</p> <p>3.2. Describe the use of appropriate procedures given specified conditions.</p>	Describe, in detail, suitable procedures for restraining a named species of laboratory animal for common scientific and husbandry procedures. Discuss the use of appropriate procedures given specified conditions.	Explain how health and safety and good animal welfare are maintained at all times.
4	Identify signs of ill health in a named species and describe suitable remedial actions.	<p>4.1. Describe the normal condition of a named species in rest and in movement.</p> <p>4.2. Describe the process for examining an animal logically and thoroughly.</p> <p>4.3. Explain common problems that may be found and describe suitable remedial actions.</p> <p>4.4 Describes signs which could indicate an animal is in pain and explains the role of analgesics in controlling pain in laboratory animals.</p>	<p>Describe, in detail, the process for examining an animal logically and thoroughly.</p> <p>Describe two diseases common to the named species, including the clinical signs.</p> <p>Describe, in detail, suitable remedial actions.</p>	Discuss the impact of poor health on the animal and any scientific procedures.
5	State relevant health and safety legislation and practices.	Describe how the health and safety of the animals and people is maintained.		

