MSc degrees, Postgraduate Diplomas and Postgraduate Certificates in Livestock Health and Production and in Veterinary Epidemiology and Public Health

This booklet contains the Regulations for the MSc degrees, Postgraduate Diplomas and Postgraduate Certificates in Livestock Health and Production and Veterinary Epidemiology and Public Health and for the short courses that are derived from these awards. The booklet is divided into two parts as shown below – the Regulations for the awards and the Regulations for short courses.

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This booklet contains the Regulations for the MSc degree, Postgraduate Diploma and Postgraduate Certificate in Livestock Health and Production and for the MSc degree, Postgraduate Diploma and Postgraduate Certificate in Veterinary Epidemiology and Public Health (known as the Programme Regulations) plus the General Regulations which govern all awards placed at level 7 of the Framework for Higher Education Qualifications (FHEQ). The FHEQ forms part of the academic infrastructure of the Quality Assurance Agency for Higher Education (QAA) in England and Wales. The two sets of regulations should be read together.

1. Introduction

1.1 The University awards the degrees of Master of Science in Livestock Health and Production and Master of Science in Veterinary Epidemiology and Public Health, hereafter called the MSc degree in Livestock Health and Production and MSc degree in Veterinary Epidemiology and Public Health. A Postgraduate Diploma and a Postgraduate Certificate in Livestock Health and Production and a Postgraduate Diploma and a Postgraduate Certificate in Veterinary Epidemiology and Public Health are also awarded. The award of the MSc degrees, Postgraduate Diplomas and Postgraduate Certificates to External students is controlled by both these Programme Regulations and by the General Regulations.

1.2 The MSc degrees, Postgraduate Diplomas and Postgraduate Certificates are awarded without classification. At the discretion of the Board of Examiners a mark of distinction will be awarded to those students who have completed the MSc degree, Postgraduate Diploma or Postgraduate Certificate examination and have shown exceptional merit; a mark of merit may be awarded to those students who have completed the MSc degree, Postgraduate Diploma or Postgraduate Certificate examination and have shown merit.

1.3 A former student of the University of London whose registration for the Postgraduate Certificates, Postgraduate Diplomas or MSc degrees in Livestock Health and Production or in Veterinary Epidemiology and Public Health was terminated because he or she had exhausted the permitted number of attempts at the examination will **not** be permitted to register again as an External student for the Postgraduate Certificate, Postgraduate Diploma or MSc degree in Livestock Health and Production or the Postgraduate Certificate, Postgraduate Diploma or MSc degree in Veterinary Epidemiology and Public Health (see paragraph 2.7 of the General Regulations).

1.4 A student who has accepted the award of the Postgraduate Certificate in Livestock Health and Production or the Postgraduate Certificate in Veterinary Epidemiology and Public Health will **not** be permitted to re-register for the Postgraduate Diploma or the MSc degree in Livestock Health and Production or the Postgraduate Diploma or MSc degree in Veterinary Epidemiology and Public Health under these or any other Regulations. Students cannot be awarded both a Postgraduate Certificate and a Postgraduate Diploma or a Postgraduate Certificate and an MSc degree.

1.5 A student who has accepted the award of the Postgraduate Diploma in Livestock Health and Production or the Postgraduate Diploma in Veterinary Epidemiology and Public Health will **not** be permitted to re-register for the MSc degree in Livestock Health and Production or the MSc degree in Veterinary Epidemiology and Public Health under these or any other Regulations. Students cannot be awarded both a Postgraduate Diploma and an MSc degree.

1.6 The date of the award of the MSc degree, Postgraduate Diploma and Postgraduate Certificate to successful students will be **31 December**.

2. Programmes of study

2.1 The Postgraduate Certificate in Livestock Health and Production consists of **two** courses, as follows:

- **one** compulsory core course *plus*
- **one** further core course.

2.2 The Postgraduate Certificate in Veterinary Epidemiology and Public Health consists of **two** courses, as follows:

- **two** compulsory core courses.

2.3 The Postgraduate Diploma in Livestock Health and Production consists of **four** courses, as follows:

- **one** compulsory core course ***plus***
- **one** further core course ***plus***
- **two** optional courses.

2.4 The Postgraduate Diploma in Veterinary Epidemiology and Public Health consists of **four** courses, as follows:

- **two** compulsory core courses ***plus***
- **two** optional courses.

2.5 The MSc degree in Livestock Health and Production and the MSc degree in Veterinary Epidemiology and Public Health each consists of **seven** courses, as follows:

- **three** compulsory core courses ***plus***
- **four** optional courses.

2.6 Full details of the structures are given in Schedule A.

2.7 Subject to satisfying the rules of progression in paragraph 3, students may apply to transfer from the MSc degree in Livestock Health and Production to the MSc degree in Veterinary Epidemiology and Public Health and *vice versa*. Students may be considered for credit only for courses passed that are available on both MSc degrees.

2.8 Subject to satisfying the rules of progression in paragraph 3, students may apply to transfer from the Postgraduate Diploma in Livestock Health and Production to the Postgraduate Diploma in Veterinary Epidemiology and Public Health and *vice versa*. Students may be considered for credit only for courses passed that are available on both Postgraduate Diplomas.

2.9 Subject to satisfying the rules of progression in paragraph 3, students may apply to transfer from the Postgraduate Certificate in Livestock Health and Production to

the Postgraduate Certificate in Veterinary Epidemiology and Public Health and *vice versa*.

3. Rules of progression

3.1 In any one year, students registered for a Postgraduate Certificate, Postgraduate Diploma or MSc degree may study and be examined in a minimum of **one** course and a maximum of **four** courses, excluding re-sits.

3.2 A student with an effective date of registration of **1 January 2010 or before** is strongly advised to study one or more of the compulsory core courses before taking any optional courses for the Postgraduate Certificate, Postgraduate Diploma and MSc degree.

3.3 A student with an effective date of registration of **1 January 2011 or after** must successfully pass the assessment in the core courses for the Postgraduate Certificate, Postgraduate Diploma and MSc degree prior to commencing the assessment in the optional courses for the Postgraduate Certificate, Postgraduate Diploma and MSc degree.

Students registered for a Postgraduate Certificate

3.4 In order to be able to progress from the Postgraduate Certificate in Livestock Health and Production to the Postgraduate Diploma or MSc degree in Livestock Health and Production or from the Postgraduate Certificate in Veterinary Epidemiology and Public Health to the Postgraduate Diploma or MSc degree in Veterinary Epidemiology and Public Health, students must normally obtain a pass at the required level (see Schedule C) in each of the **two** Postgraduate Certificate courses and receive a recommendation from the Examiners that they may proceed to the remaining courses of the respective diploma or degree.

3.5 In the circumstances of paragraph 3.3 the Examiners may also recommend, if they think it appropriate, that a student who progresses from a Postgraduate Certificate to a Postgraduate Diploma or an MSc degree, may hold the pass at the Postgraduate Certificate to his or her credit in the event that he or she does not subsequently satisfy the Examiners in the remaining courses of the Postgraduate Diploma or MSc degree. If the student should be successful at the remaining courses, the pass at the Postgraduate Certificate examination will no longer be valid and the Postgraduate Diploma or MSc degree will be awarded. If the student should fail, or not complete, the remaining courses, he or she will be awarded the relevant Postgraduate Certificate with effect from the year in which the Postgraduate Certificate examination was passed.

3.6 A student who accepts the award of the Postgraduate Certificate will not be permitted to re-register for a Postgraduate Diploma or an MSc degree at a later date. Students, who have completed the Postgraduate Certificate and received an invitation to transfer, but do not make a decision on award or transfer within their registration period, will *normally* be automatically awarded the Postgraduate Certificate at the end of that period. The award will be with effect from the year in which Postgraduate Certificate courses were passed.

Students registered for a Postgraduate Diploma

3.7 In order to be able to progress from the Postgraduate Diploma in Livestock Health and Production to the MSc degree in Livestock Health and Production or from the Postgraduate Diploma in Veterinary Epidemiology and Public Health to the MSc degree in Veterinary Epidemiology and Public Health, students must normally obtain a pass at the required level (see Schedule C) in each of the **four** Postgraduate Diploma courses and receive a recommendation from the Examiners that they may proceed to the remaining courses of the respective degree.

3.8 In the circumstances of paragraph 3.6 the Examiners may also recommend, if they think it appropriate, that a student who progresses from a Postgraduate Diploma to an MSc degree, may hold the pass at the Postgraduate Diploma to his or her credit in the event that he or she does not subsequently satisfy the Examiners in the remaining courses of the MSc degree. If the student should be successful at the remaining courses, the pass at the Postgraduate Diploma examination will no longer be valid and the MSc degree will be awarded. If the student should fail, or not complete, the remaining courses, he or she will be awarded the relevant Postgraduate Diploma with effect from the year in which the Postgraduate Diploma examination was passed.

3.9 A student who accepts the award of the Postgraduate Diploma will not be permitted to re-register for an MSc degree at a later date. Students who have completed the Postgraduate Diploma and received an invitation to transfer, but do not make a decision on award or transfer within their registration period will automatically be awarded the Postgraduate Diploma at the end of that period. The award will be with effect from the year in which the Postgraduate Diploma courses were passed.

3.10 At the discretion of the Examiners, a student registered for a Postgraduate Diploma in either Livestock Health and Production or Veterinary Epidemiology and Public Health, who does not complete or pass in the **four** courses comprising a Postgraduate Diploma may be awarded a Postgraduate Certificate, provided that he or she achieved a pass in the **two** courses comprising the Certificate.

Students registered for an MSc degree

3.11 At the discretion of the Examiners, a student registered for the MSc degree in Livestock Health and Production who does not complete or pass in the **seven** courses comprising the MSc degree may be awarded a Postgraduate Diploma or a Postgraduate Certificate in Livestock Health and Production, provided that he or she achieved a pass in the **four** courses comprising the Postgraduate Diploma or in the **two** courses comprising the Postgraduate Certificate.

3.12 At the discretion of the Examiners, a student registered for the MSc degree in Veterinary Epidemiology and Public Health who does not complete or pass in the **seven** courses comprising the MSc degree may be awarded a Postgraduate Diploma or a Postgraduate Certificate in Veterinary Epidemiology and Public Health, provided that he or she achieved a pass in the **four** courses comprising the Postgraduate Diploma or in the **two** courses comprising the Postgraduate Certificate.

Students registered for a short course

3.13 All students will be required to complete the examination for the relevant 240 hour short course irrespective of the number of 50 hour short courses previously taken. A transfer fee will be payable.

3.14 There is no direct progression to the MSc degree, Postgraduate Diploma or Postgraduate Certificate from the **50 hour** short courses.

3.15 Students who successfully complete the assessment for a maximum of two of the **240 hour short courses** may be considered for progression to the following related awards:

- *Postgraduate Certificate in Livestock Health and Production*
- *Postgraduate Diploma in Livestock Health and Production*
- *MSc degree in Livestock Health and Production*
- *Postgraduate Certificate in Veterinary Epidemiology and Public Health*
- *Postgraduate Diploma in Veterinary Epidemiology and Public Health*
- *MSc degree in Veterinary Epidemiology and Public Health.*

3.16 Students who are permitted to progress may be credited with a maximum of **two 240 hour short courses** if transferring to the Postgraduate Diploma or MSc degree or **one 240 hour short course** if transferring to the Postgraduate Certificate (see paragraph 2.2 of the Short Course Programme Regulations).

3.17 Further rules governing progression to the MSc degrees, Postgraduate Diplomas and Postgraduate Certificates are given in paragraph 3 of the Short Course General Regulations.

3.18 There is **no** progression from **35 hour short courses**.

For students with an effective date of registration of 1 September 2010 or before:

3.19 Students who successfully complete the assessment for a **50 hour short course** may be considered for progression to the related **240 hour short course.**

4. Entrance requirements

4.1 In order to be eligible to register for an MSc degree, a Postgraduate Diploma or a Postgraduate Certificate, an applicant must satisfy the respective entrance requirements given in paragraphs 4.2 to 4.4.

4.2 An applicant must have:

- **MSc degrees**

  Either

  (a) a second class honours degree or the equivalent in a scientific subject, veterinary science, animal science, agriculture, biological sciences or medicine, from a university or other institution acceptable to the University of London.

  or

  (b) a second class honours degree or the equivalent in a scientific discipline which has, in the opinion of the University, included suitable preliminary training, from a university or other institution acceptable to the University of London.

- **Postgraduate Diplomas and Postgraduate Certificates**

  A degree or a technical or professional qualification and work experience considered appropriate and relevant by the University.

4.3 All applicants must provide evidence of their English language ability. Applicants whose first language is not English must provide documentary evidence acceptable to the University that the applicant has, no more than three years prior to the application, either been educated in English (minimum 18 months); or worked in English (minimum 18 months) or passed a test of English proficiency acceptable to the University of London – for example IELTS with an overall score of 6.5 with a minimum of 6.0 in each sub-test or TOEFL score of 580 (or 237 in the computerised test) plus 4.5 in the Test of Written English (TWE)/Essay rating.

4.4 Students are also required to meet the appropriate computer hardware and software requirements.

4.5 Applicants who do not satisfy these requirements may be considered by the University on an individual basis.

5. Period of registration

5.1 The minimum period of registration for the MSc degree is **two** calendar years from the effective date of registration for the degree. The maximum period of registration is **five** calendar years from the effective date of registration for the MSc degree.

5.2 The minimum period of registration for the Postgraduate Diploma is **one** calendar year from the effective date of registration for the Diploma. The maximum period of registration is **five** calendar years from the effective date of registration for the Postgraduate Diploma.

5.3 The minimum period of registration for the Postgraduate Certificate is **one** calendar year from the effective date of registration for the Certificate. The maximum period of registration is **five** calendar years for the Postgraduate Certificate.

5.4 An application for an extension of registration may be considered under paragraph 5 of the General Regulations. A fee may be payable.

5.5 Students who have not completed all of the requirements of the programme for which they are registered within the maximum period of registration may apply for a renewal of registration for a further full period, in accordance with paragraph 5.3 of the General Regulations.

5.6 The effective date of a student's registration shall be **1 January** in the year in which he or she is initially registered.

6. Assessment

6.1 Each individual course will be examined by **one** three-hour unseen written paper, containing essay and/or short answer questions, and by **one** assignment (with the exception of the research project, see paragraphs 6.9 – 6.18).

6.2 The Tutor Marked Assignment (TMA) is an essential part of the examination. If a student does not submit at least **one** assignment before the final submission deadline given in the Student Handbook, he or she will be deemed to have withdrawn from the examination for that course. If a student submits more than one assignment, the mark for the best assignment will count in the formal assessment process. A maximum of three TMAs may be submitted for assessment per module.

6.3 Students are strongly advised that all Tutor Marked Assignments (TMAs) should be new pieces of work. However, should a student choose to re-use previously submitted work in a subsequent TMA:

(a) the student must reference the original use of that work, and must comply with the regulations governing plagiarism (see General Regulations 10.10 and 10.12)
(b) it will be at the discretion of the Examiners as to whether the work will contribute to the final mark and as to which piece of work receives the mark.

6.4 The grade awarded on each individual course will be based on the mark obtained in the written paper and on the mark for the compulsory TMA. The written paper mark and the assignment mark will be weighted on the scale **80:20**.

6.5 Examinations by written paper, wherever held, will take place on one occasion each year, normally in **October.**

Calculators

6.6 Electronic calculators may be used. These should be of a hand-held non-programmable type and the name and model should be stated clearly on the examination paper.

Assignments

6.7 The assignment will take the form of written work specified in the course materials.

6.8 Assignments must be submitted to the Course Administrator at the address given and according to the dates provided in the Student Handbook.

Research Project

6.9 The output from the research project (MSc degree only) is a research paper suitable for publication in a scientific journal.

6.10 The research project counts as coursework. The overall weighting for the assessment of coursework to examination is **80:20**.

6.11 **By 30 September** – in the year prior to undertaking the research project – the student is required to submit to the Programme Director for approval, a research proposal of approximately 500 words in length.

6.12 **By 31 December** – in the year prior to undertaking the research project – the student will be advised of the outcome of their research proposal. The student may then register with Postgraduate Student Registry for the research project once approval is given to the research proposal.

6.13 The research proposal will not form part of the final assessment. However, students who do not submit a research proposal will not be permitted to carry out the research project.

6.14 **By 31 January** – for students whose proposals are approved - a Royal Veterinary College supervisor will be selected.

6.15 Students will be expected to conduct their research between February and August. During May, the supervisor will conduct a mid-term assessment of progress. Students will be expected to write up their research, in the form of a literature review and a scientific report for publication.

6.16 **By 31 October** - the completed research paper must be submitted by post or courier to the Distance Learning Office at the Royal Veterinary College. A paper received after the deadline will not normally be considered. An extension to the research project will be at the discretion of the Programme Director.

6.17 Additionally, students will be required to undertake an oral examination conducted either face to face or via telephone in November/December.

6.18 Prior to undertaking the research project, students are strongly encouraged to study *Research Design, Management and Grant Application Writing* [667 0014] (see Schedule B).

7. Number of attempts permitted

7.1 Details of the number of attempts permitted are given in paragraph 8 of the General Regulations.

7.2 A student re-entering an examination may, at the discretion of the Examiners, be permitted to carry forward the mark obtained on the compulsory assignment.

7.3 If a student fails to satisfy the Examiners at a second attempt at any examination, his or her registration for the relevant award will cease. The student will not be permitted to re-register for the MSc degree, the Postgraduate Diploma or the Postgraduate Certificate, nor to make a further attempt at the examination.

8. Fees

Fees – general

8.1 The fees payable to the University for a Postgraduate Certificate, a Postgraduate Diploma and an MSc degree in Livestock Health and Production and in Veterinary Epidemiology and Public Health are as follows:

- in order to register for the degree, students are required to pay a **registration fee and**
- students are required pay a **course fee** for each course they study. This fee includes the first entry to the examination for that course.

Additional fees, as applicable, are as indicated in paragraphs 8.4 to 8.6.

8.2 On registration for a MSc degree, a Postgraduate Diploma or a Postgraduate Certificate, students may choose to pay:

- either a single payment, covering the registration fee and all course fees
- or the registration fee plus the fees for the courses to be

studied in the first year. To be registered, a student must pay at the same time both the registration fee and the fee for at least **one** course. In subsequent years, only the fees for any new courses are payable.

8.3 The fees for 2011 are as follows:

MSc	Total fee	£9,425
PG Diploma	Total fee	£5,600
PG Certificate	Total fee	£2,945
Registration fee	(MSc)	£1,240
Registration fee	(Diploma)	£930
Registration fee	(Certificate)	£620
Course fee	(MSc/Diploma/ Certificate)	£1,240

Students intending to study the optional module *Advanced statistical methods in veterinary epidemiology* (course code: 667 0013) will require access to Arc View 9.0 GIS software, plus the extensions, Spatial Analyst and 3D Analyst. The cost of the GIS software is NOT included in your course fee and you will need to purchase it if you do not have access to it. If you would like to purchase the software, please contact ESRI via the following website: http://www.esri.com/company/locations.html and select your country of residence from the drop-down menu. You may be eligible for a student discount, therefore please supply full details of the course you are intending to study. To verify your registration at the External System, the following email address may be used: pg.registration@london.ac.uk

The GIS software used on this course is subject to a US export embargo, which covers a small number of nations. The list of countries affected by the embargo can be found on the following website: http://www.treas.gov/offices/enforcement/ofac/programs/index.shtml You are strongly advised to visit this website before registering for this course.

Registration and course fees must be paid not later than **1 January** in the year of initial registration and by **10 January** (or as soon as the results of any examinations taken the previous year have been published), in subsequent years, for continuing students. No study materials will be despatched until the relevant fees have been received.

8.4 Additional fees for 2011 that will be payable, as applicable, are as follows:

Examination re-entry fees	
- for one course	£162
- for two courses	£246
- for three courses	£342
- for four courses	£433

The deadline for payment of an examination re-entry fee is **1 August** in the year of the examination.

8.5 A fee is normally levied by all examinations centres (other than London) and Overseas Examination Centres. This fee is payable by students each time they make an examination entry. The University cannot be responsible for this fee nor can it influence the level of fee charged.

8.6 The University reserves the right to make additional charges for issuing revised or replacement study materials.

Transfer of registration

8.7 Students who transfer from a Postgraduate Certificate to a Postgraduate Diploma or an MSc degree, will be required to pay the relevant course fees for completion of a Postgraduate Diploma or an MSc degree respectively.

8.8 Students who transfer from a Postgraduate Diploma to an MSc degree, will be required to pay the relevant course fees for completion of an MSc degree.

Refunds

8.9 Registration fees will not be refunded except as provided:
If a student dies, or is prevented from pursuing his or her studies through a disabling illness, or that of a near relative for whose care he or she is responsible, a proportion of the registration fee which has been paid may be refunded at the discretion of the University provided that:

- the application is made within two years of the effective date of the student's registration
- no entry has been made to an examination for an MSc degree, a Postgraduate Diploma or a Postgraduate Certificate
- such medical or other evidence as may be required is submitted.

8.10 A refund of course fees will be given where the fee has been paid but no study materials have been despatched. Any refund may be subject to an administrative charge determined by the University (currently £50)

Schedule A / Structures

Livestock Health and Production

Postgraduate Certificate

One compulsory core course:
Animal disease (current concepts) [667 0001]
+
One further core course from:
Developing and monitoring of livestock production systems [667 0018]
or
Principles of livestock production [667 0002]

Postgraduate Diploma

One compulsory core course:
Animal disease (current concepts) [667 0001]
+
One further core course from:
Developing and monitoring of livestock production systems [667 0018]
or
Principles of livestock production [667 0002]

+

Two optional courses chosen from:

Developing and monitoring of livestock production systems [667 0018] (if not taken as a core course)

Principles of livestock production [667 0002] (if not taken as a core course)

Animal welfare [667 0016]

Economics for livestock development and policy [667 0019]

Epidemiology and animal health economics [667 0004]

Management of infectious disease outbreaks in animal populations [667 0017]

Reproduction and fertility – a species approach [667 0009]

Research design, management and grant application writing [667 0014]

Sustainable livestock farming in the environment [667 0020]

Veterinary public health [667 0006]

Notes:

- Students with a registration date of 1 January 2011 onwards must successfully pass the assessment in the core courses prior to commencing the assessment in the optional courses.
- The optional course, Animal disease part II (Infectious and production diseases – a species approach [667 0008], is no longer available to study, however, a re-sit exam will be available in 2011, if required. The module, Management of infectious disease outbreaks in animal populations [667 0017], is the replacement for this course.
- the examination numbers have been appended to the course titles and these numbers should be used when completing examination entry forms.

MSc

Three compulsory core courses:

Animal disease (current concepts) [667 0001]

Developing and monitoring of livestock production systems [667 0018]

Principles of livestock production [667 0002]

+

Four optional courses chosen from:

Animal welfare [667 0016]

Economics for livestock development and policy [667 0019]

Epidemiology and animal health economics [667 0004]

Management of infectious disease outbreaks in animal populations [667 0017]

Reproduction and fertility – a species approach [667 0009]

Research design, management and grant application writing [667 0014]

Research Project in Livestock Health and Production [667 0200]

Sustainable livestock farming in the environment [667 0020]

Veterinary public health [667 0006]

Notes:

- Students with a registration date of 1 January 2011 onwards must successfully pass the assessment in the core courses prior to commencing the assessment in the optional courses.

- the optional course, Animal Disease part II (Infectious and production diseases – a species approach [667 0008], is no longer available to study, however, a re-sit exam will be available in 2011 if required. The module, Management of Infectious Disease outbreaks in animal populations [667 0017], is the replacement for this course.

- the examination numbers have been appended to the course titles and these numbers should be used when completing examination entry forms.

Veterinary Epidemiology and Public Health

Postgraduate Certificate

Two compulsory core courses:

Epidemiology and animal health economics [*667 0004*]

Veterinary public health [*667 0006*]

Postgraduate Diploma

Two compulsory core courses:

Epidemiology and animal health economics [667 0004]

Veterinary public health [667 0006]

+

Two optional courses chosen from:

Advanced statistical methods in veterinary epidemiology [667 0013] †

Developing and monitoring of livestock production systems [667 0018]

Economics for livestock development and policy [667 0019]

Management of infectious disease outbreaks in animal populations [667 0017]

Research design, management and grant application writing [667 0014]

Statistical methods in veterinary epidemiology [667 0012]

Surveillance and investigation of animal health [667 0015]

Notes:

- Students with a registration date of 1 January 2011 onwards must successfully pass the assessment in the core courses prior to commencing the assessment in the optional courses.
- † Students intending to study this optional module will require access to Arc View 9.0 GIS software, plus the extensions, Spatial Analyst and 3D Analyst. The cost of the GIS software is NOT included in your course fee and you will need to purchase it if you do not have access to it. Please see Programme Regulations Paragraph 8.3 for further information.
- the examination numbers have been appended to the course titles and these numbers should be used when completing examination entry forms.

MSc

Three compulsory core courses:

Epidemiology and animal health economics [*667 0004*]

Statistical methods in veterinary epidemiology [667 0012]

Veterinary public health [667 0006]

+

Four optional courses chosen from:

Advanced statistical methods in veterinary epidemiology [667 0013] †

Developing and monitoring of livestock production systems [667 0018]

Economics for livestock development and policy [667 0019]

Management of infectious disease outbreaks in animal populations [667 0017]

Research design, management and grant application writing [667 0014]

Research project in Veterinary Epidemiology and Public Health [667 0200]

Surveillance and investigation of animal health [667 0015]

Notes:

- Students with a registration date of 1 January 2011 onwards must successfully pass the assessment in the core courses prior to commencing the assessment in the optional courses.

- † Students intending to study this optional module will require access to Arc View 9.0 GIS software, plus the extensions, Spatial Analyst and 3D Analyst. The cost of the GIS software is NOT included in your course fee and you will need to purchase it if you do not have access to it. Please see Programme Regulations Paragraph 8.3 for further information.

- the examination numbers have been appended to the course titles and these numbers should be used when completing examination entry forms.

Schedule B / Course outlines

The examination numbers have been appended to the course titles and these numbers should be used when completing examination entry forms.

Advanced statistical methods in veterinary epidemiology [667 0013]

Prerequisites: Statistical methods in veterinary epidemiology [667 0012]

Students intending to study this optional module require access to Arc View 9.0 GIS software. The cost of the software is not included in the course fees. Please see Programme Regulations Paragraph 8.3 – Fees for details of how to purchase the software.

This course will provide an introduction to advanced methods of statistical modelling of epidemiological data.

Subject areas:

- analysis of spatial data
- modelling of production data
- advanced aspects of multivariable regression analysis
- analysis of correlated data; meta-analysis and systematic reviews

Assessment: one three-hour unseen written paper containing essay and/or short answer questions (80%) and a written assignment (20%).

Animal disease (current concepts) [667 0001]

(formerly Animal disease Part I (current concepts))

This course will enable the student to appreciate the external and internal components of health-agents of disease and how animals respond to them, at an individual and population level.

Subject areas:

- Immunology
- Parasitology
- Microbiology
- Introduction to veterinary epidemiology
- Principles of veterinary pathology

Assessment: one three-hour unseen written paper containing essay and/or short answer questions (80%) and a written assignment (20%).

Animal welfare [667 0016]

This course will provide a comprehensive appreciation of welfare and ethical issues connected with farm animal practice, animal breeding, transport and slaughter, companion animals, laboratory animals, animals used in competition and wildlife.

Subject areas:

- An introduction to veterinary ethics; the physiology of pain, distress, fear and anxiety
- The effects of genetics on animal welfare
- Specific welfare issues in companion, farmed, laboratory, wild and competitive animals
- Welfare issues in animal husbandry systems transport and slaughter

Assessment: one three-hour unseen written paper containing essay and/or short answer questions (80%) and a written assignment (20%).

Developing and monitoring of livestock production systems [667 0018]

This course will adopt a farming systems approach to permit the student to place livestock production within the context of the utilisation of resources. This will allow a critical consideration of appropriate husbandry for different animals in diverse environmental and socio-economic conditions.

Subject areas:

- An introduction to farming systems
- Details of major livestock production systems
- Developing and monitoring of functioning livestock systems with farmers, including organic farming
- Environmental, welfare and breeding issues in sustainable livestock husbandry

Assessment: one three-hour unseen written paper containing essay and/or short answer questions (80%) and a written assignment (20%).

Economics for livestock development and policy [667 0019]

The objectives of this course are to stimulate awareness of the socio-economic, political and environmental issues that will affect future livestock development and to provide the tools to analyse the issues confronting producers, their advisers, planners and policy makers.

Subject areas:

- Basic concepts of the economics of livestock production
- Extensive, medium intensity and intensive systems of livestock production
- Marketing and policy
- Further economics for the analysis of livestock development
- Tools for livestock economists

Assessment: one three-hour unseen written paper containing essay and/or short answer questions (80%) and a written assignment (20%).

Epidemiology and animal health economics [667 0004]

This course will enable students to understand the role of epidemiology and economics in the design and delivery of effective veterinary services aimed at improved animal health and productivity.

Subject areas:

- Introduction to statistics
- Introduction to veterinary epidemiology – basic principles, descriptive epidemiology, study design, sampling, quantitative aspects of diagnostic testing
- Animal health economics – principles, partial budgets, decision tree analysis, cost benefit ratio, economics and project planning

Assessment: one three-hour unseen written paper containing essay and/or short answer questions (80%) and a written assignment (20%).

Management of infectious disease outbreaks in animal populations [667 0017]

This course will provide both the theoretical and practical information required for the management of a major infectious disease outbreak of farm animals.

Subject areas:

- Epidemiology of infectious viral diseases
- Risk and cost-benefit analysis
- Surveillance
- Diagnosis and vaccination strategies before and during an outbreak
- Contingency planning and case studies are used to illustrate how disease outbreaks could be better managed

Assessment: one three-hour unseen written paper containing essay and/or short answer questions (80%) and a written assignment (20%).

Principles of livestock production [667 0002]

This course will enable the student to understand how feeding, breeding, management and interaction with the environment influence animal production and disease.

Subject areas:

- General principles of nutrition
- Specialised areas of nutrition. Students will select 3 of the following options:
  Feeding dairy cows
  Feeding dual purpose, beef and draught cattle
  Feeding sheep and goats
  Pig nutrition
  Poultry nutrition
- Nutrition of horses, camelids & rabbits

In all the above cases, consideration will be given to the different resources available in temperate and tropical/subtropical regions.

- Environmental studies, including climatic effects and housing
- Genetics
- The physiology of growth and lactation; the relevance of reproduction on livestock production

Assessment: one three-hour unseen written paper containing essay and/or short answer questions (80%) and a written assignment (20%).

Reproduction and fertility – a species approach [667 0009]

This course will enable students to gain a comprehensive insight into the physiology of reproduction and the management and manipulation of fertility to optimise animal productivity.

Subject areas:

- General principles of reproduction
- Introduction to reproductive anatomy and physiology
- Control of breeding
- Fertilisation, conception and pregnancy
- Reproductive disorders and disease
- Embryo transfer and assisted reproduction
- Reproduction management

Students will be required to specialise in three of the following: cattle, small ruminants, pigs, camelids, rabbits and poultry, equids.

Assessment: one three-hour unseen written paper containing essay and/or short answer questions (80%) and a written assignment (20%).

Research design, management and grant application writing [667 0014]

This course will enable students to undertake a research project, with an appropriate study design to validate a hypothesis and analyse the data, including the presentation of results and writing a grant application.

Subject areas:

- Introduction to scientific research and how to formulate a hypothesis
- Literature search, critical analysis of papers and writing a scientific review
- Experimental and statistical design in project planning;
- Project management
- Preparing data for analysis - qualitative data, quantitative data; statistical analysis and analysing the validity of findings
- Report writing, presentation of data and writing a scientific paper
- Introduction to grant application writing, planning the project and budget
- Guidelines to writing a good grant proposal

.Assessment: one three-hour unseen written paper containing essay and/or short answer questions (80%) and a written assignment (20%).

Research Project [667 0200]

It is advisable that students should study Research design, management and grant application writing (course code 667 0014) prior to registering for this course. This course is only available to MSc students and not as a 240 hour short course.

The objective of this course is to enable the students to conduct a research project and prepare a scientific paper for publication in a peer-reviewed journal. Students are given guidance and supervision from a distance in the following:

- Deriving a suitable hypothesis to base the research project
- Writing a critical literature review
- Designing the appropriate study with experimental and statistical details
- Costing the project and conducting experiments
- Managing the project to obtain relevant data
- Documenting and analysis of results to achieve a conclusion
- Selecting an appropriate scientific journal to publish the findings
- Preparing a paper for publication according to author guidelines of the selected journal.

Assessment: A paper suitable for publication in an identified scientific journal (80%) and an oral examination (20%).

Statistical methods in veterinary epidemiology [667 0012]

The objectives of this course are to introduce statistical methods used in veterinary epidemiology to enable students to conduct multivariable analysis and statistical modelling of epidemiological data.

Subject areas:

- Introduction to measures of effect
- Analysis of cohort studies and case-control studies
- Likelihood, Multivariable analysis and statistical modelling
- Simple logistic model, Logistic regression, Poisson regression and Cox regression

Assessment: one three-hour unseen written paper containing essay and/or short answer questions (80%) and a written assignment (20%).

Surveillance and investigation of animal health [667 0015]

This course will provide in-depth knowledge of qualitative and quantitative risk analysis, animal health surveillance programmes and introduce students to disease modelling.

Subject areas:

- Qualitative and quantitative risk analysis
- Design and evaluation of animal health surveillance and control programmes involving multiple herds
- Disease control methods involving multiple herds
- Farm-level animal disease and production surveillance
- Disease modelling using Deterministic and Stochastic modelling

Assessment: one three-hour unseen written paper containing essay and/or short answer questions (80%) and a written assignment (20%).

Sustainable livestock farming in the environment [667 0020]

This new course aims to provide an understanding of the threats presented by changes in the environment on livestock production and wildlife population, and explains the ways in which global and regional environmental change can impact on sustainability of farming systems, conservation of ecosystems and animal health. It will outline approaches that can be used to minimize unwanted environmental impacts of modern farming and land use systems, as well as consider the values academics, researchers, veterinarians and livestock specialists attach to the environment and to conservation issues. The course will also guide students in the approach they take in future when considering animal–environment interactions.

Assessment: one three-hour unseen written paper containing essay and/or short answer questions (80%) and a written assignment (20%).

Veterinary public health [667 0006]

The course will examine the role of veterinarians and other related professionals in the protection of human health through the safe production of foods of animal origin, control of zoonotic disease and environmental contamination.

Subject areas:

- Disease surveillance recording and risk analysis
- Zoonoses and their control
- Disseminating information on veterinary public health
- Quality and safety assurance in food production (meat, milk and eggs)
- Development of disease control programmes

Assessment: one three-hour unseen written paper containing essay and/or short answer questions (80%) and a written assignment (20%).

Schedule C / Scheme of award

MSc degree, Postgraduate Diploma and Postgraduate Certificate (240 hour and 50 hour short courses)

Mark range (%)	
75+	Distinction
65–74	Merit
50–64	Pass
0–49	Fail

1. The award of the MSc degree, Postgraduate Diploma or Postgraduate Certificate is normally given on the basis of achieving an average mark within the appropriate range. Examiners have complete discretion to take into account the student's overall performance.

2. The mark for each unseen written paper is the agreed mark following independent marking by two members of academic staff and scrutiny by the External Examiners. The unseen written paper will contribute up to 80% of the final assessment.

3. The highest mark of the submitted Tutor Marked Assignments (TMAs) counts towards the final assessment. The TMA will contribute up to 20% of the final assessment.

4. In order to be considered for the award of the MSc degree, students must attempt and pass **seven** courses. Students are awarded a pass if the average mark is 50% or above. A student who has reached this stage (including re-sit attempts) will not be permitted to make any further attempts at any failed courses.

5. In order to be considered for the award of the Postgraduate Diploma, students must attempt and pass **four** courses. Students are awarded a pass if the average mark is 50% or above. A student who has reached this stage (including re-sit attempts) will not be permitted to make any further attempts at any failed courses.

6. In order to be considered for the award of the Postgraduate Certificate, students must attempt and pass **two** courses. Students will be awarded a pass if the average mark is 50% or above. A student who has reached this stage (including re-sit attempts) will not be permitted to make any further attempts at any failed courses.

7. Students may be considered for the award of MSc degree, Postgraduate Diploma and Postgraduate Certificate with distinction or merit if:

- Distinction: The student receives an overall combined average mark for all courses of 75% or above, with no single course having received a mark of less than 60%.
- Merit: The student receives an overall combined average mark for all courses in the range 65–74%, with no single course having received a mark of less than 52%.

Schedule D / Assessment criteria

Unseen written papers and Tutor Marked Assignments (TMAs) are graded according to the following scheme:

Mark descriptor	**Long Answer Questions**	**Research Project Reports**	**Mark (%)**	**MSc, Postgraduate Diploma, Postgraduate Certificate (and 240 hour and 50 hour short courses)**
No answer	**Selection and coverage of material** Nothing presented or completely incorrect information or containing nothing at all of relevance. **Understanding** None evident. No evidence of wider reading of an appropriate nature. **Structure, clarity and presentation** None or extremely poor.	**Selection and coverage of material** Nothing presented or completely incorrect information or containing nothing at all of relevance. **Understanding** None evident. **Structure, clarity and presentation** None or extremely poor.	0	Fail
Extremely poor answer	**Selection and coverage of material** Hardly any information or information that is almost entirely incorrect or irrelevant. **Understanding** No or almost no understanding evident. No, or almost no, evidence of wider reading of an appropriate nature. **Structure, clarity and presentation** None or very poor.	**Selection and coverage of material** Hardly any information or information that is almost entirely incorrect or irrelevant. **Understanding** No or almost no understanding evident. **Structure, clarity and presentation** None or very poor.	10	Fail
Very poor answer	**Selection and coverage of material** Very limited amount of information that is correct and relevant. **Understanding** If any, extremely limited evidence of understanding. No, or almost no, evidence of wider reading of an appropriate nature. **Structure, clarity and presentation** Very poor.	**Selection and coverage of material** Very limited amount of information that is correct and relevant. **Understanding** If any, extremely limited evidence of understanding. **Structure, clarity and presentation** Very poor.	20	Fail

Poor answer	**Selection and coverage of material** Little information that is correct and relevant. **Understanding** If any, very limited evidence of understanding. There may be evidence of very limited wider reading of an appropriate nature. **Structure, clarity and presentation** Poor.	**Selection and coverage of material** Incomplete or inaccurate account of task with inadequate description of aims and methods of practical work and containing significant, and/or a large number of, errors. **Understanding** If any, very limited evidence of understanding with many unexplained observations or assertions likely. Little or no evidence of original/innovative thinking. Very limited reference to published work from authoritative sources. **Structure, clarity and presentation** Poor.	30	Fail
Clearly deficient answer	*As for 45 but with a greater number, and/or more significant, omissions/inaccuracies/errors, flaws in understanding, presentation and/or communication of information. There may be less evidence of wider reading of an appropriate nature.*	*As for 45 but with a greater number, and/or more significant, omissions/inaccuracies/errors, flaws in understanding, interpretation, presentation and/or communication of information.*	42	Fail
Deficient answer	**Selection and coverage of material** Superficial coverage of topic that is descriptive and flawed by many important omissions and/or significant errors. **Understanding** Some evidence of understanding but not of original thought or critical analysis. Evidence of limited wider reading of an appropriate nature. **Structure, clarity and presentation** Some disorganisation in structure, lack of organisation, and deficiencies in clarity of expression.	**Selection and coverage of material** Superficial coverage with incomplete record of aims and methods of practical work and flawed by errors &/or omissions. Little comment on most observations. **Understanding** Likely to be inaccuracies in data analysis and/or interpretation and unexplained observations or assertions. Little or no evidence of original/innovative thought. Very limited reference to published work from authoritative sources. **Structure, clarity and presentation** Adequate, although may not be entirely systematic	45	Fail
Marginally deficient answer	*As for 45 but with fewer, and/or less significant, omissions/inaccuracies/errors, flaws in understanding, presentation and/or communication of information. There may be more evidence of wider reading of an appropriate nature.*	*As for 45 but with fewer, and/or less significant, omissions/inaccuracies/errors, flaws in understanding, interpretation, presentation and/or communication of information.*	48	Fail
Adequate answer	*As for 55 but with more numerous, and/or more significant omissions/inaccuracies/errors, flaws in understanding, presentation and/or communication of information. There may be less evidence of wider reading of an appropriate nature.*	*As for 55 but with more numerous, and/or more significant, omissions/inaccuracies/errors, flaws in understanding, interpretation, presentation and/or communication of information.*	52	Pass
Sound answer	**Selection and coverage of material** Basic coverage of main aspects of topic but with some significant omissions/inaccuracies/errors.	**Selection and coverage of material** Systematic account of task with adequate record of aims and methods of practical work and no significant errors, omissions or	55	Pass

	Understanding Statements supported by facts but limited evidence of critical ability or powers of argument. Evidence of sufficient wider reading of an appropriate nature. **Structure, clarity and presentation** In general, organised and logical presentation with adequate clarity of expression.	inaccuracies. Appropriate speculation is unlikely or, if present, is likely to be unsubstantiated. **Understanding** Limited evidence of original/innovative thought. Sufficient reference to published work from authoritative sources. Data are largely accurate but there may be some unexplained observations or assertions. **Structure, clarity and presentation** Reasonably well organised and logically presented with adequate clarity of expression.		
Very sound answer	*As for 55 but with fewer, and/or less significant omissions/inaccuracies/errors and more evidence of critical ability and/or powers of argument and clarity of expression. There may be more evidence of wider reading of an appropriate nature.*	*As for 55 but with fewer, and/or less significant, omissions/inaccuracies/errors and more evidence of critical ability and/or powers of argument and clarity of expression.*	58	Pass
Quite good answer	*As for 65 but with more, and/or more significant, omissions/inaccuracies/errors and less evidence of critical ability. There may be less evidence of wider reading of an appropriate nature.*	*As for 65 but with less evidence of critical judgement and more, or more important, omissions/ inaccuracies/errors. There is likely to be less evidence of wider reading through reference to published work from authoritative sources.*	62	Pass
Good answer	**Selection and coverage of material** Good coverage of relevant material and clear evidence of critical judgement in selection of information. Few or no significant omissions or errors. **Understanding** Thorough grasp of concepts and evidence of synthesis of information and critical ability. Evidence of sufficient or some more extensive, wider reading of an appropriate nature. **Structure, clarity and presentation** Logical and organised structure with clarity of expression.	**Selection and coverage of material** Systematic and accurate account of task with full record of aims and methods of practical work and no significant errors or omissions. Some speculation, where appropriate, but may not be fully supported. **Understanding** Thorough grasp of concepts with reasonable comment on all observations with few unexplained findings or assertions. Some evidence of original/innovative thinking. Appropriate reference to published work from authoritative sources. Data manipulated and analysed correctly. **Structure, clarity and presentation** Logical and well-organised account with clarity of expression.	65	Merit
Very good answer	*As for 65 but with fewer, and/or less significant, omissions/inaccuracies/errors. More evidence of critical judgement likely. There may be more evidence of wider reading of an appropriate nature.*	*As for 65 but with more evidence of critical judgement and fewer and/or less significant omissions/inaccuracies/errors. There is likely to be more evidence of wider reading through reference to published work from authoritative sources.*	68	Merit

Extremely good answer	**Selection and coverage of material** Question answered fully and accurately. Few errors and/or omissions and none of significance. **Understanding** Thorough grasp of concepts with evidence of powers of critical analysis, argument and original thinking. Evidence of extensive wider reading of an appropriate nature. **Structure, clarity and presentation** Logical and organised structure with clarity of expression.	**Selection and coverage of material** Full and accurate account of task, aims and methods of practical work with few errors and/or omissions and none of significance. Where appropriate, sensible speculation, supported by evidence. **Understanding** Thorough grasp of concepts with some critical and/or comparative comment on all observations. Clear evidence of original/innovative thinking. Published work from authoritative sources used extensively and appropriately. Data manipulated and analysed correctly. **Structure, clarity and presentation** Very well organised.	75	Distinction
Excellent answer	*As for 75 but demonstrating an authoritative grasp of concepts with sustained powers of argument, and frequent insights. Virtually no errors or omissions and none of significance.*	*As for 75 but demonstrating an authoritative grasp of concepts with sustained powers of argument, frequent insights and much evidence of original/innovative thinking. Virtually no errors or omissions and none of significance.*	85	Distinction
Outstanding answer	*As for 85 but with strong evidence of independent thinking throughout and no omissions or factual errors.*	*As for 85 but with strong evidence of original/innovative thinking throughout and no omissions or factual errors. Would be of publishable standard with only minor modifications to content.*	95	Distinction
Exceptional answer	**Selection and coverage of material** Exceptional depth of coverage with no identifiable errors or omissions. **Understanding** Exceptional powers of analysis, argument, synthesis and insight. Considerable evidence of extensive wider reading of an appropriate nature. **Structure, clarity and presentation** Flawless.	**Selection and coverage of material** Exceptional depth of coverage with no identifiable errors or omissions. **Understanding** Exceptional powers of analysis, argument, synthesis and insight. **Structure, clarity and presentation** Flawless. Of publishable standard with only amendments in style/formatting required.	100	Distinction

Programme Regulations for Short Courses

These Programme Regulations apply to the short course programme that is related to the MSc degrees, Postgraduate Diplomas and Postgraduate Certificates in Livestock Health and Production and Veterinary Epidemiology and Public Health

1. Introduction

1.1 The University offers individual courses of the MSc degree, Postgraduate Diploma and Postgraduate Certificate in Livestock Health and Production and the MSc degree, Postgraduate Diploma and Postgraduate Certificate in Veterinary Epidemiology and Public Health as credit and non-credit bearing short courses. Shorter stand alone courses which are non-credit bearing are also offered.

1.2 The rules governing this short course programme are given in both these Programme Regulations and the General Regulations for Short Courses that follow.

2. Short course programme of study

2.1 The following are offered as short courses:

35 hour non-credit bearing short courses

- **Introduction to statistics and hypothesis testing [V35 D001]**
- **Statistical aspects of study design and analysis of data [V35 D002]**
- **Principles of veterinary epidemiological investigations and some descriptive epidemiological methods [V35 D003]**
- **Design and analysis of epidemiological investigations – observational studies [V35 D004]**
- **Design and analysis of epidemiological investigations – intervention studies [V35 D005]**
- **Principles of farm animal economic analysis [V35 D006]**
- **Tools for economic analysis [V35 D007]**
- **Use of economic tools in epidemiology [V35 D008]**
- **Sampling in epidemiological investigations [V35 D009]**
- **Diagnostic decision making and making epidemiological disease and information management [V35 D010]**
- **An introduction to risk analysis and risk assessment [V35 F001]**
- **An overview of zoonotic diseases caused by parasites [V35 F002]**
- **An overview of zoonotic diseases caused by bacteria, virus and rickettsia [V35 F003]**
- **Principles of food safety control and antibiotic resistance [V35 F004]**
- **Control of food safety – red meat and poultry [V35 F005]**
- **Control of food safety – eggs, milk and milk products [V35 F006]**
- **Development of a disease control programme – salmonella in pigs [V35 F007]**
- **Development of a disease control programme – bovine TB [V35 F008]**
- **Risk analysis using @RISK software [V35 G001]**
- **Database management at farms [V35 G002]**
- **Welfare issues in systems involving confinement [V35 A003]**
- **Welfare issues in extensive farming systems [V35 A004]**
- **Animal transport and slaughter – critical welfare considerations [V35 A005]**

All the above courses accommodate no less than 35 notional study hours.

50 hour non-credit bearing short courses

- **Advanced risk analysis using @RISK software [V50 100T]**
- **Herd health management [V50 200T]**
- **Animal disease surveillance [V50 300T]**
- **Database management and analysis in animal health surveillance [V50 400T]**
- **Disease modelling [V50 500T]**
- **Introduction to veterinary public health, risk analysis and risk assessment [V50 100U]**
- **Zoonoses of parasitic, bacterial and viral origin [V50 200U]**
- **Principles of food safety control and 'farm to fork' concept [V50 300U]**
- **Control of food safety: red meat, poultry, eggs, milk and milk products [V50 400U]**
- **Development of a disease control programme: salmonella in pigs and bovine [V50 500U]**
- **Introduction to statistics, hypothesis testing, study design and analysis of data [V50 100W]**
- **Principles, methodology and sampling in epidemiological investigations [V50 200W]**
- **Design and analysis of epidemiological investigations – observational and intervention studies [V50 300W]**
- **Quantitative aspects of diagnostic testing and information management in epidemiological investigations [V50 400W]**
- **Tools for economic analysis in epidemiology [V50 500W]**

All the above courses accommodate no less than 50 notional study hours.

50 hour short courses are credit bearing for students with an effective date of registration of 1 September 2010 or before only.

240 hour credit bearing short courses

- **Animal disease (current concepts) [667 0001] (formerly known as Animal disease Part I (current concepts))**
- **Principles of livestock production [667 0002]**
- **Developing and monitoring of livestock production systems [667 0018]**
- **Epidemiology and animal health economics [667 0004]**
- **Veterinary public health [667 0006]**

- **Reproduction and fertility – a species approach [667 0009]**
- **Economics for livestock development and policy [667 0019]**
- **Statistical methods in veterinary epidemiology [667 0012]**
- **Animal welfare [667 0016]**
- **Advanced statistical methods in veterinary epidemiology [667 0013] ***
- **Management of infectious disease outbreaks in animal populations [667 0017]**
- **Research design, management and grant application writing [667 0014]**
- **Surveillance and investigation of animal health [667 0015]**
- **Sustainable Livestock Farming in the Environment [667 0020]**

* Students intending to study this optional module will require access to Arc View 9.0 GIS software, plus the extensions, Spatial Analyst and 3D Analyst. The cost of the GIS software is NOT included in your course fee and you will need to purchase it if you do not have access to it. Please see Programme Regulations Paragraph 8.3 for further information.

All the above courses accommodate no less than 240 notional study hours.

2.2 Students may take any number of short courses, but only **two** relevant 240-hour short courses may be counted as credit towards a Postgraduate Diploma or MSc degree, or one relevant 240 hour short course may be counted towards a Postgraduate Certificate. Students who have successfully completed short courses in excess of these maximums will not be awarded credit in respect of these units (see also General Regulations paragraph 4.7).

2.3 Students will not be awarded related awards retrospectively.

2.4 Not all courses will necessarily be available in every year.

2.5 In addition, as there are limits to the number of students who can be registered for each course in any year, the University cannot guarantee that a student's preferred choice of course will always be available.

2.6 Three of the 240-hour short courses have been broken down into further 50-hour short courses. Please see Schedule A of the Short Course Regulations.

Period of registration

2.7 All students registering for a short course will be registered for a maximum period of **two** years (Short Course General Regulations paragraph 4.1). The minimum period of registration for students taking **240 hour short courses** is **one** year. The **35 hour** and **50 hour short courses** have no minimum period of registration.

2.8 Further information on the period of registration is given in paragraph 4 of the Short Course General Regulations.

3. Progression to the related awards

For students with an effective date of registration of 1 September 2010 or before:

3.1 Students who successfully complete the assessment for one or more of the **50 hour short courses** may be considered for progression to the related **240 hour short course** (see Schedule A).

3.2 All students will be required to complete the examination for the relevant 240 hour short course irrespective of the number of 50 hour short courses previously taken. A transfer fee will be payable.

3.3 There is no **direct** progression to the MSc degree, Postgraduate Diploma or Postgraduate Certificate from the **50 hour** short courses. Students must apply to transfer to a related **240 hour** short course (see paragraphs 3.1 – 3.2). Upon successful completion of the **240 hour** short course, students may apply to transfer to the related MSc degree, Postgraduate Diploma or Postgraduate Certificate (see paragraphs 3.4 – 3.6).

For all students:

3.4 Students who successfully complete the assessment for one or more of the **240 hour short courses** may be considered for progression to the following related awards:

- *Postgraduate Certificate in Livestock Health and Production*
- *Postgraduate Diploma in Livestock Health and Production*
- *MSc degree in Livestock Health and Production*
- *Postgraduate Certificate in Veterinary Epidemiology and Public Health*
- *Postgraduate Diploma in Veterinary Epidemiology and Public Health*
- *MSc degree in Veterinary Epidemiology and Public Health.*

3.5 Students who are permitted to progress may be credited with certain **240 hour short courses** successfully completed (see paragraph 2.2).

3.6 Further rules governing progression to the MSc degrees, Postgraduate Diplomas and Postgraduate Certificates are given in paragraph 3 of the Short Course General Regulations.

3.7 There is **no** progression from **35 hour short courses**.

4. Entrance requirements

35 hour short courses

4.1 There are no formal entrance requirements for 35 hour short courses.

50 hour or **240 hour short courses**

4.2 In order to be eligible to register for a 50 hour or 240 hour short course governed by these Regulations, an applicant must hold a degree or a technical or professional qualification and work experience considered appropriate and relevant by the University.

4.3 In order to be eligible to register for a 50 hour or 240 hour short course governed by these Regulations, an applicant whose first language is not English must provide documentary evidence acceptable to the University that the applicant has, no more than three years prior to the application, either been educated in English (minimum 18 months); or worked in English (minimum 18 months); or passed a test of English proficiency

acceptable to the University of London – for example IELTS with an overall score of 6.5 with a minimum of 6.0 in each sub-test or TOEFL score of 580 (or 237 in the computerised test) plus 4.5 in the Test of Written English (TWE)/Essay rating.

4.4 Students are also required to meet the appropriate computer hardware and software requirements.

4.5 Applicants who do not satisfy these requirements may be considered by the University on an individual basis.

5. Assessment

5.1 Students may choose whether or not to be formally assessed in the **50 hour short courses and credit bearing 240 hour short courses** for which they are registered. Students who choose to be formally assessed will be examined to the same standard as that required by students registered for the related MSc degree, Postgraduate Diploma, or Postgraduate Certificate. **Paragraphs 5.2 to 5.6 apply to all students who wish to be assessed.**

5.2 Each **50 hour** short course will be assessed by a written assignment.

5.3 Each **240 hour** credit bearing short course will be assessed by an assignment and unseen written paper (see paragraph 3.2 for students with an effective date of registration of 1 September 2010 or before who are progressing from a 50 hour short course).

5.4 Examinations by unseen written paper, whenever held, will take place on one occasion each year, normally in October. This applies to **240 hour short courses** only.

5.5 A student taking a **240 hour** short course, who fails to satisfy the Examiners in an examination at the first attempt will be permitted to make **one** further attempt at that examination. The maximum number of attempts permitted at any examination is **two** (Short Course General Regulations, paragraph 6.1), *provided* the student's registration has not expired.

5.6 There is **no formal assessment** for the **35 hour short courses** (see paragraph 1.13 of the Short Course General Regulations). Students may submit a short answer paper for assessment if required. See Schedule C of the Short Course Programme Regulations for the assessment criteria.

Marks

5.7 The overall pass mark for a **50 hour** or **240 hour short course** is 50%.

5.8 Information on assessment criteria and how a mark is achieved for a **50 hour** or **240 hour short course** are given in Schedules C and D of the Programme Regulations for the awards.

6. Fees

6.1 The fees payable to the University in 2011 are as follows:

Fee per short course:	
35 hour short course	£365
50 hour short course	£490
240 hour short course	£1335

For students with an effective date of registration of 1 September 2010 or before:

Transfer fee (*from a 50 hour short course to a 240 hour short course only)*	£855
Examination re-entry fee	£162

(Payable by students who enter an examination on a second occasion, having failed on the first occasion)

6.2 No study materials will be despatched until all fees due have been received.

6.3 The fees above refer to the 2011 year only.

6.4 A fee is normally levied by all examination centres (other than London) and Overseas Examination Centres. This fee is payable by students who choose to be assessed each time they make an examination entry. The University cannot be responsible for this fee, nor can it influence the level of fee charged.

Progression to an award

6.5 When a student progresses from a **240 hour short course** to the related Postgraduate Certificate, Postgraduate Diploma or MSc degree, the following additional fees shall be payable:

- a **registration fee** to register for the Postgraduate Certificate, Postgraduate Diploma or MSc degree in Livestock Health and Production or the Postgraduate Certificate, Postgraduate Diploma and MSc degree in Veterinary Epidemiology and Public Health
- plus the **relevant course fees**.

Refunds

6.6 A refund of the short course fee will be given where the fee has been paid but no study materials have been despatched. Such refund will be subject to a charge determined by the University (currently £50).

Schedule A / 240 hour short courses with the corresponding 50 hour short courses

240 hour short course code	240 hour short course title	50 hour short course code	50 hour short course title
667 0015	Surveillance and investigation of animal health	V50 100T	Advanced risk analysis using @RISK software
667 0015	Surveillance and investigation of animal health	V50 200T	Herd health management
667 0015	Surveillance and investigation of animal health	V50 300T	Animal disease surveillance
667 0015	Surveillance and investigation of animal health	V50 400T	Database management and analysis in animal health surveillance
667 0015	Surveillance and investigation of animal health	V50 500T	Disease modelling
667 0006	Veterinary public health	V50 100U	Introduction to veterinary public health, risk analysis and risk assessment
667 0006	Veterinary public health	V50 200U	Zoonoses of parasitic, bacterial and viral origin
667 0006	Veterinary public health	V50 300U	Principles of food safety and 'farm to fork' concept
667 0006	Veterinary public health	V50 400U	Control of food safety: red meat, poultry, eggs, milk and milk products
667 0006	Veterinary public health	V50 500U	Development of a disease control programme: salmonella in pigs and bovine
667 0004	Epidemiology and animal health economics	V50 100W	Introduction to statistics, hypothesis testing, study design and analysis of data
667 0004	Epidemiology and animal health economics	V50 200W	Principles, methodology and sampling in epidemiological investigations
667 0004	Epidemiology and animal health economics	V50 300W	Design and analysis of epidemiological investigations – observational and intervention studies
667 0004	Epidemiology and animal health economics	V50 400W	Quantitative aspects of diagnostic testing and information management in epidemiological investigation
667 0004	Epidemiology and animal health economics	V50 500W	Tools for economic analysis in epidemiology

Note:

Students with an effective date of registration of 1 September 2010 or before only, may be considered for progression from the above 50 hour short courses to the specified, corresponding 240 hour short course.

Schedule B / Course outlines

35 hour short courses (non-credit bearing)

Animal transport and slaughter – critical welfare considerations [V35 A005]

In this course you will learn about the animal welfare issues involved in the handling, transport, and slaughter of livestock. You will learn about the behavioral principles of animal handling, animal welfare issues that arise during transport and the importance of well-designed and managed pre-slaughter handling systems. At the end of the course you will be able to provide advice on the design and management of facilities for loading and unloading animals, lairages, races, stockyards, and restraint equipment to prevent transport-related animal welfare problems. Implementation of auditing systems to maintain high levels of welfare during transport, handling and slaughter is an essential component of the knowledge gained.
Assessment: short answer paper

An introduction to risk analysis and risk assessment [V35 F001]

Risk analysis is being used increasingly in the arena of veterinary public health, and it is essential that those working in the field should have a basic understanding of the terminology and methods used. This course is designed to give you that basic understanding of risk analysis, with particular emphasis on risk assessment.
Assessment: short answer paper

An overview of zoonotic diseases caused by bacteria, virus and rickettsia [V35 F003]

In this course you will gain an overview of the most important zoonotic bacterial, viral, rickettsial and prion diseases present worldwide. Focusing on some of the diseases that are of major importance to human health, including examples of food-borne zoonotic infections of bacterial origin and newly emerged viral and prion zoonoses, such as transmissible spongiform encephalopathies (TSEs). The significant epidemiological aspects of these zoonotic infections and the difficulties encountered in formulating control measures will also be discussed.
Assessment: short answer paper

An overview of zoonotic diseases caused by parasites [V35 F002]

This course will provide you with a comparative overview of the most important water-borne and food-borne parasitic zoonoses. The course will focus on those diseases that are most prevalent in the human population and the factors responsible for their importance. The reasons governing the emergence or re-emergence, over the last 25 years, of a number of parasitic zoonoses will also be analysed.
Assessment: short answer paper

Control of food safety – eggs, milk and milk products [V35 F006]

This course will enable you to understand the importance of contaminated shell eggs, and products derived from them, as vehicles for human infection, principally that caused by salmonella enterica serovar enteritidis. The course also provides information on how salmonella enteritidis contaminates eggs and the control measures that can be introduced to prevent human infection. In the second part the infections of public health significance that may be transmitted to the human population via milk and milk products are described. Measures that need to be taken to ensure clean, hygienic and safe production of milk and milk products are outlined.
Assessment: short answer paper

Control of food safety – red meat and poultry [V35 F005]

This course is concerned primarily with microbiological aspects of red and poultry meat production. Methods to reduce microbiological contamination throughout the entire production chain of meat, including slaughter, preparation of fresh meat, cutting, packaging, storage and supply to the consumer, are outlined. Control systems such as good manufacturing practice (GMP) and hazard analysis critical control points (HACCP) are important procedures in the production of safe meat and these techniques are reviewed in the course.
Assessment: short answer paper

Database management at farms [V35 G002]

Data is meaningless unless it can be analysed to obtain information. Data analysis requires methodically organised data in a carefully designed system that can be used for statistical analysis. A properly organised system is also important to update and retrieve data as and when necessary. In this course you will learn what database management means and how computer software can be used to interrogate and handle databases to gain meaningful information from them. You will become acquainted with some of the technical language used to describe databases, and you will gain an understanding of the important points to consider in designing databases.
Assessment: short answer paper

Design and analysis of epidemiological investigations – observational studies [V35 D004]

This course will introduce you to observational studies that are conducted on populations. Some important observational studies will be presented and their weaknesses and strengths discussed. The course will demonstrate techniques for measuring association between disease and risk factors from these studies. You will learn about the subtle but important differences between the measures of association and the most suitable application for each measure. The statistical tests most frequently used for observational studies will be presented. The problems of study design and bias, and the effect of interaction between variables will be discussed in relation to measurement of risk.
Assessment: short answer paper

Design and analysis of epidemiological investigations – intervention studies [V35 D005]

This course will give you a good introduction to intervention studies, often also called ‘clinical trials’ or ‘experimental studies’. You will learn why and how intervention studies are

used, and with what objectives. The course will discuss specific design requirements for these studies and the measures of association
between disease and intervention that are employed in clinical trials. The strengths and weaknesses of these studies will be presented and the statistical testing requirements for clinical trials discussed.
Assessment: short answer paper

Development of a disease control programme – bovine TB [V35 F008]

This course will provide an overview of bovine tuberculosis (TB) control, a classic example of veterinary public health in action. It will summarise past and present approaches to controlling the disease and indicate their strengths and weaknesses. The example of bovine TB in Great Britain will be used extensively to illustrate the possible elements of a disease eradication programme and the types of problem that you may meet. This information will enable you to develop your own strategies for combating similar chronic farm animal diseases.
Assessment: short answer paper

Development of a disease control programme – salmonella in pigs [V35 F007]

Using the example of salmonella infection in the Danish pig industry, this course will explain the epidemiological basis for establishing disease control programmes and the use of epidemiology to improve our understanding of a disease within such a programme. The dynamics of disease control/eradication and the interactions between diagnostic laboratories and the disease control programme are described in detail.
Assessment: short answer paper

Diagnostic decision making and epidemiological disease and information management [V35 D010]

This course will introduce you to diagnostic decision-making, a process which most clinicians deal with by combining factual knowledge, experience and intuition. The application of epidemiology to the improvement of livestock health and production requires responsible management of disease information. From collecting data on milk production from a single dairy farm to using country-wide disease data to determine national livestock import policies, careful and appropriate data management is essential. This course will introduce you to the types of data you might encounter, methods of collecting and storing those data, and some of the many epidemiological tools available to extract as much information as possible for production and disease management decisions.
Assessment: short answer paper

Introduction to statistics and hypothesis testing [V35 D001]

Statistics, narrowly defined, is the skill of data manipulation and analysis. Although statistics is based on mathematical theory, the level of maths involved in this course is relatively simple. The course sets out to introduce the role of statistics in veterinary and animal health statistics and introduce the language and basic theory of probability and explain its relevance in statistics. You will also learn about the concepts of sampling from a population, principles of hypothesis testing and see how to test a hypothesis using chi-square and t-tests.
Assessment: short answer paper

Principles of farm animal economic analysis [V35 D006]

This course on farm animal health economics will provide you with an introduction to the role that economics plays in decision making in the field of animal health. You will start by looking at the sorts of issues that might be involved, and the different perspectives from which issues can be considered. You will then go on to learn about important concepts used in animal health economics before preparing for the practical work in the course by reading about the tools used by animal health economists. The final part is a very practical session which will take you through the steps involved in calculating the output of livestock enterprises.
Assessment: short answer paper

Principles of food safety control and antibiotic resistance [V35 F004]

Throughout the world, food-borne human illness is increasing and is mainly associated with foods of animal origin. This course outlines the typical food safety hazards and identifies areas that can be monitored to increase safe production of food. In the second part of the course an overview of the controversial subject of the veterinary use of antibiotics, the associated problem of antibiotic resistance and the implications for public health are discussed. The course will provide you with the necessary tools to make an objective judgement of this topic.
Assessment: short answer paper

Principles of veterinary epidemiological investigations and some descriptive epidemiological methods [V35 D003]

This course will provide an introduction to veterinary epidemiology together with an overview of the history and current state of this field. It will introduce the concept of disease occurrence as a complex interaction between host, agent and environmental factors and present descriptive epidemiology as a means of summarising disease within a population. Finally the techniques of descriptive data analysis and data summary will be demonstrated using examples of analytical techniques from animal health studies.
Assessment: short answer paper

Risk analysis using @RISK software [V35 G001]

It takes many years of practice to become a fully trained quantitative risk assessor; this course is not designed to bring you to that level of competence. The aim instead is to familiarise you with the methodology and provide a good grounding in the main skills, on which you can build in practice. The course will demonstrate how you can use the probability theory to build a simple quantitative model. To do this you will be working with a software package called @RISK.
Assessment: short answer paper

Sampling in epidemiological investigations [V35 D009]

This course will examine the technique of making inferences about large populations on the basis of examination of a sample. You will learn about the techniques required for the effective sampling of populations and examine the statistical assumptions that underpin sampling theory. Possible sources of error in the process will also be discussed. The course emphasises the practical use of sampling theory to answer epidemiological questions, giving examples of how sampling techniques may be used effectively in epidemiological investigations.
Assessment: short answer paper

Statistical aspects of study design and analysis of data [V35 D002]

Statistical skills involve knowing how to design your study, collect and analyse the data and draw conclusions from the results. In this course you will learn about the underlying concepts of study design, including the basic principles of optimal sample size estimation. The course will then move on to introduce simple linear correlation and regression, which are concerned with investigating the joint relationship between two variables. You will complete the course by learning about some simple nonparametric methods of analysis.
Assessment: short answer paper

Tools for economic analysis [V35 D007]

This course concentrates on the methodologies used for decision making in the field of animal health and production. The emphasis will be to explain the basic principles involved and will enable you to familiarise yourself with the techniques of partial and benefit-cost analysis through a series of exercises. The course will also provide you with knowledge to critically assess work done by others. Finally the course will present some of the economic tools that can be used to analyse the risk and uncertainty associated with livestock production.
Assessment: short answer paper

Use of economic tools in epidemiology [V35 D008]

This course will present some examples of how economic tools can be applied to analyse diseases and also exercises to provide practice and build confidence in the use of these tools. You are not expected to carry out the complete analysis, but are expected to interpret results or output from economic tools. By the end of this course you will be able to assess livestock disease control decisions at farm and project level. (Note: in order to study this course you should first complete the course on *Tools for economic analysis*.)
Assessment: short answer paper

Welfare issues in extensive farming systems [V35 A004]

The welfare of extensively farmed animals is influenced by a number of characteristic factors, such as climate, food availability, handling, parasites, predators, etc. Uniquely, these factors interact in a complex way to ensure there are no simple answers to questions of animal welfare. The six sections in this course will help you to understand the complex interplay between the different factors and will provide insights into interpreting the dilemmas they bring.
Assessment: short answer paper

Welfare issues in systems involving confinement [V35 A003]

Intensive farming systems have reduced production costs and maximised outputs but have led to many animal welfare issues. Confinement of animals to smaller spaces leads to many psychological, behavioural and physical problems. Today these issues are debated and scientists and agricultural engineers have worked together to produce enclosures and environments which better meet the needs of animals. This course will explore these issues in detail and you will gain a better understanding of the economic and political ramifications that may be involved in improving husbandry systems.
Assessment: short answer paper

50 hour short courses (non-credit bearing)

(Credit bearing for students with an effective date of registration of 1 September 2010 or before only)

Advanced risk analysis using @RISK software [V50 100T]

Risk analysis is being used increasingly in animal health, particularly in relation to trade. It therefore has become essential for people working in animal health policy to have a basic understanding of the terminology and methods used in risk assessment. This course aims to give you that basic understanding, with particular emphasis on qualitative and quantitative risk assessment. The final part of the course explores quantitative risk analysis and demonstrates how you can use the frameworks and probability theory to build a simple quantitative model. To do this you will be working with a software package called @RISK.
Assessment: one written assignment

Animal disease surveillance [V50 300T]

Animal disease surveillance is one of the key functions of animal health services. It has become more important in the last twenty years with the increasing concern for food safety and the emergence of new and exotic diseases, along with the traditional role of measuring disease and monitoring the control of endemic diseases. The evaluation of surveillance is another integral part of any system and must be considered at design stage. This course will introduce you to the principles of disease control, the components of such programmes and their implementation and evaluation, focused on infectious diseases. The detailed description of the traditional disease control strategies will provide you with a deep understanding of the complexity of the decision-making process and how epidemiological tools can help in the control and eradication of animal diseases at regional and national level.
Assessment: one written assignment

Control of food safety: red meat, poultry, eggs, milk and milk products [V50 400U]

This course is concerned primarily with microbiological aspects of food safety in the production of red and poultry meat, eggs, milk and milk products. Methods to reduce microbiological contamination in meat during the entire production chain, from farm to slaughterhouse to to the retail outlet, are discussed. The course also enables students to understand the importance of contaminated shell eggs, and products derived from them, as vehicles for human infection, principally that caused by salmonella enterica serovar enteritidis. In the final part of the course infections that may be transmitted to the human population via milk and milk products and methods to reduce such contamination are described.
Assessment: one written assignment

Database management and analysis in animal health surveillance [V50 400T]

In epidemiological investigations and disease surveillance, data is collected to describe patterns of disease or production measurements, or to investigate relationships between risk factors and outcome variables such as disease using statistical methods. In this course you will be introduced to different methods for organising your data in a database and how to extract tailored information from a database using queries. You will learn how to transfer data between database management systems, and how to manipulate data more efficiently by writing simple programmes to perform complex data queries that are not provided by standard database software.
Assessment: one written assignment

Design and analysis of epidemiological investigations – observational and intervention studies [V50 300W]

This course will introduce you to observational and intervention studies that are conducted on populations. The course will demonstrate techniques for measuring association between disease and risk factors from these studies. You will learn about the subtle but important differences between the measures of association and the most suitable application for each measure. The strengths and weaknesses of these studies will be presented and the statistical testing requirements will be discussed.
Assessment: one written assignment

Development of a disease control programme: salmonella in pigs and bovine TB [V50 500U]

This course will allow you to analyse two examples of national disease control programmes in veterinary public health, namely the salmonella control programme in pig herds in Denmark and the tuberculosis control programme of cattle in the UK. Examples from these two programmes will be used extensively to illustrate the important elements of a disease eradication programme. At the end of this course you will be encouraged to develop your own strategies for combating similar chronic farm animal diseases.
Assessment: one written assignment

Disease modelling [V50 500T]

Simulation models have become an important component of decision making in relation to control of infectious diseases, as had been demonstrated during recent epidemics of FMD and SARS. Models provide the facility to examine 'what if' questions regarding contemplated management choices in the context of current disease control and herd production performance. They also provide a mechanism for generating hypotheses about the important components of an epidemiological system. The course represents an introduction to the concepts of deterministic and stochastic disease modelling.
Assessment: one written assignment

Herd health management [V50 200T]

The management of information that relates to production, animal health, reproduction and financial records is the foundation of food animal production-oriented health programs. Good information allows managers to make appropriate decisions for the day-to-day operation of their farms, identify shortfalls in performance, and to monitor the effectiveness of interventions. This course will introduce you to herd health programmes and describe the economic principles which should be applied in the design and delivery of these programmes. The programmes that operate in dairy cattle herds, sheep flocks, pig herds and poultry flocks are explored with examples. In the last part of the course the role of computers in herd health management are described in detail, using the CamDairy software package, which is designed to manage dairy farms as an example.
Assessment: one written assignment

Introduction to statistics, hypothesis testing, study design and analysis of data [V50 100W]

This course is designed to explain the basic concepts of statistics and provide a basic introduction to statistical analysis in veterinary and animal health fields. You will also learn about the principles of hypothesis testing, concepts of sampling, study design and parametric and nonparametric methods of data analysis. It is assumed that you have not previously attended any statistics courses, so that the whole subject of statistical analysis is new to you.
Assessment: one written assignment

Introduction to veterinary public health, risk analysis and risk assessment [V50 100U]

In this course the diverse nature of Veterinary Public Health (VPH) is explored and your perceptions of what constitutes VPH are challenged. This introductory course to VPH will introduce you to the concept that food can constitute a hazard to human health, and will show you how to measure the risk to consumer health. It is aimed to give a basic understanding of risk analysis, with particular emphasis on qualitative and quantitative risk assessment.
Assessment: one written assignment

Principles, methodology and sampling in epidemiological investigations [V50 200W]

This course is intended to provide you with an overview of the scope of modern epidemiology and to introduce the basic concepts of epidemiological investigations. The course will introduce methods for describing the frequency of disease occurrence in animal populations, including risks and rates. During the course you will examine the technique of making inferences about large populations on the basis of examination of a sample. You will learn about the techniques required for the effective sampling of populations and examine the statistical assumptions that underpin sampling theory. The course emphasises the practical use of sampling theory to answer epidemiological questions, giving examples of how sampling techniques may be used effectively in epidemiological investigations.
Assessment: one written assignment

Principles of food safety control and 'farm to fork' concept [V50 300U]

This course will introduce the concept that foods can be hazardous and examines how to control food safety hazards throughout the chain of production, storage and distribution. Suitable control measures to avoid food poisoning bacteria and viruses that may contaminate ready-to-eat food are also identified. In the second part of the course an overview of the controversial subject of the veterinary use of antibiotics, the associated problem of antibiotic resistance, and the implications for public health is discussed. The course will provide you with the necessary tools to make an objective judgement of this topic.
Assessment: one written assignment

Quantitative aspects of diagnostic testing and information management in epidemiological investigations [V50 400W]

This course will introduce you to the quantitative aspects of interpreting the results of diagnostic tests. It adds an important dimension to diagnostic decision-making. The course will introduce you to the types of data you might encounter, methods of collecting and storing those data, and some of the many epidemiological tools available to extract as much information as possible for production and disease management decisions.
Assessment: one written assignment

Tools for economic analysis in epidemiology [V50 500W]

This course will introduce the principles of economic analysis and a number of tools used to aid decision-making in the field of animal health economics. This is a very practical module, throughout which you will learn how to use the tools in a number of activities and case studies at the same time as gaining an appreciation of the issues involved so as to be able to critically review the work of others. It is assumed that you have not previously studied animal health economics, so that the whole subject is new to you.
Assessment: one written assignment

Zoonoses of parasitic, bacterial and viral origin [V50 200U]

This course will provide an overview of some major zoonotic diseases, their epidemiology and their control. It considers some emerging and re-emerging zoonoses that are of importance to human health. The course is subdivided to allow separate coverage of parasites, bacteria, and finally viruses, rickettsia and prions.
Assessment: one written assignment

240 Hour short courses (credit bearing)

Advanced statistical methods in veterinary epidemiology [667 0013]

Prerequisites: Statistical methods in veterinary epidemiology [667 0012]

Students intending to study this optional module will require access to Arc View 9.0 GIS software, plus the extensions, Spatial Analyst and 3D Analyst. The cost of the GIS software is NOT included in your course fee and you will need to purchase it if you do not have access to it. Please see Regulations 8.3 for further information.

This course will provide an introduction to advanced methods of statistical modelling of epidemiological data.
Subject areas:

- analysis of spatial data
- modelling of production data
- advanced aspects of multivariable regression analysis
- analysis of correlated data; meta-analysis and systematic reviews

Assessment: one three-hour unseen written paper containing essay and/or short answer questions (80%) and a written assignment (20%).

Animal disease (current concepts) [667 0001]

(formerly Animal disease Part I (current concepts))

This course will enable the student to appreciate the external and internal components of health-agents of disease and how animals respond to them, at an individual and population level.
Subject areas:

- Immunology
- Parasitology
- Microbiology
- Introduction to veterinary epidemiology
- Principles of veterinary pathology

Assessment: one three-hour unseen written paper containing essay and/or short answer questions (80%) and a written assignment (20%).

Animal welfare [667 0016]

This course will provide a comprehensive appreciation of welfare and ethical issues connected with farm animal practice, animal breeding, transport and slaughter, companion animals, laboratory animals, animals used in competition and wildlife.
Subject areas:

- An introduction to veterinary ethics; the physiology of pain, distress, fear and anxiety
- The effects of genetics on animal welfare
- Specific welfare issues in companion, farmed, laboratory, wild and competitive animals
- Welfare issues in animal husbandry systems transport and slaughter

Assessment: one three-hour unseen written paper containing essay and/or short answer questions (80%) and a written assignment (20%).

Developing and monitoring of livestock production systems [667 0018]

This course will adopt a farming systems approach to permit the student to place livestock production within the context of the utilisation of resources. This will allow a critical consideration of appropriate husbandry for different animals in diverse environmental and socio-economic conditions.
Subject areas:

- An introduction to farming systems
- Details of major livestock production systems
- Developing and monitoring of functioning livestock systems with farmers, including organic farming
- Environmental, welfare and breeding issues in sustainable livestock husbandry

Assessment: one three-hour unseen written paper containing essay and/or short answer questions (80%) and a written assignment (20%).

Economics for livestock development and policy [667 0019]

The objectives of this course are to stimulate awareness of the socio-economic, political and environmental issues that will affect future livestock development and to provide the tools to

analyse the issues confronting producers, their advisers, planners and policy makers.
Subject areas:

- Basic concepts of the economics of livestock production
- Extensive, medium intensity and intensive systems of livestock production
- Marketing and policy
- Further economics for the analysis of livestock development
- Tools for livestock economists

Assessment: one three-hour unseen written paper containing essay and/or short answer questions (80%) and a written assignment (20%).

Epidemiology and animal health economics [667 0004]

This course will enable students to understand the role of epidemiology and economics in the design and delivery of effective veterinary services aimed at improved animal health and productivity.
Subject areas:

- Introduction to statistics
- Introduction to veterinary epidemiology – basic principles, descriptive epidemiology, study design, sampling, quantitative aspects of diagnostic testing
- Animal health economics – principles, partial budgets, decision tree analysis, cost benefit ratio, economics and project planning.

Assessment: one three-hour unseen written paper containing essay and/or short answer questions (80%) and a written assignment (20%).

Management of infectious disease outbreaks in animal populations [667 0017]

This course will provide both the theoretical and practical information required for the management of a major infectious disease outbreak of farm animals.
Subject areas:

- Epidemiology of infectious viral diseases
- Risk and cost-benefit analysis
- Surveillance
- Diagnosis and vaccination strategies before and during an outbreak
- Contingency planning and case studies are used to illustrate how disease outbreaks could be better managed.

Assessment: one three-hour unseen written paper containing essay and/or short answer questions (80%) and a written assignment (20%)

Principles of livestock production [667 0002]

This course will enable the student to understand how feeding, breeding, management and interaction with the environment influence animal production and disease.
Subject areas:

- General principles of nutrition
- Specialised areas of nutrition. Students will select 3 of the following options:
  Feeding dairy cows
  Feeding dual purpose, beef and draught cattle
  Feeding sheep and goats
  Pig nutrition
  Poultry nutrition
- Nutrition of horses, camelids & rabbits

In all the above cases, consideration will be given to the different resources available in temperate and tropical/subtropical regions.

- Environmental studies, including climatic effects and housing
- Genetics
- The physiology of growth and lactation; the relevance of reproduction on livestock production.

Assessment: one three-hour unseen written paper containing essay and/or short answer questions (80%) and a written assignment (20%).

Reproduction and fertility – a species approach [667 0009]

This course will enable students to gain a comprehensive insight into the physiology of reproduction and the management and manipulation of fertility to optimise animal productivity.
Subject areas:

- General principles of reproduction
- Introduction to reproductive anatomy and physiology
- Control of breeding
- Fertilisation, conception and pregnancy
- Reproductive disorders and disease

Embryo transfer and assisted reproduction
Reproduction management
Students will be required to specialise in three of the following: cattle, small ruminants, pigs, camelids, rabbits and poultry, equids.
Assessment: one three-hour unseen written paper containing essay and/or short answer questions (80%) and a written assignment (20%).

Research design, management and grant application writing [667 0014]

This course will enable students to undertake a research project, with an appropriate study design to validate a hypothesis and analyse the data, including the presentation of results and writing a grant application.
Subject areas:

- Introduction to scientific research and how to formulate a hypothesis
- Literature search, critical analysis of papers and writing a scientific review
- Experimental and statistical design in project planning;
- Project management
- Preparing data for analysis - qualitative data, quantitative data; statistical analysis and analysing the validity of findings
- Report writing, presentation of data and writing a scientific paper
- Introduction to grant application writing, planning the project and budget
- Guidelines to writing a good grant proposal

Assessment: one three-hour unseen written paper containing essay and/or short answer questions (80%) and a written assignment (20%).

Statistical methods in veterinary epidemiology [667 0012]

The objectives of this course are to introduce statistical methods used in veterinary epidemiology to enable the students to conduct multi-variable analysis and statistical modelling of epidemiological data.
Subject areas:

- Introduction to measures of effect

- Analysis of cohort studies and case-control studies
- Likelihood, Multivariable analysis and statistical modelling
- Simple logistic model, Logistic regression, Poisson regression and Cox regression.

Assessment: one three-hour unseen written paper containing essay and/or short answer questions (80%) and a written assignment (20%).

Surveillance and investigation of animal health [667 0015]

This course will provide in-depth knowledge of qualitative and quantitative risk analysis, animal health surveillance programmes and introduce students to disease modelling.

Subject areas:

- Qualitative and quantitative risk analysis
- Design and evaluation of animal health surveillance and control programmes involving multiple herds
- Disease control methods involving multiple herds
- Farm-level animal disease and production surveillance
- Disease modelling using Deterministic and Stochastic modelling.

Assessment: one three-hour unseen written paper containing essay and/or short answer questions (80%) and a written assignment (20%).

Sustainable livestock farming in the environment [667 0020]

This new course aims to provide an understanding of the threats presented by changes in the environment on livestock production and wildlife population, and explains the ways in which global and regional environmental change can impact on sustainability of farming systems, conservation of ecosystems and animal health. It will outline approaches that can be used to minimise unwanted environmental impacts of modern farming and land use systems, as well as consider the values academics, researchers, veterinarians and livestock specialists attach to the environment and to conservation issues. The course will also guide students in the approach they take in future when considering animal–environment interactions.

Assessment: one three-hour unseen written paper containing essay and/or short answer questions (80%) and a written assignment (20%).

Veterinary public health [667 0006]

The course will examine the role of veterinarians and other related professionals in the protection of human health through the safe production of foods of animal origin, control of zoonotic disease and environmental contamination.

Subject areas:

- Disease surveillance recording and risk analysis
- Zoonoses and their control
- Disseminating information on veterinary public health
- Quality and safety assurance in food production (meat, milk and eggs)
- Development of disease control programmes

Assessment: one three-hour unseen written paper containing essay and/or short answer questions (80%) and a written assignment (20%).

Schedule C/ Assessment criteria

The assessment criteria for the 240 hour and 50 hour short courses is given in Schedule D of the Programme Regulations.

A short answer paper assessment for the 35 hour short courses will be marked out of 10 according to the following scheme:

Mark out of 10 (Tutor marked assignment)	Descriptor	Factual information and integration of knowledge	Understanding of concepts and critical ability	Presentation
10	Perfect	Factually flawless; excellent integration of knowledge	Full understanding; excellent critical ability	Excellent style and expression
9	Almost perfect	Factually, almost flawless; good integration of knowledge	Full understanding; good critical ability	Excellent style and presentation
8	Excellent: Distinction standard	Relevant factually information well covered and weighted appropriately; good integration of knowledge	Good understanding; good critical ability	Style and expression very good
7	Very Good: Merit Standard	Relevant factually information well covered; some integration of knowledge	Good understanding, good critical ability	Style and expression good
6	Convincing pass	Sufficient relevant factual information but lacking in depth; little or no integration of knowledge	Some understanding; moderate critical ability	Style and expression generally good
5	Minimum Adequate	Barely sufficient relevant factual information; no integration of knowledge	Some understanding; some critical ability	Style and expression adequate
4	Definite, but not bad failure	Some relevant factual information but lacking in breadth and/or depth; no integration of knowledge	Some limited understanding; no critical ability	Style and expression poor
3	Bad failure	Considerable defects in relevant factual information; no integration of knowledge	Considerable defects in understanding but not totally lacking; no critical ability	Style and expression very poor
2	Very bad failure	Only a few correct pieces of relevant factual information	Very little (or no) understanding; no critical ability	Style and expression terrible
1	Almost no competent response	At most, one or two pieces of relevant factual information	None	Not relevant
0	Not submitted/no answer	No relevant factual information	None	Not relevant