



**UCD School of Agriculture, Food Science
& Veterinary Medicine**

UCD Veterinary Sciences Centre,
University College Dublin,
Belfield, Dublin 4, Ireland

www.ucd.ie/vetmed

**Scoil na Talmhaíochta, Eolaíocht
an Chothaithe agus an Leighis
Tréidliachta UCD**

Ionad Eolaíocht Tréidliachta UCD,
An Coláiste Ollscoile, Baile Átha Cliath,
Belfield, Baile Átha Cliath 4, Eire

University College Dublin

Self Study Report

*VCJ/EAEVE Accreditation Site Visit to UCD
11-15 October 2010*



TABLE OF CONTENTS

EXECUTIVE SUMMARY	III
MAIN INDICATORS	V
TEACHING STAFF	VI
INTRODUCTION	VIII
Chapters:	
1. Objectives	1
2. Organisation	5
3. Finances	9
4. Curriculum	12
5. Teaching Quality and Evaluation	21
6. Facilities and Equipment	32
7. Animals and Teaching Materials	37
8. Library and Learning Resources	42
9. Admission and Enrolment	46
10. Academic and Support Staff	50
11. Continuing Education	53
12. Graduate Education	54
13. Research	56
14. Extra-Mural Studies	59

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EXECUTIVE SUMMARY AND MAIN INDICATORS

UCD is the only establishment on the Island of Ireland that provides a programme allowing graduates to register as veterinary practitioners. The UCD veterinary school also provides education programmes for veterinary nurses, veterinary scientists and veterinary specialists at 3rd and 4th level, and through continuing professional development. Research and clinical service provision underpin this educational mission.

The organizational environment in which these activities operate has gone through considerable change over the last five years. A further refinement of current structures in 2010/2011 will enhance the opportunities for all staff to contribute to strategic development.

The revenue required to provide veterinary education comes from both exchequer and non-exchequer sources. The former is allocated by the Higher Education Authority (HEA). The amount of HEA funding per veterinary student is not adequate in itself to support the programme, and increasing attention is given to augmenting this with other sources of revenue. Non-exchequer income comes largely from fee-paying students and from clinical services. The amount of fee income from international students has increased over the last two years. Plans for strategic development of clinical services aim to increase income from this source also.

The curriculum provides students with the essential core skills and knowledge required for *entry* to any branch of the veterinary profession. Students are reminded of their responsibility for life-long learning. The programme provides opportunities for acquisition of generic skills in communications, problem-solving and information management as well as specific clinical competences. The final year of the programme is lecture-free and spent on rotation at UCD Veterinary Hospital and other locations.

Student feedback on all modules and stages is collected, and the University provides significant opportunities for staff development in teaching and learning. Teaching excellence is a criterion for promotion of academic staff. The addition of an educational support specialist to the staff provides a considerable advantage in curriculum design and teaching innovation. Student welfare is given a high priority.

The facilities are purpose-designed and were commissioned in 2002. They include a Hospital building with facilities for both large and small animals and an academic building. Farm animal handling and teaching facilities are available at the UCD Research Farm in Co. Kildare. As the school is situated on the main UCD campus there is a wide range of other facilities, both academic and non-academic, available to students. The buildings and equipment are currently in good condition but investment in equipment will be required in the coming years.

Students have extensive contact with animals and materials of animal origin throughout the programme. In the early stages, cadavers and organs for dissection are provided, and animal handling practicals are conducted at both the research farm and the hospital. In the middle years necropsy and biopsy material is studied and cadaver practicals used in surgical teaching. In veterinary public health modules, students travel to abattoirs and processing plants as well as examining relevant specimens/samples on site. The final year is entirely clinical, using patients at UCD Veterinary Hospital, Herd Health visits, and partner organizations. EMS is a requirement throughout the programme.

A comprehensive veterinary library is situated in the academic building. Other libraries right across the UCD campus are also available to students and staff. More and more library resources are available electronically, both on campus and off.

There is a developing continuing education strategy. Staff are extensively involved in speaking at continuing education events nationally and internationally. A portfolio of blended-learning programmes for continuing education, including both formal UCD graduate offerings, and “micro-offerings” is developing and this will become an increasingly important part of the education landscape of the school.

Graduate education encompasses PhD programmes and residency training, in addition to the taught programmes above. A number of thematic PhD programmes involve staff members. A professional doctorate programme that will facilitate integration of residency programmes with the graduate education

structures of the University is planned.

The number of applications from school leavers for the veterinary medicine programme is greatly in excess of the number of places available. Schools leavers are selected on the basis of academic achievement at 2nd level. There is an awareness of the desirability of broadening these entry criteria, but the national context needs to be taken into consideration. Separate entry pathways are provided for graduates, and for fee-paying international students. Attrition rates are very low and the vast majority of students complete the programme.

The academic staff body is international, with a number of clinical specialties and research areas represented. Academic staff numbers will need to increase given the greater student numbers from 2009-2013, and this has been taken into account in strategic planning. The current economic circumstances mean that staff replacement must be accompanied by a comprehensive business case. Recruitment in some specialized clinical areas can be difficult, due to competition from other schools and from the private sector. Promotional prospects for clinical staff need to be improved.

UCD is a research-intensive University and the veterinary sciences scored extremely well, in comparison to other disciplines, in a recent bibliometric analysis of research outputs. Students benefit from being taught by research-active staff, with examples from current research being used to illustrate teaching. Students also have opportunities to undertake research placements, attend research summer schools, and are required to demonstrate an appreciation of research methodology.

Extra-mural studies, (EMS) both pre-clinical and clinical, form an integral part of the curriculum and are awarded ECTS credits. Students discuss learning objectives with placement supervisors, and feedback is collected and monitored. A review of EMS is underway and will take into account the findings of an RCVS review as well as developments in other schools.

Main Indicators

Ratio	Numerator:Denominator	1:Denominator	Indicative Range
R1 Academic FTE: Vet students	63:448	7.1	R1 8.85-10.42
R2 Total School Staff FTE: Vet students	n/a	n/a	n/a
R3 Staff Vet FTE: Vet Students	38:448	11.78	R3 10.62-12.62
R4 Staff Vet FTE: Annual Vet Graduates	38:79	2.07	R4 4.91-7.21
R5 Academic FTE: Support FTE	63:76	1.20	R5 0.53-2.20
R6 Theoretical: Supervised Practical Education	1893:1360	0.72	R6 0.51-0.36
R7 Clinical: Supervised Practical Education	682:1362	1.99	R7 1.88-2.21
R8 Directed Learning: Teaching Load	482:2758	5.72	R8 0.51-7.87
R9 Curriculum Hours VPH: Total Curriculum	73:3183	43.6	R9 Still open
R10 Curriculum Hours VPH: VPH EMS	73:40	0.55	R10 Still open
R11 Annual Graduates: Food Producing Animals Seen at School	79:297	3.75	R11 2.47-1.73
R12 Annual Graduates: Individual Food Producing Animals Seen Outside	n/a	n/a	R12 0.51-7.87
R13 Annual Graduates: Herd Health Visits	79:180	2.27	R13 0.20-0.09
R14 Annual Graduates: Equine Cases	79:638	8.08	R14 1.78-0.92
R15 Annual Graduates: Poultry/Rabbit Cases	79:30	0.38	R15 0.58-0.37
R16 Annual Graduates: Companion Animal cases	79:4856	61.46	R16 48.74-37.94
R17 Annual Graduates: Poultry/Rabbit production units	n/a	n/a	n/a
R18 Annual Graduates: Equine & Food Animal Necropsies	79:220	2.78	R18 0.75-0.46
R19 Annual Graduates: Poultry/Rabbit Necropsies	79:35	0.44	R19 0.26-0.12
R18 Annual Graduates: Companion Animal Necropsies	79:116	1.48	R20 1.26-0.89

List of Current Teaching Staff (Academics, Residents, Interns)

Academics – Veterinary Sciences

Name	Veterinary Degree	Teaching Area
Prof Alan Baird	No	Physiology and Biochemistry
Dr. Hugh Bassett	Yes	Pathology
Prof David Brayden	No	Pharmacology
Prof Sean Callanan	Yes	Pathology
Prof Steve Carrington	Yes	Anatomy
Dr. Joe Cassidy	Yes	Pathology
Dr. Theo de Waal	Yes	Parasitology
Dr. Mick Dore	Yes	Anatomy
Prof. Stephen Gordon	No	Microbiology
Dr. Clare Hamilton	No	Parasitology, Immunology
Mr. George Hilton	Yes	Anatomy
Dr. Jane Irwin	No	Biochemistry
Dr. Hanne Jahns	Yes	Pathology
Mr. David Kilroy	Yes	Anatomy
Dr. Nola Leonard	Yes	Microbiology
Dr. Bryan Markey	Yes	Microbiology
Prof. Grace Mulcahy	Yes	Parasitology, Immunology
Dr. Evelyn Murphy	Yes	Cell Biology, Biochemistry
Dr. Jarlath Nally	Yes	Microbiology
Dr. Peter O'Brien	Yes	Clinical Pathology
Dr. Colm Reid	No	Anatomy
Prof. Torres Sweeney	No	Molecular and Cell Biology, Animal Husbandry

Academics – Herd Health and Animal Husbandry

Name	Veterinary Degree	Teaching Area
Dr. Marijke Beltman	Yes	Reproduction, Farm Animal Clinical Studies
Dr. Deirdre Campion	Yes	Physiology, Professional Matters
Prof. Mark Crowe	No	Animal Husbandry, Reproduction
Prof. Michael Doherty	Yes	Farm Animal Clinical Studies, Herd Health
Prof Shea Fanning	No	Food Safety, Veterinary Public Health
Mr. Vivian Gath	Yes	Animal Husbandry, Communications
Dr. Alison Hanlon	No	Animal Welfare and Ethics, Animal Behaviour
Dr. Ingrid Lorenz	Yes	Farm Animal Clinical Studies, Herd Health
Prof. Simon More	Yes	Epidemiology, Herd Health
Dr. Finbar Mulligan	No	Animal Health and Husbandry
Mr. Luke O'Grady	Yes	Farm Animal Clinical Studies, Herd Health
Dr. Paul Whyte	Yes	Food Safety, Veterinary Public Health

Academics – Veterinary Clinical Sciences

Name	Veterinary Degree	Teaching Area
Dr. Tom Barragry	Yes	Pharmacology and Therapeutics
Ms. Rachel Bennett	Yes	Anaesthesiology
Dr. Fabrice Bernard	Yes	Small Animal Surgery
Prof Pieter Brama	Yes	Equine/Large Animal Surgery
Dr. Rory Breathnach	Yes	Small Animal Medicine
Dr. Sheila Brennan	Yes	Small Animal Medicine
Dr. Florent David	Yes	Equine/Large Animal Surgery
Dr. Angela Drainville	Yes	Veterinary Nursing
Dr. Vivienne Duggan	Yes	Equine Medicine, Reproduction
Dr. Andrea Dwane	Yes	Veterinary Nursing
Ms. Pamela Gillick	No (Registered Veterinary Nurse)	Veterinary Nursing/Communications
Dr. Olwen Golden	Yes	Veterinary Nursing
Mrs. Lynne Hughes	Yes	Anaesthesiology
Dr. Florian Jenner	Yes	Equine Medicine
Dr. Lisa Katz	Yes	Equine Medicine, Physiology
Prof. Barbara Kirby	Yes	Small Animal Surgery
Ms. Hester McAllister	Yes	Diagnostic Imaging
Dr. Grainne McCarthy	Yes	Small Animal Medicine
Dr. Carmel Mooney	Yes	Small Animal Medicine
Dr. Emma O'Neill	Yes	Small Animal Medicine
Ms. Antonella Puggioni	Yes	Diagnostic Imaging
Dr. Sue Rackard	Yes	Small Animal Surgery/Shelter Medicine Microbiology
Dr. Simone Schuller	Yes	Veterinary Nursing
Ms. Cliona Skelly	Yes	Diagnostic Imaging

Residents

Name	Veterinary Degree	Teaching Area
Ms. Lies Beekhuis	Yes	Herd Health
Mr. Stephen Cahalan	Yes	Pathology
Dr. Thurid Freitag	Yes	Small Animal Medicine
Ms. Barbara Gallagher	Yes	Small Animal Medicine
Mr. Tim Geraghty	Yes	Herd Health
Ms. Paola Giordano	Yes	Anaesthesia
Ms. Vilhelmiina Huuskonen	Yes	Anaesthesia
Ms. Florence Juvet	Yes	Small Animal Medicine
Ms. Clodagh Kearney	Yes	Equine Medicine
Ms. Lucy Metcalfe	Yes	Equine Medicine
Mr. Jerry O'Riordan	Yes	Small Animal Surgery
Mr. Wilfred Schneeweiss	Yes	Equine Surgery
Ms. Eloisa Terzo	Yes	Diagnostic Imaging
Ms. Filipe de Vincente	Yes	Small Animal Surgery
Ms. Micaela Zarelli	Yes	Diagnostic Imaging

Interns

Name	Veterinary Degree	Teaching Area
Dr. Carolyn Cummins	Yes	Equine Medicine/Surgery
Ms. Orla Fitzgerald	Yes	Small Animal Medicine, Surgery, Anaesthesia
Dr. Eva Maischberger	Yes	Equine Medicine/Surgery
Ms. Outi Huurinainen	Yes	Small Animal Medicine, Surgery, Anaesthesia
Ms. Reylene O'Brien	Yes	Small Animal Medicine, Surgery, Anaesthesia
Ms. Liz Shaw	Yes	Farm Animal Clinical Studies

INTRODUCTION

UCD's new Veterinary School buildings were opened during the summer of 2002. Since then, two evaluations have taken place, by EAEVE in 2003 and by AVMA in 2007. Both of these evaluations were positive, with the school being placed on the EAEVE visited and approved list and granted full accreditation by AVMA for the maximum period of 7 years. All a far cry from the last VCI visitation in 1996, when the school was still housed in old, cramped and desperately unsuitable conditions in Shelbourne Road, Ballsbridge, and when, in spite of very positive comments in relation to the commitment of the Faculty and the quality of the students and the teaching, closure was recommended in the event that funding to move to a new facility was not obtained.

Today, UCD's veterinary school continues to enjoy the benefits of a modern, purpose-designed academic and clinical facility on the main campus of Ireland's largest University. Its programmes of study are in high demand from prospective students from Ireland and further afield, and many nations are represented among both staff and students. The curriculum has been informed by international best practice and by consideration of teaching and learning advances.

It has also experienced a period of organisational change. In 2005, in line with the restructuring of UCD, the old Faculties and Departments were assimilated into Colleges and Schools. UCD's former Faculty of Veterinary Medicine became part of the UCD School of Agriculture, Food Science and Veterinary Medicine, within the UCD College of Life Sciences. In early 2010, the university President announced a further refinement of UCD's Academic Structures, designed (*inter alia*) to achieve greater alignment between structures and major disciplinary areas and to enhance the interactions between certain disciplines and their external stakeholders, including relevant professional bodies. Under the new structures, due to be formally in operation by September 2011, there will be a UCD School of Veterinary Medicine within a College of Agriculture, Food Science and Veterinary Medicine. The President has indicated his intention to have interim structures in place by September 2010. The proposals for the UCD School of Veterinary Medicine met with universal approval among the relevant staff, and the strong feeling is that this will enable pro-active management of the education, research and clinical services aspects of the school's mission.

In 2010, UCD Veterinary Medicine can be considered to be a veterinary school with a truly international reputation and outlook, being one of only five European schools, and nine outside North America, to have been accredited by AVMA. Its programmes of education aim to meet the needs of aspiring veterinary practitioners, veterinary nurses, veterinary scientists and veterinary specialists, right through the life-cycle from undergraduate to taught graduate, research graduate and life-long learning. In its research, it aims to advance collaborative biomedical research and comparative medicine under the "one health" agenda, to support innovation in the agri-food sector, and to advance animal welfare. Its clinical services serve as the engine of clinical education and translational research, and an important link to colleagues in practice who refer cases to the hospital. Not least, it provides for an outstanding student experience, in the tradition of Newman, where "a University is a place of concourse, whither students come from every quarter for every kind of knowledge."

Chapter 1: Objectives

1.1 Mission and Vision

The overall mission of the school is to serve Ireland and the wider world by providing the highest standards in veterinary education from Bachelor's to Doctoral level and through continuing professional development, by the advancement and communication of knowledge, through research and scholarship and by providing the highest quality care for animal patients.

The accompanying vision matches the institutional vision of the University. In this context veterinary medicine at UCD aims to

- Rank as one of the top centres of veterinary medical education in Europe, for the entire life-cycle from undergraduate to doctoral level and beyond, where teaching is informed by the research and clinical activities of staff
- Shape agendas on issues in animal and public health, and on the role of animals in society, on the national and international stage
- Be recognised globally for the quality of staff, graduates, clinical training, and contribution to knowledge
- Increase the profile and desirability of UCD as a choice for undergraduate, professional and graduate students
- Value each student and staff member and maximise their opportunities for professional development
- Build on research success to advance animal and human health
- Provide cutting-edge clinical services to meet the needs of educational and research missions

The educational aim of the MVB Programme is to produce graduates capable of *entry* to any branch of the veterinary profession. The programme is student-centred and informed by the research, scholarly and professional activity of academic staff. Graduates are well-equipped to further develop their skills and abilities through continuing professional education. The curriculum is developed to take account of learning outcomes and required competences.

The only veterinary school on the Island of Ireland has a unique contribution to make to the Life Sciences capability of University College Dublin, and has an important role to play in UCD's mission "to advance knowledge, pursue truth and foster learning, in an atmosphere of discovery, creativity, innovation and excellence". The staff and students associated with veterinary medicine at UCD are also significant in developing the knowledge economy of Ireland. We enjoy close links with veterinary colleagues in government service and collaborate with them in research and policy development relevant to animal health and biosecurity.

1.2 How Objectives are Determined

The mission and underlying objectives of the school are determined through strategic planning. Strategic planning takes place at a number of levels. University College Dublin has just produced its plan to 2014, "Forming Global Minds" – Web-link: [UCD Strategic Plan](#). This takes into account the external environment and factors affecting higher education in Ireland and beyond. The plan for veterinary medicine at UCD, similarly, must be congruent with the overall plan for the University as well as taking into account external factors affecting veterinary education.

The school this year produced a Programme Plan (Appendix 1) setting out the plans for educational developments in the short and medium term. It is envisaged that all areas within the University will produce annual plans of this type. The plan was formulated by a working group with input from the Veterinary Medicine Programme Board.

In summary, a strategic approach is taken to the development and refinement of objectives in the school. There are opportunities for academic and non-academic staff to be involved in this process through section meetings, Programme Board, and Programme Forum. One of the priorities in the new structure will be to

ensure that all staff have opportunities for contributing to strategic developments and enhancing their own leadership abilities.

1.3 Measuring the Extent to which Objectives are Achieved.

The school has in operation a number of outcomes assessment measures. For example, employers are surveyed on the extent to which graduates meet their expectations and students are surveyed on their experience in all modules and at each stage of the programme. Staff feedback is also collected on each programme stage. For research, outcome measures including grant income per academic staff member, numbers of PhD students and publications are standard criteria. In 2009 the university also commissioned a review of research in each disciplinary area, including veterinary medicine. The clinical services part of the mission is assessed through client feedback, case numbers, and income.

1.3.1 Educational Objectives

The school considers that it has been very successful to date in achieving its educational objectives. The goal of securing AVMA accreditation for the MVB programme is one which has long been part of the strategic plan, even before the move to the new facility in 2002 made it a realistic objective. The achievement of this goal in 2007 facilitated the introduction of the 4-year graduate entry programme and the recruitment of significant numbers of international students. This, in turn, is crucial for increasing staffing levels and providing for an expansion in clinical services. It also provides a welcome international benchmark of excellence, provides for increased mobility for graduates and differentiates the school from many others worldwide.

In recent years, significant progress has also been made in enlarging the portfolio of educational offerings to include a 4-year BSc in veterinary nursing, and a growing number of taught graduate programmes. Continued development in these areas will be required along with maintaining a focus on curriculum development to take cognisance of changes in contemporary veterinary practice, research advances and developments in teaching and learning.

1.3.2 Other Objectives

Research performance over the past five years has been very good, as judged by an independent external report (see Chapter 13). Continued development will be ensured by careful attention to research performance/potential in recruitment, by facilitation of clinical/translational research, and by diversifying sources of research funding.

Significant development of clinical services will be required over the next number of years, both to cater for increased student numbers and to provide for additional clinical staffing and re-investment in hospital infrastructure and facilities. A benchmarking exercise comparing UCD Veterinary Hospital with those of comparable veterinary schools in the UK has been carried out and will be used to measure progress against plan in this area in the coming years.

Organisational development, external relations and financial performance is another area where assessment of performance versus objectives is important. The proposed organisational realignment in 2010/2011 will provide for increased external visibility and recognition, and will pave the way for significant developments in alumni relations. Financial performance is crucial to the overall health of the school. Significant improvements have been made through additional student income. Further improvements must come from a step-change in clinical services. Overall, the financial strategy is to increase the proportion of income coming from non-exchequer sources while negotiating for increased levels of state support. The school has been very successful in implementing both arms of this strategy over the past two years, but continued improvements will be necessary in the years to come.

1.4 Strengths and Weaknesses

Strengths

Infrastructure – A modern, purpose-built facility on the campus of a major research-intensive University, with easy access to both a major urban centre and agricultural/equine enterprise

International Profile – Being one of only nine schools outside North America, and five in Europe, to have achieved AVMA accreditation provides us with an additional quality benchmark, a high international profile and the ability to attract significant numbers of international students

Institutional Vision – The clear vision and focus of the University President and Senior Management Team has provided a template for the development of veterinary medicine within UCD according to that vision

Students – Strong competition for places on the MVB programme and multiple entry streams, national and international, leading to a highly-able, intellectually curious and diverse student body

Staff - Highly motivated, well-qualified and dedicated staff

The Student Experience – Excellence in this area is driven by a student-centred curriculum, by excellent pastoral care of students and by a true collegiality between staff and students.

Professional Links – Excellent relationships with government and with professional bodies allowing us to influence relevant areas of National Policy

Research – Strong research programmes in areas such as food safety/public health, reproductive biology and infectious disease

Uniqueness – Only veterinary school on the Island of Ireland

Weaknesses

Difficulties in recruitment and retention of staff – Difficulties in recruiting academic clinicians, common in veterinary schools but are compounded by the relatively high cost of living in Dublin

Profile, visibility and organisation – The change from Faculty of Veterinary Medicine to School of Agriculture, Food Science and Veterinary Medicine led to a degree of confusion and to loss of visibility with respect to our professional colleagues in Ireland and with other schools of veterinary medicine, particularly in the UK. It also made strategic planning with an appropriate and complementary focus on education, research and clinical services more difficult. The planned refinement in structures will remedy this issue.

Clinical staffing – The number of specialist clinicians and support staff serving some areas is less than ideal. Strategic and business plans for UCD Veterinary Hospital aim to address this. Further recognition for staff making major contributions to clinical services, through the UCD promotion process, is required.

The external funding environment – Declining and variable levels of funding for higher education impact on veterinary education at UCD. The costs of clinical education, in particular, are not fully recognised in funding allocation mechanisms.

1.5 Suggestions

The school continuously addresses the need for development in all areas of its activities as part of its strategic planning processes. Ongoing developments include:

- Agreement of a business plan with UCD senior management for a phased increase in staffing on foot of international student recruitment (2009-2013)

- Agreement with UCD senior management for an increase in clinical staffing based on a business plan for UCD Veterinary Hospital (2010-2014)
- Development of a taught graduate blended learning portfolio (graduate certificates)
- Development of an e-learning continuing veterinary education portal (Launch 20th August 2010)
- Development of a Professional Doctorate degree pathway for residents in training (in progress)
- Refinement of UCD academic structures, involving the constitution of a School of Veterinary Medicine from 2010/2011
- Development of an appropriate promotion pathway for staff with significant clinical responsibilities (in train)

In addition, the School will continue to refine and augment its outcomes assessment processes and ensure it meets its obligations for quality assurance and quality improvement at all levels. It will continue to pay close attention to developments in teaching and learning generally, and in veterinary medicine, and will refine its assessment methods to ensure they give the best possible indication that students are achieving the learning outcomes specified at module and programme level.

Chapter 2: Organisation

2.1 Factual Information

2.1.1 Details of the School

Name of the school: UCD School of Agriculture, Food Science and Veterinary Medicine (From 2010/2011 UCD School of Veterinary Medicine).

Address: Veterinary Sciences Centre, Belfield, Dublin 4, Ireland

Telephone: +353 1 716 6100 *Email:* agfoodvet@ucd.ie

Fax: +353 1 716 6184 *Website:* www.ucd.ie/vetmed

Title and name of head of the school:

Shane Ward (School of Agriculture, Food Science and Veterinary Medicine)

Grace Mulcahy (Dean of Veterinary Medicine)

Is the school within a university? Yes

If so, please give address of university: University College Dublin, Belfield, Dublin 4, Ireland

Details of the competent authority overseeing the school:

Veterinary Council of Ireland, 53 Lansdowne Road, Ballsbridge, Dublin 4, Ireland

2.1.2 The Administrative Structures of the School within the University

Universities in Ireland are funded by the Department of Education and Science, through a devolved body, the Higher Education Authority (<http://www.heai.ie>).

UCD is organized into a number of Colleges and Schools. The schools are the fundamental academic units, responsible for delivery of taught modules, and in some cases entire degree programmes. Colleges are administrative units encompassing a number of cognate schools that share responsibility for high-level strategic planning and achievement of strategic educational, research and financial objectives. At time of writing, veterinary medicine activities are within the School of Agriculture, Food Science and Veterinary Medicine, itself a constituent school of the College of Life Sciences. Under the proposed refinement of UCD academic structures 2010/2011, the President has proposed that the UCD School of Veterinary Medicine will be one of two schools in the UCD College of Agriculture, Food Science and Veterinary Medicine (The other being the UCD School of Agriculture and Food Science). These structures are due to be in place from September 2011, with interim arrangements from September 2010. A diagram showing the existing and new structures is provided in Appendix 2a.

A key body relevant to the governance and management of veterinary medicine programmes is the Veterinary Medicine and Veterinary Nursing Programme Board. This Board is one of a number of major programme boards within the University. It is chaired by the Dean of Veterinary Medicine and includes heads of subject, year co-ordinators and student representatives, among others. Each of the Programme Deans is a member of the University Undergraduate Programme Board (UUPB), chaired by the Registrar. This body formulates the general regulations for the structure of degree programmes, (for approval by Academic Council) as well as discussion of derogations requested by particular programmes. The Terms of Reference of the Veterinary Medicine and Veterinary Nursing Programme Board, incorporating the role of Dean of Veterinary Medicine, constitute Appendix 2b.

2.1.2 Internal Administrative Structures of the School

Veterinary Medicine Programme, Programme Board and Dean

The Dean reports and is accountable, *via* the Registrar, to the President and Academic Council of the University. The Dean chairs the MVB/Veterinary Nursing Programme Board and is responsible for maintenance of the external profile of the programme, its quality and relevance. As Chair of the Programme Board the Dean prepares annual academic and strategic plans for the Veterinary Medicine Programme, and is responsible for the academic and pastoral care of students. The Dean manages relationships of the programme with professional bodies and external stakeholders. The Dean is responsible for management of the teaching budget for the MVB Programme.

The Programme Board meets at least three times per semester, and also holds, at least once per semester, a Programme Forum at which all of those staff involved in delivery of the programme have an opportunity to participate in discussion. The Programme Board has a number of sub-committees, which the Dean of Veterinary Medicine or nominee chairs.

<i>The Standing Committee</i>	deals with routine business on the delegated authority of the Programme Board between full Board meetings
<i>The Admissions Committee</i>	formulates policy on admissions, and reviews applications for entry to the MVB programme from graduates and overseas applicants
<i>The Curriculum Committee</i>	reviews issues associated with the curriculum, and proposes curriculum changes/development to the Programme Board
<i>The Staff-Student Committee</i>	meets regularly with class representatives on teaching and learning or general issues and provides a forum for dealing with concerns on either side
<i>The Student Progress Committee</i>	identifies students with academic difficulties and provides supports/ advice as necessary

The membership of the Programme Board is shown in Appendix 2c.

The delivery of the Programme is supported by the Agriculture and Veterinary Medicine Programme Office. This office, headed by a Director, and including Programme Managers, and administrators, is responsible for the administration of programme matters and for liaison with students. The Programme Manager responsible for the MVB Programme works closely with the Dean and Programme Board, has an office in the Veterinary Science Centre, and is the first port-of-call for students with queries on administrative matters. He acts as Secretary to the Programme Board and its subcommittees and provides support to the Dean and other academic staff in communicating with students, dealing with correspondence and liaising with university offices (exams, services).

Other internal administrative structures

There is a sub-school section structure, with sections serving as the “home” for academic staff members. The sections mapping to veterinary medicine are:

- Veterinary Basic Sciences
- Veterinary Pathobiology
- Veterinary Clinical Sciences
- Herd Health and Animal Husbandry

The **School Management Committee**, **School Executive**, and **Hospital Management Group** are also significant internal administrative bodies, and listed in Appendix 2c in their current form. The **School Executive** is established by statute, includes both *ex officio* and elected members, and serves as a general advisory body to the Head of School. The **Hospital Management Group (Hospital Board)** (Appendix 2d) includes representatives of all of the major clinical service areas, support staff, and hospital management and is responsible for strategic decisions affecting clinical services.

In planning the new refined structures, a Foresight Group reporting to UCD senior management proposed that the role of Head of School be unified with that of Dean of Veterinary Medicine.

2.1.3 Administrative Support

Administrative supports for student admissions, assessment (examinations), human resources, academic records and conferring of degrees are centralised within the University. Administrative support for management of the MVB Programme is provided by the staff of the Agriculture and Veterinary Medicine Programme Office, with a particularly important role being played by Mr John Buckley, MVB Programme Manager. In addition to his role as Secretary to the Programme Board, the Programme Manager supports the Dean in dealing with many of the administrative tasks and queries related to the MVB Programme. A Student Adviser (Ms Ros McFeely) fulfils an important role in liaising with students with academic and other difficulties, and works closely with relevant academic staff in this role. The Hospital Manager, Mr John Breteler, has a vital role in administration of the Hospital. Each Academic Section is provided with Administrative support, and administrators are also allocated to UCD Veterinary Hospital, to Research Administration, to the School Office, and to support of the Dean of Veterinary Medicine.

2.1.4 Involvement of the Veterinary Profession and General Public in the Running of the School.

Consultations with various bodies, both professional and general, are held as appropriate. For example, a series of planning meetings were held with veterinary practices, representative bodies and VCI to explain and garner suggestions on the new BSc in Veterinary Nursing degree programme. Similarly, school representatives have taken in part in joint planning with Veterinary Ireland in Continuing Veterinary Education provision in the light of new mandatory CVE requirements for both veterinary practitioners and veterinary nurses. Employer surveys are another outcomes assessment measure that involves the profession. It is difficult to pinpoint any direct involvement of the general public in the running of the school. However, the University as a whole, through its Governing Authority does have external involvement in the running of its affairs. Under the new school structure serious consideration will be given to the constitution of an External Advisory Committee, which could include representatives of clients of UCD Veterinary Hospital. In addition, the School's research and outreach activities have frequently featured in the general media – for example (UCD Equine Welfare Report and TV3's 'Animal A&E' show). This media presence serves not only to highlight the important role of the veterinary profession in society, but also UCD's unique role in educating veterinary professionals, as well as important animal welfare and animal/public health issues.

2.1.5 Appointments to Posts of Responsibility

All posts are by appointment, not election. There is a prescribed formula for the Appointment of Dean of Veterinary Medicine, as outlined in Appendix 2b. Heads of School are appointed by the President for a fixed term, following a local consultation process. Appointments of posts within the school (for example Director of Research, Director of Teaching and Learning) are generally made by the Head of School following a request for submissions of expressions of interest, and a consultation process.

2.2 Comments and Suggestions

The last five years have been marked by considerable change and turbulence in academic structures. Strategic planning within the key domains of Education, Research and Clinical Services has continued through this turbulent period, due in no small part to productive relationships established with UCD Senior Management and the extent to which ambitious plans for new academic programmes and development of clinical services have been received. Within the proposed new structures the pace and focus of strategic planning must be maintained. It is anticipated that the new structures will be conducive to this process, while also enhancing the degree to which all staff within the school will have opportunities to participate in and contribute to strategic development. Within this structure it will be important to ensure that there are enhanced opportunities for development of leadership potential among academic staff by the creation of posts of responsibility within the key domains of Teaching and Learning, Research and Clinical Services. It will be important also, in the context of the proposed new College of Agriculture, Food Science and

Veterinary Medicine, not to lose sight of the synergies and commonalities between UCD Veterinary Medicine and the other UCD Health Sciences disciplines. There are numerous examples, for example the UCD Health Sciences Deans' working group, and the Health Sciences group on e-learning/e-CPD, where these synergies have had important outcomes. As with other schools of veterinary medicine world-wide, the "One Health" paradigm will be central to future strategy. The potential of joint programmes with other health science disciplines, for example joint MVB/MPH programmes, will also be explored. Under the new school structure serious consideration will be given to the constitution of an External Advisory Committee, which could include representatives from the general public such as clients of UCD Veterinary Hospital.

Chapter 3: Finances

3.1 Factual Information

Information in this section relates to Academic years, as this also essentially represents the Budget year (1st October -31st September)

3.1.1 Expenditure

Direct and indirect expenditure for 2009/2010 is shown in Appendix 3, Table A.

3.1.2 Cost of Veterinary Training

It is difficult to separate out the costs of education of veterinary students from other costs including wider educational activities and research, since staff contribute to multiple activities. However, the estimates (shown in Appendix 3, Table B) have been prepared taking into account of the fact that accreditation requirements are such that veterinary education must be carried out in a research-active environment, and establishments should also provide continuing education and specialist education. The estimates assumes 400 students at any one time (which is an average over the past number of years), that staff spend on average 67% of their time in teaching-related activity, and that 67% of other costs are attributed to veterinary student teaching.

3.2 Revenues

Table C, Appendix 3, shows income from state and non-state sources for 2009/1010. Table D shows the changes in state funding for veterinary medicine students only, over the last five years.

3.2.2 School Budget

The School Budget is determined according to a Resource Allocation Model (RAM) developed by the University. This takes into account state income for undergraduate and graduate students, external (non-exchequer) income, with strategic incentives for graduate student numbers and certain research metrics. In the academic year 2009/2010, based on income received from state and other sources, and the University's internal Resource Allocation Model (RAM), the income of €14.6m fell €5.4m short of the expenditure needed to run the School, with the difference covered by an additional allocation from the University. In the strategic plan for the school, therefore, there is a stated objective of reducing this deficit and indeed, eliminating it, by 2014. This will be accomplished by a number of means including:

- Negotiating increased funding from the HEA for veterinary education at Ireland's only establishment providing veterinary practitioners (Review of funding provision is on-going)
- Developing additional non-exchequer income from international students, taught graduate programmes (including CVE) and clinical services
- Enhancing development and fundraising strategies

These developments have been discussed with UCD SMT and will require additional staffing and other investment in order to deliver their required outcomes. They are desirable for academic, as well as financial reasons.

The school budget is subject to change in conjunction with changes to the level of exchequer funding for Higher Education generally. In the current adverse economic circumstances, downward pressures can be expected. However, the strategic plan for UCD Veterinary Medicine includes the intention to increase the proportion of income coming from non-exchequer sources. The budget projections for the next five years (net of any increased funding agreed with the HEA) are shown in Appendix 3, Table D.

3.2.3 What proportion of income from the following sources does the veterinary teaching school have to give to other bodies (university, etc.)?

Clinical Work and Diagnostic Income: Clinical income serves as the basis for allocation of non-pay budget for UCD Veterinary Hospital in the following year. As clinical income increases in line with forecasts in the hospital business plan it is envisaged that some income will be used to support clinical salaries as well as non-pay hospital expenditure.

Research grants: The bulk of research income is direct expenditure, which is under the control of the Principal Investigator, and accounted for by stipends for graduate students, salaries for contract research staff, and purchase of consumables and equipment. Most funding bodies also allow an element of overhead funding, which averages 21% of the total grant. This overhead is debited from the relevant research account and credited to the Office of the Vice-President for Research. Research overheads are spent annually according to priorities in the University's Annual Overhead Investment Plan. An element (10% of overheads which equates to about 2% of the grant) of this fund reverts to the school for investment in research infrastructure.

3.3 Resource Allocation Mechanisms and Financial Planning

3.3.1 Allocation of State Funding

Funding for students in Higher Education Institutions (HEI) in Ireland is allocated by the Higher Education Authority (HEA). The total amount of money available, based on annual allocations from Government, is disbursed according to the HEA's Resource Grant Allocation Model. This provides funding according to

- The number of students in the higher education system
- The "weighting" applied to individual disciplines.

Students in UCD's veterinary medicine programme receive a weighting of 4, the highest available, for each of the five years of the programme. This is similar to the weighting applied in England and Wales through the Higher Education Funding Council. However, in Ireland, the weighting is only applied to the "grant" element, not the "state-funded fees" element of the funding.

3.3.2 Allocation of Funding within the School

This mirrors the allocation of funding by the University, based on the RAM model.

3.3.3 Funding for Capital Expenditure

Required capital expenditure is provided by the HEA through a fund separate from that for recurrent expenditure. There is an annual budget for minor works, and planned investment in large-scale buildings and infrastructure is made periodically.

3.3.4 Tuition Fees

Currently, undergraduate students in Ireland who have not previously enrolled in a degree programme do not pay tuition fees, other than a relatively small student services charge. Students who require to repeat modules/stages, or who have previously completed a degree, are not eligible for the "fee fees" initiative. The current fee for such students is €19,500 per year for the veterinary medicine programme. The revenue from these fees is distributed according to the University's RAM.

3.4 Comments

Financial sustainability has been and will remain a key priority for veterinary medicine at UCD. In the last two years a weighting of 4 for students in all years of the MVB curriculum, rather than in the last three years only, as had been the case previously, has been secured. However, the amount of funding available nationally for higher education has declined over the last two years, and is likely to decline further in the current economic circumstances. Even at current levels, the amount of revenue per student is inadequate to cover the costs of education. Negotiations with the HEA on the funding of veterinary education are on-going. However, to continue to offer a world-class education it will also be necessary to increase the amount of funds available from non-exchequer sources. We are fortunate in being able to attract international students to our programme, and this will remain an important source of revenue. In addition, increasing the revenue available from clinical services, from a portfolio of taught graduate programmes, and from other non-exchequer sources will be a focus in the years ahead.

The first priority for utilisation of additional income is to ensure the UCD School of Veterinary Medicine runs a balanced budget. In planning for increased international students and new programmes it has been agreed that some of the income be used to recruit additional staff. Staffing, particularly in clinical areas, is a high priority currently and recruitment of some clinicians and support staff is also envisaged as part of the strategic and business plan for UCD Veterinary Hospital. Although buildings, both academic and hospital, are currently in very good condition, investment in hospital equipment and facilities will also be required during the phase where clinical services are expanding.

3.5 Suggestions

Robust and astute financial planning will be of the highest importance for veterinary medicine at UCD over the next number of years. A good start has been made in securing additional revenue from both state and non-state sources, for which support has been forthcoming from UCD finance professionals and senior management. At a time when there is severe pressure on state funding, we are fortunate that we have the potential to generate significant amounts of income. The appropriate use and investment of such income will be key to ensuring that UCD remains a leading international centre for veterinary education.

Chapter 4: Curriculum

4.1 Curriculum in the Context of National and International Standards

The curriculum enables students to acquire the essential core skills and knowledge required for **entry** into any branch of the veterinary profession. The curriculum therefore takes into account the requirements of the National Competent Authority, the Veterinary Council of Ireland, as well as EAEVE/ECOVE. Previous visitations (VCI 1996, ACVT 1998, EAEVE 2003) have validated these requirements. Mutual recognition agreements are also in place with the Australasian Veterinary Boards Council (AVBC). In addition, a strategic decision was taken more than 10 years ago to seek accreditation by the AVMA for UCD's Veterinary Medicine programme. This decision was based on a wish to ensure the school was recognised globally as a leading provider of veterinary education, and on the possibility of advancing the internationalisation of the staff and student body. AVMA accreditation was pursued following the move to new purpose-built premises on the main university campus in 2002. A consultative site visit (in conjunction with EAEVE) was held in 2003 and a comprehensive site visit in 2007, following which full accreditation was granted. The programme/curriculum therefore meets the AVMA Council on Education standards as well as those of VCI and EAEVE/ECOVE.

UCD currently provides the only programme of veterinary medical education on the Island of Ireland. There is no National Curriculum defined, but, as outlined above, the programme of education, in its design, implementation and outcomes, matches to the standards developed by VCI, EAEVE/ECOVE, AVMA and, by extension, the Australasian Veterinary Boards Council. Curriculum revision is undertaken continuously, in response to comments of external visitation teams, in response to student and employer feedback, to changes in educational theory and practice, to internal QA procedures, and to technological changes impacting on the profession. Some of the most significant changes that have taken place over the past 10 years include:

- Introduction of a lecture-free final year
- Introduction of Problem-Based Learning
- Adoption of modularisation, semesterisation and ECTS (2005)
- Introduction of Electives (2005)

Overall, the curricular changes that have been adopted have aimed to promote deep learning, refine assessment methods, increase vertical integration and achieve an appropriate balance between the acquisition of the required skills and competencies and intellectual/life-long learning capacity.

4.1.2 The Degree of Freedom that the School has to Change the Curriculum

In addition to compliance with external accreditation standards, the MVB programme must also conform to the Academic Regulations of UCD. These Regulations are approved by Academic Council, following consideration by the University Undergraduate Programme Board (UUPB), of which the Dean of Veterinary Medicine is a member. The Academic Regulations define a framework for the undergraduate programmes of the University in terms of core and elective ECTS credits, student progression and assessment. Once the Programme is in overall compliance with these regulations, changes in the sequence and content of modules can be made by the Veterinary Medicine Programme Board (Chaired by the Dean). In some cases, particular programmes, such as those with significant clinical components, are for valid reasons not fully in compliance with the overall Academic Regulations. Derogations from the Regulations are sought in such cases. For example, in the MVB Curriculum a single, large 60-credit module is defined for the final year (Stage 5) of study, and a derogation is in place to cover this.

In summary, therefore, there is substantial freedom to modify the curriculum as required by changes in external or internal factors. This freedom is essential in order to maintain the currency and international competitiveness of the programme. Appropriate oversight of changes is provided by the Veterinary Medicine Programme Board, by the University Undergraduate Programme Board, and by the Academic Council of University College Dublin.

4.1.3 Outline how decisions on curriculum matters and course content are taken within the school.

The overall curriculum map is one where integrated teaching across traditional disciplinary boundaries is the norm. Each academic year (two semesters) is equivalent to a Stage. For the most part, assessment of individual modules takes place during and at the end of the semester where they are taught. Stages 1 and 2 consider the biology of normal structure and function (with examples of disease processes), in Stages 3 and 4 disease processes and clinical sciences are studied and Stage 5 consists of clinical rotations.

Decisions on curriculum and module content are made at a number of levels:

- *Module co-ordinators*, in consultation with the other academic staff teaching into a particular module, are responsible for the overall sequencing, planning and administration of assessment for their particular module. (All academic staff are co-ordinators for at least one module).
- *Heads of subject* are senior academic staff (usually Professors) responsible for academic oversight and standards in particular disciplinary areas.
- *Stage co-ordinators* take responsibility for managing module sequencing and liaising with student reps on academic matters in a particular stage.

The curriculum has undergone changes in the past number of years in response to the report of external visitations and as a result of ongoing changes in education and the veterinary profession in Ireland, Europe and the World. These changes led to the introduction of a lecture-free final year, to a shift from memorising to managing information, and a culture of enquiry-based learning.

Further significant developments occurred with the adoption throughout UCD of a fully modularised and semesterised approach to teaching and learning, in line with UCD's Horizons initiative and the Bologna Process. The consequence is considered to be a more student-focused, international university education model that offers more choice, flexibility and mobility. This model has involved the adoption of the European Credit Transfer System (ECTS), where 60 credits represents the workload expected of a full-time student during one academic year. UCD has adopted an ECTS system based on blocks of 5 credits, with the normal workload per 5-credit block being 100-125 hours of student work. As part of UCD's vision for undergraduate education, students are free to take 10 elective credits per stage (year) from right across the University's offerings, with the student's "home" programme expected to supply sufficient elective offerings to allow them to take these in their own disciplinary area. In the case of the MVB programme, this applies currently only in Stages 1 and 2 of the Programme.

Decisions on ongoing curriculum development and reform are made following recommendations of the curriculum review committee, by subject heads or by module co-ordinators. All changes must be approved by the Programme Board. As required, curriculum reforms and refinement take place on an on-going basis. For example, a new Stage 1 Curriculum for the 4-year Graduate Entry programme was agreed prior to the Academic Year 2009-2010. Decisions on balance between subjects, and between theoretical and practical training, are agreed at Programme Board level. Decisions on the form of learning activities (didactic, practical, clinical) are made taking into account availability of resources, students' learning styles, nature of material to be covered, and personal preferences of academic staff.

4.1.4 Curriculum

4.1.4.1 Curriculum matters and course content

The normal duration of the course of study for the degree of MVB is five years, although graduate students who have completed a prior degree in biological, biomedical or animal sciences, and who have completed specific prerequisites courses at University level, may complete their degree in 4 years. Teaching is divided between the campus at University College Dublin, Belfield, and at the University Lyons Research Farm, Newcastle, Co. Dublin.

Dates of terms conform to the UCD-wide policy on semesterisation. Each academic year of the course is composed of two 12-week semesters. In the academic year 2010-2011, Semester 1 consists of a teaching term of 12 weeks, followed by a week for revision and a 10-working day period of examinations. The second semester is divided into a seven-week teaching period followed by a two-week break and a five-week

teaching period after the break. This is followed by a week for revision before the summer examination period of 11 working days.

The breakdown of didactic versus practical training is provided in Appendix 4a, Table A. The core modules presented in the MVB degree course in 2010-2011 are presented in Appendix 4a, Tables B-G. Total workload provided does not include autonomous student learning. Unless otherwise stated, a typical module earns 5 credits and therefore comprises a total of between 100-125 hours of student work. Appendix 4a, Table H lists curriculum hours allocated to EU-listed subjects taken by every student.

Types of training listed include

- Lectures [didactic teaching] which convey theoretical knowledge and do not necessarily involve student interaction
- “Supervised work” (tutorials and in-class group work) describes interactive teaching sessions directed towards a small group of students during which they work on their own, or as a team
- “Practical work” means teaching sessions where students themselves actively perform laboratory experiments, carry out dissection or necropsy, use microscopes for examination of histological or pathological specimens, or handle normal animals
- “Clinical work” means hands-on procedures by students on live animals for examination, diagnosis, treatment
- “Other specified learning activities” encompasses directed activities outside of class such as group projects, individual projects and essays, wikis and discussion board interactions

4.1.4.2 Elective Subjects

During Years 1 and 2 of the 5 Year MVB degree, under the UCD Horizons Programme, students may freely choose 2 modules (10 credits) per year from a range of module offerings from within the School or across the University, limited only by the student’s core timetable and subject to module entry requirements and availability of places. Modules may be taken from within the student’s subject area to deepen their learning, or from outside it to broaden their learning. Popular (> 3 students) non-veterinary elective modules chosen by veterinary students during academic year 2009-2010 included:

Stage 1

GEOL10040	Earth, Environment and Society (11 students)
ANSC 20020	Animal Nutrition I (9 students)
LANG 10050	French Gen Purp 4 (7 students)
LANG 10230	Spanish Gen Purp 1 (4 students)

Stage 2 No one non-veterinary module was chosen by more than 2 students, but again languages were popular (6 students). There are a number of electives offered by the School, although there is no specific elective track. Modules being offered in 2010-11 are shown in Appendix 4a, Table I. All are 5-credit modules.

Horizons electives are not part of the curriculum of the 4-year graduate entry programme. The reason for this is that these students have already received an undergraduate education and the broad objectives encompassed within that.

A four-week elective component is incorporated within the “Veterinary Medicine” module in the Final Year of the MVB degree. Specific electives offered include small animal internal medicine, small animal orthopaedic surgery, dairy herd health and nutrition, pharmacological research electives, animal welfare, state medicine/field epidemiology, equine AI, laparoscopic AI in sheep, superovulation / embryo production and oestrous synchronization. Subject to approval, students may choose to arrange their own elective outside of the School at any time during the year. There are also a number of exchange arrangements with other institutions including Universities of Oslo, Lisbon and Cordoba, North Carolina State University, Purdue University, University of California (Davis), University of Mississippi and the University of Florida.

4.1.4.3 Optional Subjects

There are no optional subjects offered within the Veterinary Medicine Programme in UCD, although students have choice of electives as discussed above.

4.1.4.4 Obligatory Extramural Work (Extra-Mural Studies – EMS)

With the introduction of modularisation, the EMS requirements of veterinary students have been assigned module codes and specific credits. Currently, 60 credits are assigned to preclinical and clinical EMS. Students must gain experience in the handling and management of a variety of animal species and are required, following interview, to undergo an appropriate programme of farm and companion animal experience up to a maximum of 12 weeks. This experience is obtained between the Christmas vacation of the first veterinary year and the end of the mid-second semester 'spring' break of the second veterinary year for the undergraduate entrants. The graduate entrants complete this requirement by the end of Semester 1 in their second year of the Programme. Students are assigned a staff supervisor who approves the farm or animal facilities proposed. All students must obtain experience in horse, cattle, sheep, pigs and, and in kennels/catteries. This experience is a fundamental requirement for students to understand the basic management of the species concerned. It supplements the lecture and practical courses within the subject area of "Animal Husbandry, Health and Welfare" and provides a foundation upon which clinical experience can be built. The completion of this training to the satisfaction of the student's supervisor is a prerequisite for passing the Farm and Animal Experience module (VET20120- Farm and Companion Animal Experience, 20 credits) examination at the mid-point or the end of the student's Second Year.

During the third, fourth and fifth years of the course, students are required to complete a minimum period of 24 weeks of practical extra-mural study (VET30260 Veterinary Clinical Extra Mural Studies- 40 credits). Clinical EMS (CEMS) provides students with the practical experience of the art and science of veterinary medicine, gained from a number of branches of the practising profession. Its overall objectives include:

- Provision of experience of veterinary practices, their organisation, management and the commercial reality of veterinary practice
- The opportunity for students to encounter a wide array of common and some uncommon diseases, their diagnosis and treatment
- To provide students with opportunities to learn aspects of veterinary work from experienced professional veterinary practitioners, veterinary nurses and other professionals EMS provides the opportunity to link theory with practical reality
- To encourage students to develop communication and people skills
- To contribute to the development of overall professional experience and knowledge

Students must complete the minimum periods of CEMS as described in Appendix 4a, Table J.

CEMS placements are electronically managed by the School Office. Students make their own arrangements with practices and establishments they wish to attend. EMS placements must be approved by the EMS module coordinator before being undertaken. Students identify and record the learning objectives list for each placement and forward this form to the Placement Supervisor. Confirmation of attendance and feedback on student performance is required from the Practice Principal at the end of each placement. Forms lacking the practice stamp are not accepted. Further details are given in Chapter 14.

4.1.5 Ratios

Ratios between clinical, theoretical and practical training are as follows:

R6 Theoretical: Supervised Practical Training 1:0.72

This value implies that there is a greater proportion of practical training to theoretical training than in other evaluated schools. Indeed the aim is to continue to deliver the course in where a major proportion of the learning is hands-on, practical and interactive. However, the relative high proportion of practical to theoretical

training may partly reflect the fact that module coordinators do not fully record in their module descriptors the level of directed student learning, in particular advance reading before practicals and tutorials.

R7 Clinical: Supervised Practical training 1:1.99

R8 Directed Learning: Teaching Load 1:2.72

4.1.6 Further Information

4.1.6.1 Module Descriptors.

Learning outcomes are used to define the skills, competences and knowledge required of our graduates, and also to describe how individual modules within the curriculum contribute to these outcomes. The modules contributing to achievement of these outcomes, their sequencing and credit value, are presented in Appendix 4b. Full module descriptors are available at <http://www.ucd.ie/horizons/>. This information is easily accessible to students, and specifies the module content, module co-ordinator, learning activities, and assessment methods.

4.1.6.2 Graduate attributes and overall learning outcomes

The learning outcomes expected at graduation, together with a description of how these are integrated into the curriculum, are presented below.

At the time of graduation our students should possess:

- *A broad base of knowledge in the biological and veterinary sciences understanding basic biological principles of normal structure and function in relation to diseases of animals.*

This objective is integrated into the modules of Stages 1 and 2 of the programme. Stage 1 focuses initially on the cell, cellular pathways and communication. System-based learning, examining the structure and function of the major body systems also takes place throughout Stages 1 and 2. In each module, reference is made to specific veterinary clinical or biological problems, where appropriate. Pharmacological concepts are introduced from the outset, building on and complementing the student's physiological and biochemical knowledge. Overall the Stage 1 and 2 modules provide a strong foundation for the clinical years of the programme.

- *The ability to advise on the husbandry, welfare, nutrition, breeding and housing of animals.*

This objective is integrated into the animal husbandry and production modules taught during Stages 1 and 2. It is also an essential component of the 2-week herd health and population medicine rotation in the Final Year where the combined inputs of specialists in animal husbandry (nutrition, housing etc.) and specialists in herd health management and population medicine provide an enriched learning environment.

- *The ability to differentiate the pathological from the normal and relate this to fundamental issues of disease diagnosis, treatment and control.*

Introductions to pathology, parasitology, microbiology and immunology are taught in Stage 3 and are followed (Stage 3 and 4) by body systems based courses with coordinated input from microbiologists, parasitologists, pathologists and clinicians.

- *The ability to diagnose and treat diseases of animals and alleviate animal suffering.*

Disease diagnosis and treatment is a key component of the systems teaching during Stage 3 and 4 and is central to student learning during Final Year rotations in UCD Veterinary Hospital.

- *The ability to apply surgical principles and perform common surgical procedures effectively.*

A module introducing the principles of veterinary surgery takes place in Stage 3. Students develop practical competences through surgical skills teaching in final year, during relevant Final Year rotations in the Hospital/DSPCA clinic (canine and feline ovario-hysterectomy), in the reproduction rotation (bovine caesarean operation) and as part of their EMS training.

- *The ability to prevent animal disease and control its transmission to humans in the context of pre and post-harvest food safety.*

Disease prevention and control strategies are integral to the microbiology and parasitology modules in Stage 3, to systems modules in Stages 3 and 4 and to the herd health and population medicine module in Stage 4. Food safety is taught as a component of the two modules in Veterinary Public Health in Stage 4, which cover the practical application of the principles relating to food safety and its relevance to veterinarians engaged in the certification and safety assurance of foods of animal origin. The modules also build on previous work to provide a comprehensive package on zoonoses and disease prevention. Students are required to complete a prescribed programme of EMS at an approved abattoir before entering Stage 5 of the programme. Disease management at population level is the basis of the two-week herd health-population medicine rotation in the Final Year of the programme.

- *Effective oral and written communication skills appropriate to the public, clients colleagues and responsible authorities.*

An elective module in client communication skills is delivered during Stage 2. This course was developed in conjunction with the UK learning and Teaching Support Network (LTSN-01) and the University of Liverpool. Communication skills are also tested during oral examinations throughout the programme and as part of Applications and Integration. As well as being tested in oral examinations, communication skills are also assessed during case and project presentations throughout the programme. Written skills are assessed via report and essay writing throughout the programme commencing with student e-portfolio assessment in Stage 1, and particularly as a component of the Final Year clinical rotations and Final Year student portfolios.

- *An understanding of the importance of independent learning and continuing professional development.*

The Application and Integration module during Stage 1 of the programme and the emphasis on problem-based learning (PBL) throughout the curriculum generally provides significant emphasis on acquisition of independent learning skills. PBL is an educational strategy designed to maximize active participation in learning, problem-solving and self-education, enhance self-assessment, improve communication skills, improve ability to access and utilize resources and equip for life-long self-directed learning. In addition, an elective module titled "Veterinary Career Orientation and Professional Development" has been developed for Stage 1 students. A workshop session during this module stresses the importance of continuing professional development, while interviews with veterinarians in a range of veterinary careers reinforces this message.

- *Attitudes that promote professionalism and ethical judgement.*

The module "Veterinary Career Orientation and Professional Development" introduces concepts such as professionalism at an early stage, and outlines the day one competences and attributes expected of the new graduate. During clinical extramural studies (EMS), which commence in Stage 3 of the degree, students are expected to acquire an insight into the professional aspects of practice, gaining knowledge of the ethical, legal and welfare issues that face ordinary practitioners during day-to-day activities. In the Final Year of the MVB degree, the assessment of the clinical rotations places emphasis on professional behaviour. Clinical rotations constitute 15% of the overall Final Year assessment.

- *Skills in Information Technology (IT) and data analysis.*

Interactive computer-assisted learning is becoming an increasing component of all modules. Students are encouraged to use the on-site IT facilities both for assigned class-work and project preparation in addition to the use of materials presented electronically. Students are required to be competent in a variety of computer applications (PowerPoint, Word, Excel) to allow them to complete assignments in a satisfactory manner. They also utilise informatics software in library searches and in basic bioinformatics training. Physiological experiments that used live animals have been replaced with interactive electronic presentations and in veterinary anatomy, an innovative use of IT involves the use of learning formats incorporating independent (although facilitated) enquiry by the students. The virtual learning environment "Blackboard" is used by staff and students. The software provides for online courses, a range of course tools, virtual classrooms and chat rooms as well as for online-assessment tools.

4.1.7 Specific Information on Practical Clinical Training

4.1.7.1 Clinical Training Prior to Commencement of Clinical Rotations

Students have opportunities for clinical training, appropriate to their stage of development, at multiple points during the curriculum prior to the intensive clinical experience of the final year of the programme. For example, pre-clinical students participating in the Large Animal Hospital elective will learn about the practical operation of an equine hospital and participate as a member of the team (along with senior clinicians, residents and interns) in providing out-of-hours clinical care. During clinical EMS, undertaken from Year 3 onwards, students participate in first-opinion clinical care in a variety of settings. Many modules, such as “systems” modules in Years 3 and 4, introduce clinical cases as part of the learning experience and in some cases hands-on clinical work is also undertaken (for example in Reproduction modules).

4.1.7.2 Clinical Rotations

The entire final year of the programme consists of student participation in clinical rotations. The clinical programme involves an individualised timetable for each student, allowing them to benefit from each of the rotations offered within UCD Veterinary Hospital while also allowing them the freedom to plan their CEMS, internal or external electives, and rest periods.

All final year students are rostered through the following obligatory structured rotations in UCD Veterinary Hospital.

Small Animal Clinical Studies:

- | | |
|-------------------------------------|-----------------|
| • Small Animal Hospital | 5 (3 + 2) weeks |
| • Pet Emergency Clinic-Out of Hours | 1 week |
| • Dogs Trust Rotation | 1 week |

Large Animal Clinical Studies:

- | | |
|----------------------------------|---------|
| • Farm Animal Clinical Studies 1 | 3 weeks |
| • Farm Animal Clinical Studies 2 | 2 weeks |
| • Equine Medicine | 1 week |
| • Paraclinical/Pathology | 1 week |

Veterinary Surgery:

- | | |
|------------------------|---------|
| • Surgical Skills | 1 week |
| • Large Animal Surgery | 2 weeks |
| • Anaesthesia | 2 weeks |
| • Diagnostic Imaging | 2 weeks |
| • Small Animal Surgery | 2 weeks |

Total **23 weeks**

Elective 4 weeks

While on clinical rotation students are expected to participate in the normal operation of the hospital. It is in the nature of veterinary clinical practice to be required to work irregular and long hours, depending on case load and emergencies. Participation in these activities is an important part of the learning experience. In most cases, group sizes of 4-5 students is the norm. Students are expected, under supervision, to conduct clinical examinations, write up clinical records, administer treatments, communicate with clients, participate in rounds and give case presentations. Depending on the rotation in question, they will also be required, under supervision, to induce and monitor anaesthesia, assist with surgeries, perform common surgical procedures (neutering operations), and interpret diagnostic images. In the herd health rotation they will be interrogating farm and health records, and formulating herd health plans. In the paraclinical rotation, they will conduct a necropsy, take tissue samples, interpret the results of diagnostic tests and write and present necropsy reports.

Students' participation in the emergency clinic involves care of UCD Veterinary Hospital inpatients as required as well as involvement in the care of animals presented directly to the emergency clinic. Further details of each clinical rotation are given in Appendix 4c.

4.1.8 Specific Information on The Practical Training Of Food Hygiene

Food hygiene is taught as a component of the two 5-credit modules in Veterinary Public Health in Stage 4 of the MVB degree course. Students receive an average of three hours of non-lecture based training, including practicals and tutorials per week during the academic year. Practical classes are given on a quarter class basis by 2- 4 academics and supporting technical staff. The course introduces practical application of the principles relating to food hygiene and its relevance to veterinarians engaged in the certification and safety assurance of foods of animal origin.

Specific practicals are concerned with the hygienic assessment of raw and processed meats and other foods of animal origin. Traditional organoleptic meat inspection is taught over a number of sessions using relevant offal and carcass specimens acquired from co-operating abattoirs. In addition, students are taught relevant methods used in food processing plants to assess the status of the plant, and appropriate samples, including water, are collected and assessed for quality. The principles of microbial and chemical hazard detection on food animal carcasses are included together with students' opinions on carcass quality.

Relevant practicals are directed towards an integrated approach in the slaughter and hygienic processing of food of animal origin. Materials are collected from a number of cooperating abattoirs (cattle, sheep, pig, broilers) within a radius of 100 km of the University. Organoleptic meat inspection practicals involve contributions from specialised official veterinarians with the Department of Agriculture and Food in conjunction with staff members.

All students, in half-class groups, visit two separate establishments, for approximately three hours. An export licensed beef slaughter and boning abattoir approximately 70km from the University is also visited. Students are taken on a tour of the premises by the abattoir's official veterinarians and two staff members, where they observe the slaughter and boning procedures, and gain an insight into veterinary involvement in abattoirs, including the oversight of appropriate standards in food hygiene, animal welfare, ante- & post mortem inspection procedures, boning and processing, food chain information and cold line controls.

Students also visit a major Irish broiler slaughter plant and a separate broiler boning and processing establishment. Again, students are taken on a conducted tour of the plant by official veterinarians and agricultural officers as well as two staff members. A visit to the Central Meat Control Laboratory (Department of Agriculture Fisheries and Food) also takes place under the supervision of the senior veterinary research officer and one staff member. The laboratory is located approximately 20km from the University. During the visit, students observe the principal functions and operational procedures of this official national laboratory, where relevant samples from all abattoirs are forwarded for microbiological and chemical residue testing in order to satisfy relevant national and EU legislation.

Practical training is supplemented by a 5-day EMS component as 'In-Service Meat and Hygiene Inspection Training'. This represents a re-design of this module component made as a result of a consultation/workshop with Department of Agriculture Veterinary Staff working in export meat plants. During this EMS period students visit an EU export licensed slaughterhouse under the supervision of the official veterinarian and the Department of Agriculture, Fisheries and Food inspection team. Prior to the EMS visit, each student receives a list of training objectives and an associated check list which is subsequently discussed in conjunction with the plant's official veterinarian; the list is designed to give both parties direction and enable students to maximise the learning potential of their EMS assignment. In addition, students must select a written assignment from an approved list in advance of their EMS plant visit. The topic must be researched by the student with the assistance of the official veterinarian during their visit and subsequently written up and submitted in order to satisfy the EMS requirement. Attendance and satisfactory performance are verified by the official veterinarian. Students receive veterinary public health and food hygiene assignments as case studies which must be researched, prepared, presented and discussed among their peers and staff. Two practical sessions dealing with investigation of outbreaks of foodborne illness relevant to foods of animal origin are taught by experts from the Food Safety Authority of Ireland and the Health Protection Surveillance Centre.

Dedicated lectures and a tutorial are provided in food legislation to give students an introduction and appreciation of the necessity and complexity of this area. They are also provided with a brief overview of the evolution and development of modern food hygiene legislation, including the use of objective science and risk based assessments and management of foodborne hazards. In addition, legislation, including any updates, is blended into the two veterinary public health modules as required by topic so that students see how legislation is applied to specific areas and hazards within the food chain. Also, lectures and practical

materials are constantly reviewed and updated as required to take account of new research data, epidemiological information at either national or international levels, changes to the common agriculture policy (CAP) or international trade agreements and other relevant policy/legislative changes.

Having completed their training in veterinary public health, students should be able to:

- Discuss the reservoirs and epidemiology of a range of zoonotic agents and the modes of transmission to humans
- Describe the main chemical residues and contaminants of public health significance in foods of animal origin and the introductory points in the food chains for these compounds
- Demonstrate competencies in the development of risk management systems for the production of food animals and foods of animal origin
- Describe the approaches to epidemiological investigations relating to foodborne illness outbreaks.
- Demonstrate competency in the areas of ante-mortem and post-mortem examination of food animals, humane slaughter and food hygiene
- Demonstrate an understanding of the molecular mechanisms responsible for virulence and antimicrobial resistance in pathogenic microorganisms
- Demonstrate competency in the application of HACCP-based food safety assurance systems when applied at all stages of the food chain
- Have knowledge of regulatory aspects of controls in the food chain, relating to current legislation and international trade. Develop understanding of technologies used in the further processing of foods of animal origin
- Demonstrate competency in VPH problem solving in the context of veterinary professionals working as practice clinicians or VPH specialists

4.2 Comments and Suggestions

The overall aim of the Programme is to produce graduates who are competent to *ENTER* any branch of the veterinary profession. Implicit in this aim is an awareness of the wide range of careers in veterinary medicine, and the skills provided by the Programme to equip graduates to make meaningful contributions to the spheres of biomedical research, business, international and national public service, among others. Students are continually made aware of the dynamic nature of knowledge and the consequent need for continuing education. For example, one of the learning activities used, particularly in the middle part of the curriculum, is the interactive seminar when two or more staff members from different disciplines discuss clinical and related material together with a group of students. This type of exercise is highly-rated by students, not least because it often leads to animated discussion, and on occasion disagreement, among the staff members, thereby vividly illustrating the rapidity of scientific and technological change.

The curriculum has a strong scientific base which ensures that graduates are well trained in the critical thinking and scientific principles which are fundamental to their careers in all branches of veterinary medicine and other allied careers. Furthermore, the students are educated in an environment where both basic and translational research are highly valued.

A particular strength of the learning environment is the fact that the school provides education for veterinary nurses and veterinary specialists as well as aspiring researchers in the biomedical sciences. There are significant advantages to having various members of the veterinary team work together before graduation. For example, both veterinary and veterinary nursing students will, from 2010 onwards, have the opportunity of participating in the same Communications module. Further synergies will emerge from the School's developing continuing education strategy, which will allow learning resources developed in the light of recent advances to be shared with practicing professionals.

In terms of curriculum review, the school considers that continued improvement and refinement is necessary, rather than periodic Big Bang approaches. A reinforcement of the role of Heads of Subject, and other senior academics, in curriculum development is desirable and will be prioritised in the new academic structures. The addition of learning support specialist, Ms. Diane Cashman, to the team in 2009 has underpinned the development of several new programme offerings module design and evaluation. The availability of this expertise within the school will be of great value in planning future developments and ensuring curriculum refinement proceeds in a timely manner.

Chapter 5: Teaching Quality and Evaluation

5.1 The Teaching Programme

5.1.1 Measures to ensure coordination of teaching

As outlined in Chapter 2 UCD underwent a significant academic restructuring in September 2005, involving the reorganization of 11 Faculties and 96 Departments into 5 Colleges and 35 Schools. In addition, and as described in Chapter 4, the University also made major decisions in relation to the structure and delivery of degree programmes with the introduction of a fully modular, semesterised curriculum with opportunities for broad elective choice for all students (UCD's Horizons initiative), aligned to the National Framework of Qualifications and the European Credit Transfer System.

Weblinks

UCD's Horizons initiative

- www.ucd.horizons.ie
- www.ucd.ie/registry/academicsecretariat/nfq.htm

The Veterinary Medicine programme is now one of 13 major undergraduate degree programmes within the University (Agriculture; Architecture; Arts; Business; Engineering; Law; Medicine; Nursing; Physiotherapy; Radiography; Science; Social Science; Veterinary Medicine). The various programmes differ in that some require substantial input from more than one school (for example Engineering, Agriculture) whereas others are predominantly associated with a single school. The MVB programme falls into the latter category. A number of academic and administrative roles are charged with development, governance and management of academic programmes. These include:

- Dean
- Heads of Subjects
- Programme Boards
- Programme Coordinators
- Stage Coordinators
- Module Coordinators
- Programme Manager

Programme Board and Programme Forum

The Veterinary Medicine Programme Board is responsible for the design, coherence, development, regulation and quality assurance of the overall programme, oversight of assessment and progression within the programme, and the academic welfare of the students registered to the programme (Appendix 2a Programme Board Terms and Reference). The Programme Board, chaired by the Dean, includes all Heads of Subject as well as relevant non-academic staff including Programme Office Director, Veterinary Medicine Programme Manager, and student representatives. The Programme Board in all its activities is bound by regulations, policies and procedures the University may establish, and is subject to review by Academic Council or its nominated committee.

The Programme Board meets at least three times per semester, and also holds, at least once per semester, a Programme Forum at which all of those staff involved in delivery of the programme has an opportunity to participate in discussion. The Programme Board has a number of sub-committees, which the Dean of Veterinary Medicine or nominee chairs. Details of these are given in Chapter 2.

The membership of the Programme Board and its sub-committees are shown in Appendix 2a.

Programme Office

The delivery of the Programme is supported by the Agriculture and Veterinary Medicine Programme Office. This office, headed by a Director, and including Programme Managers and administrators, is responsible for the administration of programme matters and for liaison with students. The Programme Manager responsible for the MVB Programme works closely with the Dean and Programme Board, has an office in the Veterinary Science Centre, and is the first port-of-call for students with queries on administrative matters. He acts as secretary to the Programme Board and its sub-committees and provides support to the Dean in

communicating with students, dealing with correspondence and liaising with university offices (assessment, services).

Dean of Veterinary Medicine

The Dean of Veterinary Medicine is appointed by the President following a prescribed selection process. The Dean reports and is accountable, *via* the Registrar, to the President and Academic Council of the University. The Dean chairs the MVB/Veterinary Nursing Programme Board and is responsible for maintenance of the external profile of the programme, its quality and relevance. Deans are *ex officio* members of the University Undergraduate Programmes Board (UUPB), which approves programme structures and reviews their compliance with/derogation from University General Regulations. As Chair of the Programme Board the Dean prepares annual academic and strategic plans for the Veterinary Medicine Programme, and is responsible for the academic and pastoral care of students. The Dean manages relationships of the programme with professional bodies and external stakeholders. The Dean is also responsible for management of the teaching budget for the MVB Programme.

Heads of Subjects

Heads of Subjects are approved by the Academic Council on the recommendation of the Head of School with the approval of the College Principal. The role of the Head of Subject, working with the Professors(s) in the subject, is to support the Dean in assuring the highest standards with regard to the design, delivery, assessment and quality of the modules and the MVB in their subject. Heads of Subjects within the MVB programme are listed in Appendix 2C (iii).

Programme Coordinator

The Programme Board appoints a Programme Coordinator who is responsible to the Programme Board for the day-to-day management of the programme. Programme coordinators are responsible on a day-to-day basis for the academic supervision of a Programme and coordinating its delivery.

Stage Coordinator

Each stage of the MVB programme has a dedicated coordinator who is responsible for overall direction and strategy of undergraduate veterinary education. The Stage (Year) Coordinator is responsible for the academic supervision of a “stage” or year of the academic Programme and assisting the Programme Coordinator and Programme Manager in coordinating its delivery.

Module Coordinator

This responsibility is assigned by the Programme Boards in consultation with the School/College. A module coordinator’s primary role is to design and ensure the delivery of a module, subject to oversight by the Dean and Programme Board. This involves liaison with contributing academic staff, leading discussions on module improvement, overseeing of assessment and grading. The coordinators for all core modules in the MVB programmes are given in Appendix 4b.

Overall, therefore, the Veterinary Medicine Programme Board is responsible for the coherence and governance of the programme. The Board is accountable to the Registrar and Academic Council of the University. All of the academic areas are represented on Programme Board, as well as the student body.

5.1.2 Educational Philosophy

The educational philosophy of the MVB degree programme is underpinned by UCD’s Educational Strategy 2009-2014 <http://www.ucd.ie/registrar/educationstrategy/> and the requirements of the profession: to equip graduates with essential core skills, competences, attitudes and knowledge required for **entry** into any branch of the veterinary profession.

The attributes of the UCD graduate are the starting point and a constant reference for the MVB educational priorities and objectives. The UCD MVB graduate is:

Academically Excellent:

- With an in-depth knowledge of their chosen discipline, and an understanding of how knowledge in that discipline is advanced, underpinned with well-developed skills of critical thinking, analysis and reflection

- With an aptitude for continued self-directed and collaborative learning in academic and professional settings throughout their careers

Intellectually Flexible and Culturally Literate:

- With a repertoire of analytic and cognitive skills for creative and innovative approaches to new learning contexts and problems
- With strong interpersonal and decision-making skills to bring to their individual disciplines and professions
- With an understanding of the contributions of different disciplines, approaches and perspectives to the advancement of knowledge, understanding and culture
- With an understanding of the wide-ranging background knowledge necessary to contextualise educational and research programmes

Globally Engaged:

- With an appreciation of the richness and diversity of human cultures
- With an awareness of their responsibilities as a global citizen
- Committed to equity, inclusion and diversity in their work and life contexts

The student is viewed as an active learner. Teaching emphasises the process of learning as well as the acquisition of knowledge. The programme aims to provide graduates with the skills to think independently, solve problems and become lifelong learners. A variety of teaching and learning strategies are used to foster this approach, such as: problem-based learning; small group teaching (including learning through discussion); peer-learning; experiential learning, as well as the traditional methods such as lecture formats. Upon this are built the overall learning outcomes and attributes of UCD veterinary medicine graduates as outlined in Chapter 4. The programme strives to balance the generic and specific skills encompassed in the learning outcomes with more general and academic aims.

5.1.3 Pedagogical Approach

The veterinary curriculum is intended to provide undergraduates with an education that will enable them to pursue a career in general practice, in research, in the food industry, in the State Veterinary Service or in the wide variety of other career pathways. It emphasises skills in the acquisition and interpretation of data and seeks to foster an interest in long-term intellectual development through lifelong learning.

The main pedagogical methods used are:

- Large group teaching (didactic)
- Small group teaching
- Problem-based learning
- Tutorials
- Self-directed learning
- Clinical instruction and participation in clinical rounds
- Computer-assisted learning
- Discursive Learning
- Collaborative & peer learning
- Experiential learning
 - Extramural studies which assist students to gain field experience
 - Laboratory practicals

Each module has a descriptor which can be viewed the UCD website. Each descriptor provides information about the overall aims and learning objectives of the module as well as the teaching and assessment methods used.

Weblinks

- MVB Module Descriptors
(https://sisweb.ucd.ie/isis/w_sm_web_inf_viewer_banner.show_major?p_term_code=200900&p_cao_code=DN005&p_major_code=VTS1)
- Graduate Entry MVB Module Descriptors
(https://sisweb.ucd.ie/isis/w_sm_web_inf_viewer_banner.show_major?p_term_code=200900&p_cao_code=DN105&p_major_code=VTS3)

Problem-based Learning

One of the most significant and positive curricular innovations has been the introduction of the course on Applications and Integration (Problem-based Learning). This has required the participation of many staff members from Faculty and in many ways it represents a model for the new curriculum. It has been identified as a model for curricular change in the University.

Computer-aided Learning

Interactive computer-assisted learning is becoming an increasing component of student learning and a tool to support a range of blended learning strategies. UCD's Virtual Learning Environment 'Blackboard' (www.blackboard.com) is readily available for all modules. Blackboard is one of the leading software products in this area and was selected by UCD after detailed evaluation. The software provides a range of functionality to support student centered learning and online instruction and assessment (wikis, blogs, learning objects, discussion forums, online assessments, grade management etc). Staff use Blackboard to disseminate course information, past papers and important notices.

5.1.4 Contractual Arrangements with Outside Bodies.

A contractual agreement exists between Dogs Trust <http://www.dogstrust.ie> - a dog re-homing charity, and UCD, whereby Dogs Trust fund a lecturer position. This member of academic staff provides clinical services at the rehoming centre and final year students spend a one-week rotation at the centre where they gain valuable experience in shelter medicine, first opinion cases, and neutering. Contractual agreements also exist between UCD and practices accepting students on EMS, and between UCD and export meat plants where students are placed.

5.2 The Teaching Environment

5.2.1 – Staff Development Facilities

UCD Teaching and Learning

UCD has a long and established tradition in teaching and learning excellence and in the delivery of innovative programmes that are adaptive to the current and future learning needs of graduates. As a research-intensive university, the development of high quality teaching and learning is fundamental to the educational mission of the university. In line with UCD's Educational Strategy for 2009 – 2014, a core strategic objective is to excel in teaching, learning innovation and academic development, and a number of staff development opportunities are in existence to support this objective.

The focus of UCD academic development is to provide staff with relevant expertise and support to develop their practice as educators in responding to the changing nature of higher education learners and developments in the teaching of their discipline.

Academic development opportunities are designed to support academic staff, at all stages of their careers as educators, to:

- Gain effective teaching and learning skills which promote students' learning
- Extend their professional teaching skills by deepening their knowledge base
- Develop their expertise as innovative curriculum designers
- Engage in practice-based inquiry to facilitate high quality student learning
- Develop as scholarly practitioners
- Enhance their talents for academic leadership and contribution to the wider teaching and learning community at UCD

Courses available to support the development of academic practice include:

- Becoming a Better University Teacher
- Accredited programmes such as
 - Graduate Diploma in University Teaching and Learning
 - MA in University Teaching and Learning
- Specialist courses in focused areas including
 - Lecturing to Large Groups
 - Small Group Teaching
 - Curriculum Development for Beginners
 - Assessing Students and Giving Feedback
 - Assessment Strategies for Beginners
 - Problem-based learning
 - Assessment solutions utilizing e-learning
 - Designing for enquiry-based learning online

All courses are integrated into a coherent, flexible, credit-based framework that is adaptable to a wide range of disciplinary areas and the needs of staff at various stages of their academic careers.

Teaching Portal

A new UCD online teaching portal has been developed for staff to highlight teaching support and best practice resources in UCD. The portal also showcases teaching and learning developments and innovation across the university. One showcase, to be released in October 2010, outlines the curriculum design for the two taught graduate programmes in veterinary medicine (www.ucd.ie/teaching/showcase). Similarly a chapter in the 'Practitioner's Guide to Enquiry and Problem-Based Learning, UCD', details the innovative curriculum design and best practice in problem based learning developed for the MVB programme. This guide was co-edited and designed by Ms Diane Cashman (www.ucd.ie/teaching/resources/ucdtlii0041.pdf)

The portal also contains open learning resources that include:

- Teaching toolkit
- Module Design & Enhancement
- Assessment
- Innovative Teaching
- E-Learning
- Programme Design & Development

Weblinks

UCD Teaching Portal

- www.ucd.ie/teaching

Educational Support Specialist

In 2009 an Educational Support Specialist, Ms Diane Cashman, was employed to support curriculum and resource development in veterinary medicine at UCD. This is considered a pivotal appointment in further advancing teaching and learning advances and in the development of new teaching modalities and new educational offerings. The educational support specialist works with academic staff to assist in curriculum design and evaluation and outcomes assessment, and provides support the development of educational resources, utilising a range of multimedia and e-learning technologies.

Veterinary Learning Resource Development Centre

In January 2010 a Learning Innovation Grant was competitively won from UCD Teaching and Learning to establish a new 'Learning Resource Development Centre'. The Centre, located in the Veterinary Library Learning Resource room, provides staff with:

- A dedicated space to facilitate development of learning resources.
- A centralised range of specialised hardware and software for the development of rich multimedia components.
- A Range of teaching and learning books and other resources
- UCD Guides on teaching and learning from the UCD Centre for Teaching and Learning.
- Professional assistance with technological and pedagogical innovation.

The Centre will promote the use of instructional technologies; engage and facilitate all staff in the development of learning resources; support and enhance the quality of teaching and learning and assist in the creation of a bank of high quality learning resources. The Centre opened in June 2010 and provides resources, including tailor-made workshops, to further support the development of computer assisted learning in the MVB programme.

Staff are encouraged to attend conferences and courses at which teaching and learning in veterinary medicine is discussed, as well as conferences in their specific discipline. UCD provides funding of €1,500 over a two year period for attendance at work-related meetings or conferences for each academic staff member and for senior administrators. Periodically, the school also organises workshops with invited speakers on topics relevant to veterinary education. For example in 2008 academics from the Royal Veterinary College, University of London gave presentations on e-learning and collaborative development of teaching and learning resources.

5.2.2 - Reward for teaching excellence

Criteria for Promotion

Teaching, Learning and Assessment is one of three criteria on which promotion to Senior Lecturer and Associate Professor is based. UCD has made a major change to its promotion system in deciding that all future promotions to Senior Lecturer will be non-competitive. This required the formulation of a set of benchmarks of achievement against which an individual may be assessed for promotion. All members of academic staff are therefore expected to aspire to excellence in teaching as well as making an effective contribution to the university and society, in addition to their research.

The benchmark criteria are (1) Research, Scholarship and Innovation (2) Teaching and Learning (3) Contribution to the University and Society. Only those who, at a minimum, meet the benchmarks for 'satisfactory' performance in two criteria and achieve the benchmark for excellence in the remaining criterion are promoted to Senior Lecturer. Candidates for Associate Professorship must aspire to high teaching standards, contribute to curriculum development and support junior colleagues. Promotion to full Professor can be made on the basis of excellence in Teaching or Research.

Presidents Teaching Awards

The President's Teaching Award provides a grant of €5000 to complete a specific project in the area of teaching & learning that is clearly in line with UCD's Education Strategy (<http://www.ucd.ie/registrar/educationstrategy/strategy2009-14/>). This prestigious award recognises the abilities of a recipient who will have a track record in teaching and learning including the adoption of leadership role in curriculum design, programme development and peer mentoring in Teaching & Learning.

Teaching and Learning Grants

Teaching and Learning grants are awarded annually by UCD and In 2008 a teaching and learning grant for €11,000 was awarded by the National Digital Learning Repository Project (NDLR – www.ndlr.ie) to support the development of reusable learning resources in Veterinary Medicine. A range of projects was developed including those in Parasitology, and Anaesthesia. In 2010 a further Learning and Teaching Innovation Grant was awarded to a total of €12,184 to support a range of teaching and learning projects in veterinary medicine.

5.2.3 Measures aimed at improving the quality of teaching

The measures taken to monitor and improve the quality of teaching include:

- Student assessment as an integral part of course evaluation.
- Meetings convened by staff to discuss new educational modalities/initiatives.
- Feedback from external examiners and subsequent implementation of recommendations.
- Contributions from honorary and visiting lecturers.
- Staff under probation are evaluated and their teaching and overall contribution is reviewed and a recommendation is made.
- Courses offered relating to teaching and learning development for the benefit of staff, demonstrators and tutors.

5.3 The Examination System

5.3.1 Examination Policy

The UCD Registry Assessment Team are responsible for the management of assessment and logistics activities, the development of assessment-related policy, provision of advice and support to students and staff throughout the University. The team manage the process of grading rules and GPA calculations, providing all calculations for programme exam boards and implementing any approved changes ahead of publication of final grades to students.

The Veterinary Programme Board is formally responsible for the award of grades and progression and graduation of students registered to the MVB.

Weblinks

- <http://www.ucd.ie/registry/assessment/>

There are two official periods in the year, in December and May, when end-of-semester exams are held. There is a two-week revision period between the end of teaching activities and the start of the examination period. Most modules have elements of continuous assessment as well as terminal examinations. For information on the University's Policy Statement on compensation, progression, repeating modules and resist assessments, please refer to www.ucd.ie/registry/academicpolicy/pol_stat.htm.

A range of assessment strategies is implemented throughout the programme, with full details available in module descriptors. A priority is the design of assessment tools that accurately assess the extent to which learning outcomes have been achieved. Some modules have assessments that include oral presentations, written reports, open book exams or group projects. The assessment of clinical competency includes a mixture of assessment of skills by rotation leaders – Objective Subjective Clinical Examinations (OSCEs) and clinical proficiency examinations (CPEs). Each student must receive a passing grade in each clinical rotation. Currently, in line with developments in clinical education generally, plans to introduce some Direct Observation of Clinical Skills (DOPS) into the clinical assessment are being considered.

The final professional examination has two separate components: Large Animal Medicine and Surgery and Small Animal Medicine and Surgery. Currently, students must pass both components; there is no cross-compensation. Staff prepare OSCEs for review by the Head of subject areas and the Final Year coordinator. Before the OSCE examinations the Final Year coordinator brings the students through the two exam venues and explains all details of the examination and the procedure to be followed. Each student is required to undertake one large animal CPE and one small animal CPE. Each panel consists of two internal examiners, with a primary examiner and an observer in which the roles alternate. The external examiner moves between panels seeing a variety of students as required. The final examinations are scrutinised by several External Examiners in the form of specialist clinicians from other veterinary schools/ practices and who have experience in assessment of clinical competency.

External Examiners are required to be recognized authorities in their subject, and to have expertise and experience in assessment. The University provides guidance notes for extern examiners and their role of external examiners in the new modular curriculum as described in <http://www.ucd.ie/registry/assessment/>. The External Examiner always reviews the examination papers before they are printed, and always reviews a sample of the examination scripts and, when scheduled, participates in practical or oral examinations. He/she confirms that the standard of marking is satisfactory, and ensures that there are no irregularities in the conduct and assessment procedures of the examination itself. The External Examiner submits a report to the Head of Subject, the Dean and to teaching teams. The latter are expected to act on recommendations made by the External Examiner.

5.4 Evaluation of Teaching

5.4.1 Overall Assessment of the Educational Process

There is a tradition of excellence and scholarship in veterinary teaching and learning at UCD. Several staff members have been recipients of President's teaching grants and others have contributed to peer-reviewed publication and conferences on teaching and learning in veterinary medicine. Formal student surveys, focus

groups and informal feedback give us the confidence to state that there is a high degree of student satisfaction with the educational experience. Staff and students have input to governance through committees and School and staff meetings, and most importantly through the Programme Board. Major issues, such as curriculum review, involve all academics within the school.

The Veterinary programme is subject to both internal and external reviews and audit relating to teaching and learning. Changes in programmes structure must be approved by the Veterinary Medicine Programme Board and are subject to approval by UUPB. The School employs a wide range of outcomes assessments in order to ensure that the data generated includes the views of the staff, students, graduates and employers so that the MVB programme can be effectively assessed and is responsive to changing needs.

5.4.2 Student Feedback

As part of the ongoing review process of the veterinary programme multiple methods (student questionnaires, group discussions and peer evaluation) are used in parallel to increase the validity and reliability of the process.

In 2004 a form of “structured group feedback” was adopted to capture qualitative data. This allowed students and staff to contribute feedback to the programme with a level of anonymity. The process supports equal opportunity for all views to be put forward, ensure time is given for comments to be thought through; enable participants to respond to and learn from other comments; and to prevent minority or extreme views dominating the discussion. Feedback was obtained from a randomly selected group of students from each stage of the programme.

In 2009 a project was initiated by the Registrar and Deputy Registrar for Teaching and Learning to design and pilot a system for the academic year 2009-10, to gather student feedback at module level at the university level.

Weblinks

<http://www.ucd.ie/teaching/resources/moduledesignenhancement/ucdstudentfeedbackonmodulesurvey/>

In line with UCD’s pilot Student Feedback project, UCD Veterinary Medicine implemented an online questionnaire for each semester of the MVB stage, to gather feedback from each module. The questionnaire is divided into two sections:

1. **Course Experience Questionnaire** – this is used to measure student views on the entire semester, investigating issues such as good teaching, clear goals and standards, generic skills, appropriate assessment scale, appropriate workload. This question is a standardised evaluation instrument and is widely used in higher education.
2. **Module Feedback Questionnaire** – each module contains its own feedback form. It contains 6 core questions relating to clear goals, teaching methods, assessment, workload and overall satisfaction. Staff can include additional questions relevant to their module from a bank of questions. The questionnaire was developed by UCD Teaching and Learning in 2009 as part of the University’s pilot project.

Student feedback is one criterion used by module co-ordinators, subject heads and Programme Board to consider the need for module/curriculum refinement and development. The results of module feedback are also made available to all academics teaching on the module and used as a tool for developing their teaching style and teaching portfolio (required for promotion applications).

5.4.3 Performance Management Development System (PMDS)

All staff are required to participate in the PMDS system annually. This is a relatively new process at UCD, and involves the setting of annual goals and evaluation of development requirements.

5.5 Student Welfare

5.5.1 Student support

Student services provided at University level include the following:

- Student health service
- Student counselling service
- Access Office-including “New ERA”(entry route for students from socio-economically under represented strata of society) Mature-entry support and Disability Support Service
- Student desk (matters related to enrolment, registration, fees, etc.)
- Clubs and Societies. A very wide range of sporting and other clubs and societies
- Peer-assistance through the UCD Students’ Union
- Electronic learning environment and other online services
- Eleven full-time Student Advisers support students across the university.

At Programme Level, Ms. Ros McFeely, Student Adviser for all Veterinary Medicine (including Veterinary Nursing) programmes, provides pastoral care to students. Her office (Room 046) is located on the lower ground floor of the Veterinary Sciences Centre and deals with a wide variety of student queries ranging from extenuating circumstances affecting exams through to personal and financial difficulties. This office works in close collaboration with the MVB Programme Manager and the Dean. Student support is also provided through the MVB Programme Office, which is located in Room 201A, level 3 of the Veterinary Sciences Centre, and is the first point of contact for students with queries on academic matters (for example applications for leave of absence, admissions queries). Where possible, the Programme Office and support staff provide solutions from within the School and programme. Where this is not appropriate, students are referred to the University Support Services. Under certain circumstances of severe financial difficulties, the Student Welfare Fund may make crisis financial awards. The Student Adviser currently sits on this committee. The Staff-Student Committee meets monthly to address particular issues that relate to students, and the Student Progress Committee serves as a valuable support for students who are in difficulty for academic reasons.

At Stage Level, a stage coordinator (year co-ordinator) makes themselves known to students at the start of the academic year. Students who do not perform well in class examinations or other forms of assessment are normally interviewed by the Stage Coordinator who will advise on steps to improve performance and identify what School or University support is available. These students will be flagged with the Student Adviser who will consult with the relevant academic staff member and provide individual solutions.

Weblinks

- UCD Student Advisers Website: <http://www.ucd.ie/advisers/>
- Student Support Links : http://www.ucd.ie/stu_heal3.htm
- UCD Student Union : <http://www.ucdsu.ie/>

There is a rounded *student induction programme*, organised by the Dean and the Student Adviser for students during Orientation prior to the commencement of the programme. This introduces incoming students to the University and School, the basic regulations, routines and welfare services, library and the veterinary teaching and support staff. The induction programme also has a social aspect. During the induction programme students receive information on the range of student support services available to them including the student health and counselling services and the Student Help desk, Student Adviser and Programme Office.

Students are also offered a very comprehensive *peer mentoring programme* in which current students (primarily taken from those who have just completed their first year) have volunteered to act as peer mentors to small groups of Stage One students. The peer mentors must undergo an interview and subsequent training process prior to commencing as peer mentors. The Student Adviser is responsible for delivery and supervision of the peer mentor programme and meets regularly with the peer mentors as a group to receive feedback and advise on particular issues that have arisen. Each peer mentor maintains a reflective journal for the duration of the programme and this is presented to the Student Adviser at each feedback session. The very significant role played by peer mentors in the continuing orientation of Stage One students is recognised at an annual awards ceremony hosted by the Vice-President for Students and attended by mentors parents friends academics and administrative staff.

Weblinks

- UCD Student Health Service: <http://www.ucd.ie/stuhealth/>

Student representatives participate in the *Staff/Student Committee*. Students in each MVB and BSc Veterinary Nursing year elect a representative to the committee, which is chaired by an academic staff member. This committee reports to the Programme Board and deals with student matters both academic and non-academic.

The *Student Progress Committee* is a sub-committee of the Programme Board. Students who have had significant academic difficulties are interviewed by this committee, which recommends steps that both the student and the staff can take to alleviate these difficulties.

5.5.2 Recreational and social facilities

In the Veterinary Sciences Centre students have access to locker spaces, showers and changing areas, a computer room and a recreational area that includes a sandwich bar.

The campus at Belfield is well served by recreational and social facilities. Clubs and societies cater for all aspects of university life: cultural, educational, religious, sporting, volunteering, including the Veterinary Students Society, VetSoc.

The University has extensive facilities including twenty-three natural grass areas on the campus, including stadia for soccer, rugby and Gaelic games, all-season tennis courts, an athletics track, and two synthetic grass floodlit pitches including the National Hockey Stadium.

The sports centre at Belfield includes two sports halls, five squash courts, a weights room attached to the Fitness Centre, one handball/racquetball alley, saunas and a state-of-the-art climbing wall. Other amenities in the Sports Centre are a sports injuries clinic, the Belfield barber, the UCD Sports Club (the Sports Bar) and a sandwich shop. This centre is currently undergoing redevelopment and is due to open in September 2011. The new Student Centre will have a range of additional facilities for the student community, which will include: An Olympic standard pool and trepidarium, debating chamber, dance hall, cinema, media suite studio, medical centre, theatre and a new gym.

The Student Centre offers a relaxing meeting place for students with café and bar areas. Many clubs and societies are organized through the Students Consultative Forum (located in the Student Centre) to which students have access. Students are encouraged to join societies during the second week of term in September. Among the amenities available to students here are well-stocked shops, a campus bookshop, a bike shop and a hairdresser's shop. A launderette is attached to the student residences in Belfield and in the Library Building, providing full washing, ironing and dry cleaning facilities. There is also a post office on campus and full banking facilities. Other amenities within the centre include a 600-seat auditorium, an exhibition space, a secondhand bookshop, newsagent, the offices of the Students' Union, the Student Health Service, a full-service pharmacy and meeting rooms for student clubs and societies. All these facilities are immediately accessible to veterinary students.

All students belong to the UCD Students' Union. The Union provides restaurants, bars, shops and recreational facilities. The UCD Students' Union also supports *Niteline*, a voluntary student-run organisation that operates a telephone listening and information service for students. The volunteers come from UCD and other third level institutions in Dublin, and remain anonymous within the student body. All students in the Veterinary Medicine Programme are members of VetSoc, which organizes social, academic and other events throughout the year.

Weblinks

- UCD Sport and Societies: <http://www.ucd.ie/sportandsocieties.htm>
- New UCD Student Centre: <http://www.ucd.ie/studentcentre/sc2/>

5.6 Comments and Suggestions

While recognising that there is a need for continuous refinement of teaching and learning methodologies, there is a consensus that staff in the school take their responsibilities to students very seriously and are responsive to their suggestions. The introduction of modularisation, together with a period of organisational change, has perhaps resulted in a comparative lack of clarity over lines of reporting and responsibilities for programme and module governance and management. This area is receiving attention and will continue to do so in the new structure. External examiner reports are considered to be of high importance in informing curriculum development.

Regarding the balance between teaching, research and clinical activity, clinical/translational research is recognised as equally important with basic research not only in veterinary medicine but throughout UCD. Many clinicians form important links with basic researchers. For example, Dr. Jarlath Nally, with basic research institutes in the biology of *Leptospira* spp., interacts actively with the staff of the Small Animal Clinical Studies Department. Dr. Simone Schuller, a Small Animal Clinician, has registered for a PhD with him and the research team has been working on several clinical applications.

It is acknowledged, both by veterinary staff and by UCD Senior Management, that the contribution of clinical veterinary staff is not fully recognised for promotional purposes as compared with that of those with no clinical responsibility. Proposals are being developed to remedy this significant issue.

For the future development of the programme, it will be necessary to consider the balance between the acquisition of specific and transferable attributes, skills and competences, and to ensure that assessment methods are optimal for measuring the extent to which learning outcomes are achieved.

Chapter 6: Facilities and Equipment

6.1 Factual Information

6.1.1 The Campus and School Buildings

The Veterinary School moved to new, purpose-built academic and clinical facilities on the main UCD campus at Belfield in 2002. This move provided the potential for much of the academic and strategic development that has occurred since.

The Belfield campus is easily accessible for students, staff and clients, having excellent links to major road and public transport networks. It is within easy reach of both Dublin City Centre (10 minutes by bus or car), and to major farming and sport horse regions. Staff and students on the campus can avail of an excellent range of University facilities including student accommodation, student social facilities, sports facilities, bank, post-office and shops. (See Appendix 6, Map A, for Map of Belfield Campus). The School maximises the research opportunities afforded by proximity on campus to the Conway Institute (several staff members are Principal Investigators of the Institute), and to other schools such as Medicine and Medical Science, Biomolecular and Biomedical Science, Public Health and Population Science and Biology and Environmental Sciences.

The core facility occupied by the School is a building of area 3,800m², which is divided into two sections of similar size: the Veterinary Sciences Centre and UCD Veterinary Hospital. The UCD Veterinary Sciences Centre comprises 3 floors (lower ground floor, ground floor, and 1st floor), which are built around a sizable central courtyard. The Hospital is a single-storey building, which is connected to the Veterinary Sciences Centre.

An important additional facility for the School's teaching and research programmes is the UCD Lyons' Research farm, situated of the Kildare/Dublin border, 30km from the Belfield campus.

6.1.2 Premises used for Clinics and Hospitalisation

UCD Veterinary Hospital (Appendix 6, Map B and C)

The Hospital is broadly partitioned into zones for small animal medicine, small animal surgery, large animal medicine and large animal surgery. The reception area services both the small and large animal clinics. Clients have direct access from a separate client car park. The central pharmacy is adjacent to reception and has restricted access.

- The small animal section of the hospital comprises seven consulting and three treatment rooms, one nurses' station, 2 kennel rooms for cats and dogs respectively, and one room solely for exotic animals. There is an isolation room dedicated to animals with infectious diseases and a separate room for animals receiving radioisotope therapy. There is also a hydrotherapy unit for small animal patients
- The Small Animal Surgery Suite is located nearby. It includes three operating rooms served from a large preparation room, as well as a minor procedures room and a nurses' station
- In addition to these areas, the hospital has an animal food preparation area, a grooming room and storage facilities. An outdoor exercise area is provided for dogs. The Intensive Care Unit with space for up to 10 animals is also located here
- The Large Animal Surgery Suite connects with the small animal surgery area, and shares support functions (e.g. cleaning, sterilisation). The large animal surgery facilities include two operation halls, two padded induction/recovery boxes, and ancillary preparation and storage areas close to the large animal accommodation. There is also a teaching room, which is used for standing surgeries, and a 'base' for the mobile clinic
- Surgery, diagnostic imaging, recovery and accommodation areas are linked by an overhead rail hoist. The equipment and techniques available for large animal surgery include videoendoscopy, arthroscopy, laparoscopy and AO/ASIF fracture repair equipment in addition to standard soft tissue and orthopaedic surgical instrumentation

- There are also four isolation boxes for large animals within an enclosed area with restricted access. The UVH has a walled lunging ring as well as a high-speed equine treadmill. There are three trailers suitable for transporting horses, cattle and small ruminants. Vehicles include a 4x4 jeep and two cars capable of towing trailers
- The diagnostic imaging facility is located between the small and large animal surgical suites. The facility includes a fully-automated Siemens Aristos Digital Radiography small animal Xray machine with a 120kv 1200 ma Xray tube with moving suspended gantry and the capability of cross table positioning and removable table top. Serving large animal requirements there is a Siemens large animal xray machine (120Kv 1200ma tube) system with suspended xray tube with a 2 metre floor to ceiling travel. This interlinks with a cassette holder with a similar vertical travel and also moves up and down and across the xray room. A mobile MRI clinic visits monthly. A portable 100kv 50mas machine is available for ambulatory work. Two Siemens C-Arm fluoroscopes are available for dynamic xray screening in the LA and SA operating theatres. The latest addition is a Siemens Sensation 4-slice CT machine for small animals with a capability of taking anaesthetised large animals once an appropriate CT table has been sourced and installed. There is a Ge400 gamma camera on ceiling suspension for nuclear medicine imaging of small and large animals equipped with Hermes nuclear diagnostics software. The suite is completed by a Kodak pacs digital archiving system with a capability of image review in theatres, consulting rooms and offices.
- Excellent and well equipped necropsy facilities, together with staff changing and showering areas also form part of the hospital complex.
- Within the hospital there is also an apartment for interns on duty, and office space for academic and clinical staff.

The numbers of places available for hospitalized animals is shown in Appendix 6, Table A.

6.1.3 Premises for Rearing Normal Animals for Teaching Purposes

Lyons Research Farm

UCD Lyons Research Farm is a core resource for teaching and research activities. The 220-hectare farm is located 30km from the Belfield campus. Travel time is approximately 45 min by bus/car at times when traffic is busy. Practical classes are conducted at the farm for Stage 1 and 2 students. The farm is also used for research projects by academic staff. Teaching in large animal clinical studies also takes place on the farm for second, third, fourth and final Stage veterinary students.

- Dairy cows (100) are housed in cubicles and milked in a 12-unit herring-bone parlour with computer identification of the cow's feeding requirements and individual milk recording
- There is individual housing for 60 beef cattle, slatted pens for 300 beef animals and loose pens for 150 beef cattle. There is individual housing for 50 sheep and loose pens for 750 ewes. The pig unit consists of individual and loose housing for 20 and 400 animals respectively. There is individual loose box housing for 12 mares and 2 foals
- Lyons Farm also has office space for staff and students associated with the MVB programme
- There are laboratories available for veterinary research and teaching
- In addition, there is one teaching laboratory and one operating theatre used for elective bovine caesareans and other surgical exercises.

6.1.4 Premises for Theoretical, Practical and Supervised Teaching

Lower Ground Floor (UCD Veterinary Sciences Centre) (Appendix 6, Map D)

Offices of academic staff occupy corners of the UCD Veterinary Sciences Centre on the lower ground floor. This floor also houses the diagnostic laboratories, some research laboratories, some shared office accommodation for graduate students and researchers, the staff common room and one floor of the veterinary library. The diagnostic laboratories are situated so as to facilitate easy access for sample delivery from the adjoining Hospital.

Ground Floor (UCD Veterinary Sciences Centre) (Appendix 6, Map E)

Most of the ground floor is taken up by teaching and student facilities. These include,

- The reception area
- The veterinary library - an area that is both pleasant and easy to use, housing an excellent range of journals, books and IT support. In addition to conventional reading space, the library also contains group study rooms and office accommodation for library staff
- 2 seminar/small group study rooms
- 3 large teaching laboratories, 2 of which can be combined to accommodate larger numbers
- 1 computer teaching laboratory/open access student computing area. There are 36 computers with printers linked to the campus-wide network. Other rooms have wireless access for laptops
- 3 lecture theatres, two of which are tiered and can accommodate 120/108 people, and one of which is flat, with moveable seating. The lecture theatres and other main teaching rooms are all equipped with modern audio-visual support, including ceiling-mounted data projection, adjustable lighting and radio microphones
- The student common room and cafeteria
- Locker rooms for male and female students

1st Floor (UCD Veterinary Sciences Centre) (Appendix 6 Map F)

The 1st (top) floor houses the School Office and Boardroom. The Programme Office, which performs academic administration on behalf of the School, is situated here. The remainder of the floor includes research laboratories, academic staff offices and postgraduate/post-doctoral office accommodation.

The Hospital building also contains small-group teaching rooms, as outlined above. The necropsy facility and anatomy teaching facility are located adjacent to one another in one part of the facility. The numbers of rooms under each heading are shown in Appendix 6, Tables B, C and D.

6.1.5 Diagnostic Laboratories and Clinical Support Services

Fully-functioning clinical pathology laboratories are located in the part of the Veterinary Sciences Centre adjacent to the Hospital (Room 022).

The laboratories are comprehensively equipped with advanced, automated, and newly-acquired technology. Most laboratory data is captured by a recently-introduced, customized, laboratory-information-management system (LIMS). The data is then reviewed by staff and reported out to the hospital by the LIMS. The main laboratory equipment a Siemen's Advia 2120 analyser for hematology, a Randox Imola benchtop analyser for clinical chemistry, Immulite 1000 and Centaur automated immunoanalysers, and a Siemen's Rapidpoint 400 analyser for blood gases. Additionally, there are multiple Olympus microscopes for morphological examination of hematology and cytology preparations, a Trinity biotech KC4 analyser for hemostasis, and a Guava EasyCyte flow cytometer for immunophenotyping of lymphomas and leukemias. There are also excellent facilities for histopathology and cytology.

Diagnostic laboratories for bacteriology and parasitology are located in rooms 032 and 028 respectively.

The Clinical Reproduction and Herd Health laboratories (rooms H091 and H092, respectively) provide support for these areas of clinical activity. The Population Medicine Research Laboratory (Room H091A) provides diagnostic support in relation to bovine tuberculosis and the Centre for Veterinary Epidemiology and Risk Analysis (Room 008) provides specialized epidemiological and statistical support, through funding from the Department of Agriculture and Food. The Food Safety Research Laboratory provides diagnostic support for investigations of food-borne disease.

The necropsy, anaesthesia and diagnostic imaging facilities, are described under Section 6.1.3

6.1.6 Slaughterhouse Facilities

The School does not own a slaughter house/meat plant. Students are required to complete practical training in Veterinary Public Health, in conjunction with veterinary officials of the Department of Agriculture, Fisheries and Food and veterinary inspectors, at registered meat plants and abattoirs. This system of "hands on" meat

inspection experience gives students a broad understanding of food safety procedures as they relate to Irish industry and regulatory requirements.

Veterinary facilities at 26 export-approved meat and poultry meat plants in the Republic of Ireland and a further five such plants in Northern Ireland are used for the teaching of Veterinary Public Health and Food Hygiene. The use of these plants for teaching is authorised by the Chief Veterinary Officer in both jurisdictions and is supervised by official veterinarians.

Fresh beef, pork and mutton carcasses along with offal are purchased from a number of these plants for classes. These materials, along with fresh poultry carcasses taken from processing lines at three poultry meat plants, are available for practical classes conducted in an environment similar to that of a meat plant. Disposal of these materials is in accordance with legal requirements concerning specified risk material (SRM). Facilities for the further investigation of specimens from the above carcasses are available within this laboratory. Class sizes of up to 25 students are accommodated for hands-on tuition in the assessment of carcasses and offal, and dispositions on such materials. A further 25 students are accommodated in an adjacent laboratory.

6.1.7 Food Processing Facilities

The food processing facilities of UCD's Food Science building are used for classes in food processing. A range of processing equipment for foods of animal origin is located in these laboratories. Meat curing processes, including brine injection equipment are used during practical classes along with hoppers, mixers and vacuum formers as used commercially in the manufacture of processed hams. In addition, access to pilot-scale equipment for the formulation and manufacture of sausages is available along with processing equipment, raw ingredients, including a wide range of seasonings and casings are demonstrated during practical classes. A low volume heat-exchange unit is also used to demonstrate the principles of commercial liquid milk pasteurisation.

6.1.8 Waste Management

Specific risk material waste

All material of animal origin from the post-mortem room, anatomy dissection and food hygiene laboratory is classified as (SRM) and is therefore transported and rendered by licensed agents. This process is audited by the UCD Safety Office.

Chemical waste

Chemical waste such as xylene and acetone, is stored in approved, leak-proof, sealed glass/plastic, 2.5 litre 'Winchester' flasks which are placed in a chemical cabinet within each laboratory. When approximately six bottles have accumulated a licensed laboratory disposal company collects and disposes of this material and provides documentation that disposal has occurred. This documentation is retained in the laboratory concerned.

Radioactive waste

Radioisotopes are received, stored and disposed of in accordance with University Policy.

Clinical waste

All potentially infected material (non-sharp) such as contaminated bandages, swabs, gowns, gloves, tissues and soft disposables is collected in yellow approved waste bags. These yellow bags are positioned in yellow bins and are available in every room in the Hospital and in laboratories.

Pharmaceutical and cytotoxic waste

Out of date, or partially used medicines, pharmaceuticals and substances used for the treatment of animals is regarded as pharmaceutical waste. This waste is disposed of in yellow 'sharp bins' with blue lids and handed over for collection by a licensed collector. These bins are located in the pharmacy. Similar bins are used for disposal of items that have been in contact with cytotoxic drugs. Both categories are ultimately disposed of by high-temperature incineration.

6.1.9 Future changes

The need for development/augmentation of facilities will be kept under review.

6.2 Comments

The location of the school on the main University campus is a major advantage, both socially and academically, for students. The Veterinary Sciences Centre and Veterinary Hospital are purpose-designed, relatively new, and fit for purpose. Routine maintenance and some minor modifications of facilities has been carried out since they were commissioned in 2002. Further modifications may be necessary to adapt to increased class sizes and changes in teaching methods and technology. The equipment relevant to undergraduate teaching is also adequate. There has been some investment in equipment in the last three years, most notably in diagnostic imaging. However, the School will need to identify new sources of funding for renewal of equipment in the coming years. There has been relatively little investment in the infrastructure and facilities at Lyons Research Farm in recent years. The School, together with the University, will, similarly, need to identify a mechanism for continuing investment in these facilities.

Maintenance is generally satisfactory.

6.3 Suggestions

The 2002 buildings and infrastructure resulted from a major investment by the State, complemented by fundraising from Alumni and others. The School must, in the coming years, identify a clear strategy for reinvestment in infrastructure and facilities that will allow it to keep these at the cutting edge.

Chapter 7: Animals and Teaching Material of Animal Origin

7.1 Factual Information

7.1.1 Basic Subjects

Anatomy

A variety of animals and carcasses are available for anatomy teaching. Surface anatomy is taught using staff-owned animals. Digital x-ray, ultrasound and CT images are used as appropriate. For dissection practicals, greyhounds destined for euthanasia are purchased from a licensed dealer. They are euthanased at UCD and the cadaver preserved using formalin. Horses and ruminants for dissection are also obtained; again, animals destined for euthanasia are used. A variety of fresh organs are obtained from local abattoirs as required for further dissection practicals. The anatomy museum contains a large number of specimens used in teaching including skeletons, models, fixed organs and prosections. Fixed specimens are stored in large formalin tanks or in humidified cabinets as appropriate.

Pathology

Cadavers for necropsy are obtained from external and internal sources, with staff pathologists requested to perform necropsies on a wide variety of species. The numbers of necropsies carried out over the last three years are shown in Appendix 7, Table A.

Other Basic Subjects (including Animal Husbandry)

A large number of animals from the dairy and beef herds and the sheep flock at Lyons estate are used for teaching not only animal husbandry and handling but also aspects of physiology. The numbers available include a 100 cow dairy herd, 200 beef cattle and 500 breeding ewes plus progeny. A number of horses (12-15) are also maintained at Lyons estate for teaching in these subjects. Staff-owned small animals are frequently also used for animal handling practicals. Through the co-operation of the UCD Bioresource Unit, laboratory animals for handling practicals are available. Typically, rabbits, mice, hamsters, gerbils, rats and guinea-pigs are used in handling practicals.

Fresh reproductive tracts from abattoirs are used in reproduction practical teaching. Students also visit a variety of animal establishments including racing stables, dairy farms, AI stations, Teagasc Beef Research Centre and Dublin Zoo. Equine limbs from a knackery are obtained for farriery/foot care practicals.

7.1.2 Food Hygiene

A wide range of specimens for teaching food hygiene are collected and transported from abattoirs or other sources in refrigerated vehicles to UCD. These include material from cattle, sheep, pigs, broilers, fish and shellfish. Bulk tank raw milk is obtained from Lyons Research farm, along with samples of bulk milk, pasteurized, sterilised and UHT milk from a variety of outlets. Retail samples of fresh and processed meat and egg products are obtained for practicals as required. Students also directly encounter a large variety of material of animal origin during their extra-mural VPH placement.

7.1.3 Animal Patients for Clinical Teaching

UCD Veterinary Hospital sees small animal, equine and farm animal cases throughout the year. An equine emergency service is provided by the hospital, and a small animal emergency service is run from the hospital premises in association with a consortium of South Dublin Practitioners, the Dublin Animal Emergency Clinic (DAEC). Most small animal cases seen are referred. However, a first opinion service is provided for the Dublin Society for Prevention of Cruelty to Animals (DSPCA), Guide Dogs for the Blind, and for neutering operations. The numbers of animals received for consultations over the past three years, and numbers hospitalized, are shown in Appendix 7, Tables B and C, respectively.

The Hospital accepts referrals for 50 weeks of the year, and provides an emergency service for its patients at all times. Interns reside on the premises with residents and senior clinicians on-call. Consultations are held on 5 days each week, on an appointment basis from 9AM to 5PM.

7.1.4 Vehicles for Animal Transport

It is the norm for animal owners to provide required transport to UCD Veterinary Hospital. Where animals need to be collected, a 4x4 Jeep with three trailers suitable for horses, cattle and small ruminants are available. A second 4x4 is also available if required. A charge may be made for transportation unless waived under a teaching subsidy.

7.1.5 Emergency Service

A 24-hour emergency service for small animals is operated from UCD Veterinary Hospital by the Dublin Animal Emergency Clinic (DAEC). This is a company run by a consortium of about 20 South Dublin practitioners. It has dedicated staffing by clinicians and veterinary nurses. Each Stage 5 MVB student spends one week on rotation with the emergency service. The service provides out-of-hours emergency cover for each of the participating practices.

7.1.6 Mobile Clinic

Students on herd health rotation visit farms in rural areas in neighbouring counties where they participate in the provision of Herd Health advice, planning and preventive medicine. Ambulatory visits involve investigation of herd and flock disease problems with emphasis placed on the herd health management cycle. There is thus a continuum between clinical teaching in UCD Veterinary Hospital, on co-operating dairy farms, at the UCD Farm and on farms requiring investigation for specific herd/flock problems.

Student transport for herd health visits currently consists of two VW Caravelle minivans, each with a seating capacity of 9. A range of further vehicles is available if required from the UCD Central Transport fleet. Each student participates in a number of herd health visits and investigations during their 5-weeks of Farm Animal Clinical Studies rotation. The group size on individual visits may be from 4-8. Over the last three years the average number of visits to farms has been 204, and the average number of animals seen 6000. These numbers include both cattle and small ruminants.

Evaluation of students on herd health visits is carried out by staff members on the same basis as for other clinical rotations.

7.1.7 Other Information

Students are also directly involved with treating animal patients at a number of charities including Dogs Trust and the DSPCA. At these locations they gain experience of shelter medicine and neutering operations. Staff of UCD Veterinary Hospital provide referral services to Dublin zoo, with students accompanying staff on visits. Within the Clinical Reproduction rotation, in addition to carrying out herd-health fertility work on farms, Stage 5 students perform elective caesarian operations on heifers from Lyons Estate Research Farm under appropriate supervision.

The Small Animal caseload consists principally of referrals, with first-opinion exposure coming through Dogs Trust and other animal charities as well as CEMS. The facilities, clinical expertise and referral small animal caseload at UCD Veterinary Hospital are on a par with that in other comparable veterinary schools and in many respects more advanced than those available in small animal practices. The equine caseload is a mixture of referral and first-opinion cases. The hospital facilities are excellent, and in many respects similar to those available at specialist equine hospitals. The farm animal caseload is a mixture of first-opinion and referrals involving individual animals, often specifically requested/purchased for teaching purposes, and a sophisticated herd-health service with advanced data recording and data management capability.

UCD Veterinary Hospital provides specialist services in Cardiology, Ophthalmology, Anaesthesia and Analgesia, Animal Reproduction, Bovine Health Management, Clinical Pathology, Diagnostic Imaging,

Equine Internal Medicine, Internal Medicine-Companion Animals, Pathology, Parasitology and Surgery (Small Animal and Equine). Most of these services are provided by staff clinicians who also run residency programmes. Hence the service is available continuously. In the case of ophthalmology, only a part-time service (1 day per week, by appointment) is available from a retired staff member. For cardiology, a visiting specialist contributes to the service.

The fee income from the Hospital in 2009/2010 was €1.6 million. The strategic plan for the hospital involves increasing this revenue substantially over the next four years. This will require a significant investment in staffing, but will increase the financial sustainability of the Hospital as well as providing scope for investment in equipment.

Relationships with practitioners are key to the effective delivery of clinical education through UCD Veterinary Hospital. Practitioners depend on the Hospital to refer cases, and UCD depends on practitioners to provide these cases to underpin clinical teaching. Currently, there is a level of frustration among some referring practitioners on the waiting times for acceptance of cases, which in some cases can be long. This situation arises due to staffing limitations, and will improve with the increased clinical and support staffing planned over the next few years. The diagnostic services are also widely used by referring practitioners, particularly for small animals. The turn-around times, and availability of diagnostic services during Christmas holiday times, are issues that concern some practitioners in relation to these services. Development of diagnostic services also forms part of the Hospital strategic and business plan.

Beneficial relationships between the School and the Department of Agriculture Fisheries and Food (DAFF) exist, particularly in the teaching of Veterinary Public Health. The School also has a good relationship with the DAFF Veterinary Research Laboratories, particularly in research, and the growth of this relationship would be of benefit to teaching.

Overall, staff enjoy excellent relationships with their colleagues in practice. There is a high-rate of participation in continuing education events run by clinical societies throughout the country and beyond, and informal telephone advice/consultation with colleagues in practice is provided routinely. Through the Centre for Veterinary Epidemiology and Risk Analysis (CVERA), there is a formal link with the Department of Agriculture and Food that is directly relevant to the control of animal disease and disease investigations. There are also close links with the Food Safety Authority of Ireland (FSAI). Periodic surveys of the profession are conducted on graduate attributes, most recently on the skills requirements of graduates entering farm animal practice, in 2009. There is always room for improvement, however, and it would be beneficial to strengthen feedback loops on EMS and to provide more opportunities for members of the profession to have an input into initiatives at UCD Veterinary Medicine.

The clinical/diagnostic laboratory recording system in use in the UVH was developed using Filemaker-Pro Database software. There are interfaces for specific users including the diagnostic laboratories, diagnostic imaging, anaesthesia, reception, pharmacy, small animal clinical studies, surgery and large animal clinical studies. The client database and financial database are common to all users. The development of the software was completed by a private software company, Lawler Developments Ltd. The system is known as Vetscope and is now available commercially. Appointments are scheduled, recording information on owner, referring veterinary surgeon, animal data, the date and appointment time. Before the client arrives a "paper file" is created which contains an examination form, a consent form and a charging form. When the client arrives, all relevant data are recorded including animal details. Case details and results of diagnostic investigation are kept in hard copy and, along with the letter to the referring veterinary surgeon, saved in the Vetscope database. Retrieval of case information for teaching, research or management is possible using a search for words, terms and diagnostic test results. A dedicated file room is used for storing hard copies and all students have access to Vetscope through computers in the hospital.

In October 2005, a computerised digital imaging system (Kodak CR 500) was installed. The images are held on a central server to which staff and students have access via networked computers throughout the hospital. Ultrasound and nuclear medicine images are also stored on this server. Hard copy image files from the last 10 years are stored in a separate room and accessible to all students and staff for teaching and clinical review purposes.

For the herd health/population medicine programme, a computer system using the database of the Irish Cattle Breeding Federation is used by staff and students for recording and analysing data. Kingswood®, Irish Farm Computers® software systems (used on farms to record animal health status and movements)

are also available, enabling data to be transmitted by e-mail for analysis. Access is available to INRAtion® software for the formulation of dairy rations.

Students become familiar with the use of Vetscope and use it to retrieve information for case reports etc. They will also become familiar with some aspects of practice management through this, and of course client communications is emphasised throughout didactic teaching as well as through CEMS and in clinical rotations. Students have the option of pursuing business topics as electives but there is currently no specific practice management module. There is likely to be scope to address this issue within the framework of the Hospital business plan. Students do attend pre-graduation and post-graduation sessions run by the Veterinary Defence Society, in co-operation with VCI, Veterinary Ireland and UCD, where practice management is on the agenda.

Students benefit from materials arriving at the diagnostic laboratories in microbiology, parasitology and clinical pathology through practical classes, projects and within the paraclinical rotation.

7.1.8 Ratios (Denominator given in each case)

Animal patients

Students graduating:cattle _____	1:17
Students graduating:horses _____	1:8.08
Students graduatiing:small ruminants _____	1:16
Students graduating:pigs _____	1:2
Students graduating:dogs _____	1:57
Students graduating:cats _____	1:7
Students graduating:other pets and exotics _____	1.28

Necropsies

Students graduating:farm animal/equine necropsies _	1:3.44
Students graduating :small animal necropsies _____	1:1.48

See Main Indicators in Executive Summary for further Ratios.

7.2 Comments and Suggestions

As already described a major expansion of clinical services is planned. Investment in staffing will pave the way for this development, which is necessary to provide clinical education for increased student numbers and also to provide for an income stream to sustain the Hospital infrastructure and facilities. It is likely that small animal services will be an initial priority for this development. For farm animal services, expansion of the Herd Health services will be important, and in the equine area discussions are on-going about the direction to be taken. In planning for these developments it will be important to bear in mind the primary mission of the Hospital in education and research, while increasing caseload.

A large variety of animal species are seen by UCD students in hospital and ambulatory services. Pigs and poultry do not generally feature in the clinical caseload, although they do in necropsy numbers. This reflects the nature of porcine and avian practice which in Ireland is very specialised, with only a handful of veterinary practitioners involved. Students receive lectures from specialised practitioners in these areas and participate in visits to farms. The principles of epidemiology and herd health are also applicable to intensive pig and poultry production. Advice is provided to students with an interest in these areas on elective opportunities and CEMS. As the aim of the programme is to produce graduates capable of *entry* to any branch of the profession, we feel that their preparation to enter these areas of practice is appropriate. A similar scenario would apply to students with an interest in the growing area of aquatic veterinary medicine.

Students are exposed to normal and clinical animals, and/or necropsy specimens, throughout each semester of the programme. The clinical rotation schedule demonstrates the frequency of exposure to farm animals, horses and small animals for Stage 5 students. In Stages 1 and 2, exposure will occur in animal handling

and husbandry practicals, animal welfare trips, and anatomy practicals, as outlined in Chapter 5. In Stages 3 and 4, exposure occurs through necropsy practicals, surgery practicals, clinical reproduction and VPH modules. In most semesters, it would be safe to say that students have at least weekly contact with animals and/or cadavers, and sometimes much more. In Semester 1 of Stage 3, contact would be slightly less, being replaced with laboratory practicals.

Chapter 8: Library and Learning Resources

8.1 Factual Information

8.1.1 UCD Library System

University College Dublin Library supports the teaching, learning and research activities of 24,000 students and 3,200 staff in UCD. The library comprises 5 branch libraries with 3203 student reading places. With their UCD Identity card, all students and staff have access to every branch library. The branches each have their own areas of specialisation as laid out below:

James Joyce Library	Arts, Celtic Studies, Human Sciences, Business (Undergraduate), Law, Science, Agriculture, Civil & Biosystems Engineering
Health Sciences Library	Medicine, Nursing & Midwifery, Physiotherapy & Performance Science, Public Health & Population Science
Richview Library	Architecture, Landscape Architecture, Planning and Urban Studies
Veterinary Medicine Library	Veterinary Medicine & Veterinary Nursing
UCD Library, Blackrock	Graduate Business Studies

The library's budget for the last three years was:

2009/10	€7,449,000
2008/9	€8,146,500
2007/8	€8,620,000

To support the UCD community, the library has a print collection in the region of 1.4 million volumes. Last year the library purchased books. The library subscribes to 1550 journals in print and 62197 electronically. In addition the Library subscribes to over 440 databases to allow students and staff discover articles and other publications. The library issued 875693 books in the 2008/2009 academic year.

Library users can search the print collection using the library catalogue and all electronic resources using Findit@UCD, our single entry access point to all electronic subscriptions. Both Findit@UCD and the catalogue are available 24/7 to students and staff for off-campus use.

Management

The library is managed by the University Librarian, Dr. John B. Howard, who reports directly to the University Registrar and who is also a member of the University Senior Management Academic Committee. The Librarian is supported directly by Carmel O'Sullivan, Associate Librarian, Resources and Information and Marie Burke, Associate Librarian, Operations & Systems.

Staffing

The staffing complement of UCD Library over the five branches is 118.2 full time equivalent staff.

Opening Hours

Each of the library branches has slightly differing opening hours but in general in term time the library is open:

Monday to Friday	08:30 – 23:00
Saturday	09:00 – 21:00

Library hours are extended in the run up to exams with students having access to the James Joyce Library (the largest of the five branches) at the following times;

Monday to Friday	08:30 – 24:00
Saturday to Sunday	09:00 – 21:00

8.1.2 Veterinary Medicine Library

The Veterinary Medicine Library provides library and information services to support the teaching, learning and research activities of the Veterinary Medicine and Nursing Degree Programmes. The library is located on the ground floor of the Veterinary Sciences Centre adjacent to lecture theatres and teaching laboratories and thus is fully integrated into the students learning experience.

Books

The Veterinary Medicine Library currently has 42,000 books in its collection. Most of these are on open access in two main collections – the General Collection, which contains the majority of the books and the Short Loan Collection, which contains multiple copies of recommended course textbooks. The library also has a collection of around 500 videos and DVDs and a collection of CD-ROMs. Last year the Veterinary library added 244 books to its collection and issued 27975 books in the 2008/2009 academic year.

Journals

The Veterinary Library currently holds 142 print titles and as the library's policy is to move to electronic subscriptions where possible, many more are available electronically. This ensures that most relevant veterinary titles published in English as well as journals in related disciplines are available.

Databases

The library provides access to all major bibliographic databases in animal health, including CABDirect, Medline, Cambridge Scientific Abstracts, Biosis Previews, FSTA and Web of Knowledge, as well as a comprehensive collection of databases in related areas. Access is through Findit@ucd the library's access point to electronic resources.

Opening Hours

The Veterinary Library opens for 50.5 hours per week during term time, as follows:

Monday to Wednesday	09:00 – 22:00
Thursday	09:00 – 19:00
Friday	09:00 – 17:00
Saturday	09:30 – 13:00

During Vacations the library is open

Monday to Friday	09:00 – 17:00 (in this and the last academic year budget restrictions have curtailed these opening hours somewhat).
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As in other branches opening hours are extended in the run up to exams.

Study spaces

The Veterinary Medicine Library has 94 reader spaces (including two group-study rooms). The Dry Laboratory (Room 109), located on the same floor as the library, can be used as an overflow reading room when it is not in use for teaching purposes.

Veterinary Library staffing

The Deputy Head of Library Academic Services, Life Sciences (Kathryn Smith) is the Veterinary Medicine Library's operational manager and reports to the Head of Library Academic Services, Science, Technology and Medicine.

The Veterinary library is currently staffed by 1 Liaison Librarian (Diarmuid Stokes), 1 Senior Library Assistant and 1 full time Library Assistant. In total the Veterinary Library has 4.75 full time equivalent part-time staff.

8.1.3 Information Technology Services

Audio-visual service

The veterinary library also has a collection of around 500 videos and DVDs and a collection of CD-ROMs which are available to students. The library has received copyright clearance to convert a number of titles from VHS to DVD in order to preserve them and make them more available to students who have laptops. Students have access to this collection while the library is open and many of the titles can be borrowed as well.

Computer Services

The Library provides 92 public access PCs throughout all the 5 library branches and in the Veterinary Library there are 10. Students can use these computers to access the library catalogue and electronic resources. In addition students can print material. These machines are supported by library staff from the Library IT department. Students with their own laptops are supported by the availability of WiFi in all of the branches and the library also offers a very popular laptop lending scheme in both the James Joyce and Health Sciences Libraries.

IT Services

UCD IT services provide access to 984 Public Access computers throughout UCD. These computers are available either in Computer labs or in Stand up and Surf (SUAS) public areas. IT Services maintain a Computer Laboratory in the Veterinary Sciences Centre with 31 computers. IT Services also support 3 IT Laboratories in the James Joyce and Health Sciences Libraries, giving students access to 66 Computers. IT Services also provides a campus wide Wi-Fi network to facilitate the ever-increasing number of students with laptops.

Computing Support

When students commence their studies in UCD, the library provides training on how to search the library catalogue and how to access electronic resources. This training is further supplemented with more information literacy training as they progress through their degree to help ensure that students can effectively search and access information for their studies. The Library has developed a suite of web pages to support students. These are located at http://www.ucd.ie/library/students/information_skills/index.html. All students can avail of an induction session to IT services at the start of their first academic session. This introduces them to:

- Printing services
- Blackboard (virtual learning environment)
- UCD Connect
- Using their computer account
- How to get help and advice
- Using Computer labs
- Laptop services
- Accessing software from the network
- How to save their files

In addition IT Services offer telephone and email support and 4 IT Centres across the campus, where they can get IT advice and other assistance.

8.2 Comments and Suggestions

The UCD Veterinary Medicine library is widely regarded by staff, students, and external readers as an excellent, user-friendly facility. Comments on the excellent service, in particular from Diarmuid Stokes, are frequent. There are considerable advantages in having the facility within the Veterinary Sciences Centre. The library has built up an excellent collection of journals, books and other resources. UCD Library's active policy of developing e-collections ensures that there is 24/7 off-campus access to its journal and database collections.

However, as University and Library budgets have come under pressure there is some concern in the school over the budget available for library resources and the potential impact on collection development.

Budgetary concerns have forced a rationalization of opening hours across the five UCD Libraries. However UCD library has been responsive to feedback from Veterinary students and staff regarding opening hours and managed to increase the opening hours in the Veterinary Medicine Library this year. Veterinary students do avail of reading spaces in the other branch libraries, especially the Health Sciences and James Joyce Libraries, the latter provided extended evening and weekend opening hours and services.

The development of the Graduate Entry stream and the Veterinary Nursing degree has meant extra pressure on the reading spaces in the Veterinary Medicine Library. The Library is also looking at the possibility of moving some material in the Veterinary Library, which is available electronically, to storage, thereby allowing for extra reading spaces to be developed.

The rapid change in the way information is managed and searched has implications for the way in which academic libraries will develop in the future. More and more resources are available from the desktop, meaning that the requirement to visit the real, rather than the virtual library, is decreased. Students still need study spaces, however, traditionally provided in the library. UCD library will be an important partner in developing e-learning and blended learning in veterinary education.

Chapter 9: Admission and Enrolment

9.1 Factual Information

9.1.1 Admission Requirements

Student admission to the UCD Veterinary Medicine Programme is facilitated by the UCD Admissions Office. Applications for admission to the Bachelor of Veterinary Medicine (MVB) programme is made to the CAO (Central Applications Office) in Galway. Weblink: www.cao.ie. This body processes applications to undergraduate programmes for most Higher Education Institutions (HEIs) in Ireland.

The subjects and standards required for entry for veterinary medicine are a minimum Grade D3 gained in the ordinary level Leaving Certificate in Irish, English, a third language, mathematics and one other recognised subject and a minimum Grade C3 gained in higher level Leaving Certificate chemistry. In addition, students must meet the matriculation requirements of two C grades or better in higher-level subjects. In practice, because of the level of competition for places in the programme, to be successful in gaining admission applicants need to have achieved far higher levels of attainment in their Leaving Certificate. Competition for places in this and almost all other degree programmes in HEIs in Ireland is based on a points system for students completing the Leaving Certificate examination from secondary school. The examination results of applicants who matriculate and meet UCD Veterinary Medicine Programme entry requirements are assessed on the basis of allocated points for grades obtained in this examination. The Leaving Certificate examination performance of applicants is scored on the basis of an applicant's highest marks in no more than six individual subjects taken in a given year. Points are awarded on a differential ranging from 100 points for an A1 grade in a higher level subject to 5 points for a D3 grade on an ordinary level paper. The maximum points total attainable is 600. The points requirements for a place in the MVB programme are typically above 540 (550 in 2009) meaning that students have to score a substantial number of A grades at higher level. The UCD Admissions office uses a pre-defined formula to equate other examinations (for example UK A-levels, International Baccalaureate) to Irish Leaving Certificate grades.

A small number of places on the programme (typically 5) are reserved for students with social or other disadvantage. Students allocated these places receive additional supports before entry and throughout their programme. They may meet the points requirements for entry or fall slightly short. These places are allocated following discussions between the UCD Admissions Office and Dean of Veterinary Medicine.

A separate entry pathway is provided (graduate entry) for those students who have already completed a degree in a HEI. Ten places are available in this stream annually for EU students, and 30 for non-EU students. EU applicants are evaluated on the basis of:

- Basic eligibility
- *Curriculum vitae* and personal statement
- Graduate Australian Medical School Admissions test (GAMSAT) score

Applicants fulfilling basic eligibility requirements are ranked on a combination of their GAMSAT score and a score for their *curriculum vitae*. Both of these components carry a potential maximum of 100 points. Applicants with an appropriate degree in the biological/biomedical sciences may be offered a place in the 4-year graduate entry programme. Applicants without a biological sciences background may be offered a place in the 5-year programme.

Overseas (non-EU applicants) at present consist mainly of applicants from North America. These applicants can use the Veterinary Medicine Colleges Application Service (VMCAS) of the American Association of Veterinary Medical Colleges (AAVMC), of which UCD Veterinary Medicine is a member. Applicants must submit a College Transcript, Academic History, Personal Statement and three Letters of Recommendation. Further details are available at www.vmcas.org. Applicants to UCD also complete a supplemental application online. Details are available at www.ucd.ie/vetmed. Alternatively, North American applicants can apply through Atlantic Bridge (www.atlanticbridge.com).

Small numbers of non-EU applicants are accepted where specific contractual arrangements are in place. For example, with the Government of Botswana. Such students are assessed on the basis of their

performance during 2-years of appropriate 3rd Level education, and a personal statement. They are admitted to the 5-year programme.

9.1.2 Student Numbers

The student numbers in the UCD Veterinary Medicine (MVB) Programme for 2010 are shown in Appendix 9, Table A. (This includes students admitted under the graduate entry programme. Graduate student numbers as of January 2010 are shown in Appendix 9, Table B.

9.1.3 Student Admission

Entry Criteria

The criteria used for determining entry to the programme are as described above for the various entry streams. Not all students have an equal level of knowledge in the basic sciences on admission. In particular, students who have not studied biology to Leaving Certificate level have some ground to make up in the early stages of the programme. The number of HEA-funded places is not fixed but any large increase would need to be discussed with the funding agency in advance. The HEA would consider evidence of future skills requirements in such a discussion. As the amount of funding available for higher education nationally is a fixed sum and does not increase in proportion to student numbers, an increase in the number of HEA-funded students would not result in a pro-rata increase in the amount of funding provided.

In recent years the number of students admitted has increased from 80 to 120. This increase includes 10 graduate entry places for EU students, 30 for non-EU students and a small number of additional undergraduate places.

UCD has an agreement with the School of Veterinary Medicine at St. George's University, Grenada under which it accepts qualified students from St. George's University for clinical training. This programme consists of 48 weeks (three terms of sixteen weeks) of clinical track rotations. At least 42 of these weeks are spent in Dublin and a maximum of six weeks may be spent at other approved locations. On completion of the year of study, a transcript is provided to St. George's University for all of its students, documenting rotations taken and grades achieved.

A number of short-term exchange agreements are also in place, including Erasmus agreements.

The increases in student numbers have paved the way for an increase in staffing as agreed with UCD Senior Management Team. Some minor adaptation of teaching facilities (Lecture Theatre 115) has taken place. Given the location of the school on the main University Campus, with its abundance of teaching facilities, the increase in numbers is not expected to pose logistical problems. However, the need for further modifications will be kept under review. Some adjustment to practical teaching, in order to keep class sizes to appropriate levels, has also taken place. Significant adaptation of clinical rotations to keep the group size to present levels will also take place for 2012/2013.

A breakdown in the disciplines in which graduate students are registered in given in Appendix 12, Table C.

Total number of applicants for the past five years is given in Appendix 9, Table C.

Student flow

Most students who enter the veterinary programme complete their training in 5 years. Table D, Appendix 9 shows student progress for entry in the year 2005 and their subsequent status five years later. Tables E and F in Appendix 9 show numbers of students graduating for each of the past five years, and average duration of enrolment for students graduating in 2010, respectively.

Progression Requirements

Progression requirements are in accordance with those in the General Regulations of UCD. In summary, students are allowed to progress if they have acquired 75% of the credits for a particular stage, provided their GPA is above 2.0. Students may, therefore progress while carrying a number of credits for which they

will have to complete the requirements in the next stage. A derogation for the veterinary medicine programme exists whereby students are required to have satisfactorily completed all modules from Stage 1-4 before progressing to clinical rotations in Stage 5.

Specific resit examination sessions are not routinely held in the modular system. Students may resit module examinations at the end of the next semester. Module co-ordinators may offer remediation opportunities to individual students outside the normal examination time. This option is sometimes invoked for students who would otherwise, because of requirements of one or two modules, be prevented from progressing to Stage 5 until the next academic year. Such arrangements are overseen by the Programme Board.

Students who are in danger of not progressing with the rest of their cohort are requested to attend an interview with the Student Progress Committee.

The circumstances under which students would be required to withdraw from the University because of failure to progress have not yet been tested under the modular system.

9.2 Comments

Student Selection

Because of the demand for undergraduate places in the UCD Veterinary Medicine Programme the entry requirements are among the highest in the University. Thus, there is no difficulty in filling the places available. It is recognised, however, that selection of students on the basis of academic achievement at second level only is not ideal. The Programme Board has and will continue to examine proposals for broadening the criteria used. There is an ongoing national debate on student selection which must also be taken into consideration. In 2009, the HPAT (Health Professions Aptitude Test) was introduced in Ireland in an attempt to widen the criteria for entry to medical schools. This has generated considerable controversy, which the Programme Board is observing with interest. There is no doubt but that it will be important to broaden our entry criteria for school-leavers, but there is understandable anxiety not to move hastily in this regard.

The VMCAS and GAMSAT selection procedures for graduate applicants are considered to be working well.

Student numbers

The decision to increase total student numbers, principally through the addition of a graduate-entry stream with a high proportion of non-EU students, was taken to leverage the school's AVMA-accredited status, to move forward on UCD's Internationalisation agenda, to broaden entry criteria, and to improve the finances of the school. Clearly, a large increase in student numbers without an associated increase in staffing and clinical caseload would be detrimental to the quality of education provided. In the current model, we believe we have achieved a good balance in terms of increased student income and the resources to increase staffing and clinical caseload. To date, all targets have been reached. Student numbers will be kept under review by the Programme Board.

Student Progression and Outcomes Assessment

Student progression is satisfactory and attrition rates are very low. A priority is given to pastoral care and to early identification of students having academic or other difficulties. The peer-mentoring programme has been particularly successful in this regard.

9.3 Suggestions

The strategic decision to increase student numbers, largely through non-EU students, provoked some anxiety among staff in terms of workload and quality of education. In the first academic year in which the programme operated, the graduate-entry stream achieved good academic grades and all students progressed to the next stage, when they will join the Stage 3 class of the 5-year programme. This success was due not only to the quality of students admitted but also to the dedication and intense focus of the staff concerned with developing the programme and teaching the modules. Very close attention was paid in this first year of the programme to student and staff feedback. While some issues requiring attention were

identified in Semester 1, these were rectified in Semester 2. Views of staff and students have been taken into account in preparation for the academic year 2010/2011. Considerable planning is now required for developing the clinical staffing resources that will be required when this larger class group reaches Stage 5. The Programme Board will also continue to examine ways of broadening entry criteria for undergraduate applicants.

Chapter 10: Academic and Support Staff

10.1 Factual Information

The information presented is for the academic and financial year 2009/10.

10.1.1 Personnel in the Establishment 2009/2010

Numbers of academic and support staff in the School are presented in Appendix 10. Table A gives the numbers of academic and support staff by category, Table B the numbers within each of the academic units and Table C the total numbers engaged in undergraduate teaching. All figures are expressed as full-time equivalents (FTE).

10.1.2 Ratios

The ratios of teaching staff to undergraduate students and teaching staff to support staff in 2010 are:

- Number of teaching staff:undergraduates 1:7
- Number of teaching staff:support staff 1:1.19

See Appendix 10 and Executive Summary for further ratios.

10.1.3 School Staffing

Allocation of staff to the establishment

The number of staff within the School is related to the annual financial allocation to UCD from the Higher Education Authority (HEA) and the non-exchequer income achieved. Since the financial downturn the Government has introduced an Employment Control Framework that restricts new appointments in the Public Service generally, including HEIs. Requests for new appointments must be backed by a business case outlining the financial and academic rationale for the position.

Allocation of staff to the School

The increased non-Exchequer income arising from the introduction of the Graduate Entry Veterinary Medicine programme, and the plans for increasing clinical income, are two of the factors that have allowed for some increases in staffing in the face of the adverse economic circumstances. While there has been pressure on staffing, therefore, the capacity for increasing external income has and will over the next number of years provide a buffer against restrictions on numbers employed in the public service.

Difficulties in recruitment and retention of staff

As with many schools of veterinary medicine worldwide, there are potential difficulties in the recruitment and retention of appropriately qualified staff in some areas, including in some clinical disciplines. These arise due to worldwide competition for such staff and the higher salaries available in the private sector, in some cases. A further compounding factor is a perceived disadvantage of clinical staff, as compared with others throughout the university, in achieving the benchmarks for promotion.

Relevant trends or changes in staff levels and flexibility to employ staff from additional income

Budgetary pressures on the University and the Higher Education Sector generally mean that recruitment of academic or support staff can only take place if there is a sound business and academic case supporting the appointment. Many areas in the University have not been able to replace staff in the last two years due to the imposition of an Employment Control Framework to the public sector generally in Ireland. Staff have also been encouraged to avail of early retirement packages (in some cases returning post-retirement on teaching-only contracts). However, the University has recognised the need for new appointments in disciplines with

the potential to attract significant non-Exchequer income. Veterinary Medicine is one of these. Within the framework of the business plan agreed with UCD senior management, a number of appointments have been sanctioned on a phased basis from 2009-2013, based on the admission of 40 students (30 non-EU and 10 EU) annually to the new graduate-entry veterinary medicine programme. To date, student recruitment has met the targets. A total of 6 academic staff and 4 support staff will be employed on a phased basis over a 4-year period, commencing in 2008/2009 (one academic and two support staff were employed in 2009, and another academic and a senior administrative appointment have been advertised). Business plans have been agreed with the University on foot of additional external income from international students, and from development of clinical services. These figures do not include staffing agreed for the new BSc Veterinary Nursing Programme. A second business plan, for UCD Veterinary Hospital will lead to a further number of clinical and administrative appointments.

An additional academic clinical appointment has also been offered in small animal surgery, funded by the Dogs' Trust contract. Some income from clinical and diagnostic work is used to employ additional staff on a locum basis at an hourly rate.

In addition to the numbers above, there are a number of specialists who are not staff members but who regularly contribute to teaching in areas such as poultry and pig medicine, exotic animal medicine, and public health.

Regulations governing outside work by staff working in the school

Staff are permitted to engage in consultancy work subject to approval of the President. The condition and nature of consultancy activities and regulations and guidelines are such that outside activities must not interfere with or be in direct competition with UCD activities/services. It is accepted that work of this nature can bring significant benefits to individual staff, the University and the profession. Clinical staff are not permitted to offer an external consultation/referral service in their discipline in competition with their University appointment. Staff can be paid for outside work or have payments made to a UCD account in support of their research or professional development.

Financial provision to attend at scientific meetings and sabbatical leave

Staff are encouraged to attend scientific meetings and must undertake appropriate CVE in their discipline. The University supports each academic staff member with an allocation of €1400 personal conference allowance over two years (1st October, 2008 - 30th September, 2010) for attendance at international meetings. Staff may apply for special conference leave and financial support especially if they are delivering papers. The process is competitive and University wide. Hospital and Section budgets may also support staff attending conferences. In addition, research-active staff may fund research-related travel from their grants. Residents have a structured training programme and the cost of attendance at meetings, externships and examination expenses are included in the budget for their training programme.

Staff may apply for sabbatical leave to further their research or gain clinical expertise relevant to teaching and research areas.

10.1.4 Staffing Plans

In the current financial climate the recruitment of academic and other staff requires the generation of a solid business and academic case. The development of strategies for recruitment of international students and of increasing clinical income has provided a route to employment of a significant number of additional academic and clinical staff over the next five years. The 4-year graduate entry programme with targeted international student recruitment commenced in September 2009. To date, both the academic and financial goals for this programme are on target. During 2009, one academic, one educational support specialist and one administrator were appointed. During 2010, another academic appointment and 2-3 residency appointments will be made. In 2011/2012 it is envisaged that there will be investment in 4 clinical academic appointments.

The hospital development strategy is at an earlier stage, but a similar number of appointments are envisaged. Overall, the staffing strategy over the next five years will aim at increasing non-exchequer income from 33 to 42% of total, thereby providing a cushion against decreasing amounts of public funds available for higher education generally. In parallel, priority will be given to providing equitable career

progression and reward pathways for clinical academics. These additional appointments are essential for maintaining appropriate educational provision for substantially increased student numbers.

10.1.4 Staff Salaries

Salary ranges for staff in the School are as follows (€)

Professor	107,964	–	138,719
Associate Professor	78,994	–	104,682
Senior Lecturer	64,034	–	89,454
College Lecturer	48,306	–	77,510
Assistant Lecturer	33,623	–	53,805
Resident	24,000	–	26,000
Intern	23,700		
Chief Technical Officer	53,884	–	67,078
Senior Technical Officer	45,977	–	55,563
Senior Executive Assistant	34,089	–	42,273
Executive Officer	23,348	–	35,511
Laboratory/Animal attendant	26,844	–	28,688

The salaries of qualified clinical staff (Diplomates) do not generally match those in the private sector.

10.1.5 Staff with Veterinary Qualifications

Staff with veterinary qualifications account for 74% of the academic staff. Veterinary graduates working in the clinical sections are essential for the supervision of clinical professional training and all academics in these areas have veterinary qualifications. The number of veterinary graduates working in the preclinical section of veterinary sciences is 65% and in herd health and animal husbandry the percentage of veterinary qualified staff is 50%.

10.2 Comments and Suggestions

Priorities for the staffing strategy over the next five years will be:

- To ensure that the phased recruitment based on clinical and internationalisation plans meets the agreed priorities of the School. Additional appointments, through contractual arrangements with other organisations, such as the Dogs Trust arrangement, will also be sought.
- To ensure that clinical academic staff have appropriate opportunities for career progression.

Beyond this, the new school will also need to consider managing staff workload, mentoring of existing and new staff, balancing teaching, research and clinical activity, and the depth and breadth of specialties to be supported.

Chapter 11: Continuing Education

11.1 Factual Information

The School considers itself as having an important role to play in providing education from undergraduate through to taught graduate, research graduate and life-long learning in veterinary medicine and related areas. The importance of continuing veterinary education (CVE) provision has been highlighted with the introduction of mandatory CVE for veterinary practitioners and veterinary nurses by VCI. Until recently, CVE provision through the school has been on an “ad hoc” basis. However, there is now in place a defined CVE strategy. CVE provision will include hands-on courses and conferences as well as blended learning and e-learning offerings. The latter two are particularly important for practitioners who may not be free to travel for CVE. Modern technology and the possibility of interactive on-line learning has revolutionised this area, and opened up offerings to potential participants all around the world.

11.1.1 Continuing Education Courses Held at the School

The continuing education events/courses held at the school during 2010 and 2009 are shown in Appendix 11, Table A (Organised by staff at the School) Table B (Organised at the School in collaboration with outside bodies) Table C (Outside courses in which staff participated) and Table D (UCD Formal e-learning/blended learning programmes).

11.2 Comments

The school has recognised the importance of developing this part of the education portfolio. Continuing education provision will include a mix of accredited part-time blended learning offerings (Graduate Certificates) together with stand-alone “micro-offerings”. A new Graduate Certificate in Dairy Herd Health will commence in August 2010 and is fully subscribed (30 places).

In order to meet the needs and requirements of veterinary continuing education, considerable resourcing has been put in place to develop a new UCD CVE portal. This new service will allow veterinary practitioners and nurses to browse a collection of online ‘eCVE’ offerings and face-to-face workshops on a range of topics. Students can sign-up *via* an online payment system and gain access to the eCPD offerings utilising the UCD virtual learning environment. As members of UCD CVE students will have access to the electronic resources of UCD Library.

These eCVE offerings are not part of a formal UCD accredited programme, therefore considerable planning and development to ensure dovetailing with UCD administrative and registration procedures was required. UCD Veterinary Medicine has pioneered the development of continuing professional development offerings in UCD, and as a result other UCD Health Sciences schools are utilising the same mechanism and infrastructures.

This new online UCD Continuing Veterinary Education Portal will be launched at the UCD Veterinary Hospital Conference on August the 20th 2010. Students can sign up to the portal and gain access to CVE offerings in September. The virtual learning environments for eCVE and for graduate certificates will be available to the visit team. Recognition for development of CVE offerings will occur through financial incentives to discipline groups and through recognition of such activities as part of the teaching and outreach activities of individual staff members.

11.3 Suggestions

The process of mainstreaming continuing education so it comes to be recognised as a core activity of the school must continue. Continuing education is an important way in which the school engages in dialogue with the practicing profession. Although there is significant competition from commercial providers, the academic standing of the University and the School will be a major asset as it seeks to have its offerings reach the widest possible audience.

Chapter 12: Graduate Education

12.1 Factual Information

The School is a recognized training centre for graduates who wish to acquire specialized clinical training, and currently runs European Veterinary College (under the aegis of the European Board of Veterinary Specialisation) approved residency programmes in: Anaesthesia and Analgesia, Animal Reproduction, Bovine Health Management, Clinical Pathology, Diagnostic Imaging, Equine Internal Medicine, Internal Medicine-Companion Animals, Pathology, Parasitology, Surgery (Small Animal and Equine). These programmes are provided by staff who are members of the relevant European/American Colleges. There are other staff within the School who are members of European Colleges but where a residency programme is not yet offered (Pharmacology and Toxicology, Ophthalmology).

The School is also an approved training centre for the Royal College of Veterinary Surgeons (RCVS) in Cattle Health and Production, Sheep Health and Production, Small Animal Medicine, Small Animal Surgery, Diagnostic Imaging and Anaesthesia.

12.1.1 Graduate Clinical Training (Interns and Residents)

Interns

Each year, six Interns (3 large and 3 small animal) are employed. Intern programmes are devised to satisfy the needs of the respective residency programmes for which an internship is a prerequisite. Interns either live on-site or are provided with an accommodation allowance.

Residents

In addition to their training programme, Residents are expected to provide after hours on-call services and are heavily involved with clinical teaching of undergraduate veterinary students. The number of residents enrolled between 2005 and 2009, inclusively is given in Appendix 12, Table A. All candidates undertaking residency programmes hold veterinary degrees registrable by the Veterinary Council of Ireland. All of the Residents receive a salary unless also registered for a higher postgraduate qualification, in which cases they are paid a graduate student stipend.

12.1.2 Taught Graduate Programmes

Several formal taught graduate courses have been or are being developed within the School.

The Graduate Certificate in Canine Sports Medicine is specifically designed to provide veterinary practitioners with the knowledge, skills and attributes required for the veterinary care of racing and breeding greyhounds, and other canine athletes on a part-time basis. The programme is largely delivered by a combination of distance learning and hands-on practical sessions at UCD campus and was first offered in 2009/2010. A similar Graduate Certificate in Dairy Herd Health is planned to start in September 2010 (Appendix 12, Table B). A Postgraduate Certificate in Veterinary Public Health is offered jointly with the University of Ulster, using their e-learning platform.

12.1.3 Graduate Research Programmes

There are graduate students currently registered for both Master and PhD programmes within the University. The number of students within their respective discipline are listed in Appendix 12, Table C and include the period from January 2005 to December 2009, inclusively.

A small number (6%) are salaried and undertake their postgraduate qualification on a part-time basis. A proportion (27%) hold a primary veterinary degree.

Over the past five years, 20 students have successfully graduated with a Masters degree and 42 with a PhD degree. This represents an average of 12 students per year.

12.2 Comments

Until recently, the school did not offer any taught graduate programmes. There are a number of drivers that point to the importance of this area of activity:

- The University has identified its taught graduate portfolio as an area for expansion and will provide strategic incentives to schools to provide new taught graduate programmes
- The requirements for annual continuing education for veterinary practitioners and veterinary nurses
- The new technologies underpinning e-learning
- Increasing specialisation within the profession

Hence, it is expected that over the next number of years the number of such programmes will increase substantially. There will be three kinds of offerings:

- Non-accredited, stand alone CVE “micro-offerings”
- Accredited University programmes from 15-60 ECTS credits – Graduate Certificates, Diplomas, Masters
- Professional Doctorates

The professional doctorate pathway will be particularly important for those pursuing clinical specialist qualifications. It is envisaged that this pathway will allow those enrolled for EBVS Diplomas to register also for a professional doctorate through the University. This will provide added value to residency programmes, improve the financial sustainability of such programmes, and provide recognition for staff effort in supervising such students.

The percentage of veterinary graduates interested in pursuing advanced research degrees is relatively low, though it has increased in recent years. A limiting factor for such potential students will always be the level of stipend available. The number of graduates interested in pursuing residency programmes and taught graduate programmes is increasing and this trend is expected to continue.

UCD now runs Structured PhD Programmes, requiring students to undertake taught modules covering both generic and discipline-specific skills. A formal transfer process is undertaken after one year. A number of Thematic PhD Programmes are also available, enabling students to avail of master classes and other advanced training. Students in the School are enrolled in several Thematic Programmes including Infection Biology and Reproduction.

12.3 Suggestions

Over the next five years the school will continue to develop its taught graduate portfolio, and will also launch the Professional Doctorate pathway. It will examine the opportunity for special incentives for veterinary professionals wishing to engage in research, for example through programmes which fund dual advanced clinical/research pathways. Graduate education, therefore, will assume a larger role in the overall mix of activities than at present. The presence of an increased number of graduate students will enhance undergraduate teaching through the contributions of these students to teaching, through enhanced visibility of a variety of career pathways and through improved financial resources.

Chapter 13: Research

13.1 Factual Information

13.1.1 Introduction

UCD is a research-intensive University that aims to increase its profile internationally through strategic investment in priority areas of research. Research within the University benefits from the existence on one campus of a broad base of expertise. The presence of the Veterinary School provides considerable added-value to the portfolio of life-sciences research at UCD, and, in turn, veterinary research benefits from close collaboration with the wider biomedical community on campus. As it is unique on the Island of Ireland, veterinary medicine at UCD represents a point of strategic advantage for the university. Students are educated in a manner that makes them aware of the importance of new knowledge for the continued development of the veterinary profession, and of the potential of careers as veterinary scientists.

Research Themes

Research in the School of Agriculture, Food Science and Veterinary Medicine spans a number of areas and UCD is recognised as a leader internationally in a number of specific areas. Overall University College Dublin is focusing its research efforts and resources on the four key themes of:

- Earth Sciences, Energy and the Environment
- Health and Healthcare Delivery
- Information, Computation and Communications
- Global Ireland

UCD Veterinary Medicine has a major input into the first two of these themes and also contributes to the remaining two. Several research centres act as foci for the delivery of research objectives including the Centre for Veterinary Epidemiology and Risk Analysis, the UCD Institute for Food and Health and the UCD Conway Institute of Biomedical and Biomolecular Research. Knowledge exchange/technology transfer activities are channelled through Nova UCD (UCD Technology Transfer Office) and through organisations such as Animal Health Ireland.

The One Health Initiative is a global movement to promote and enhance collaboration and convergence in health research and healthcare delivery, involving medicine, veterinary medicine and related scientific disciplines. It has been endorsed and incorporated into the strategic thinking of such influential organizations as the Wellcome Trust, the World Health Organisation, American Medical Association, American Veterinary Medical Association, the World Bank, and the Food and Agriculture Association. One example of the necessity of such a strategy is the recognition of the fact that approximately 60% of human diseases are associated with infectious agents that move across species barriers, and that 75% of new emerging diseases of man are zoonotic in origin. The spread of resistance to chemotherapeutic agents used in animals and man, the biomedical research potential of animal disease models, the potential of “functional foods” and the societal benefits of companion animals are some other examples of areas that can benefit from the One Health approach. UCD Veterinary Medicine is exceptionally well-equipped to deliver on the challenges and benefits of the One Health paradigm. Increasingly, the Ecosystem Health concept whereby the health of the environment, plants, animals and humans are seen as interdependent, is gaining currency and again, UCD Veterinary Medicine has unique resources to contribute to this theme.

13.1.2 The Research Environment

As a research-intensive institution, UCD holds that students should be taught by scholars and researchers who are at the cutting-edge of their field. A high proportion of UCD Veterinary Medicine academic staff are research-active. A recent bibliometric analysis carried out by Leiden University ranked Veterinary Sciences first among all the fields of study evaluated in terms of impact of past performance and ranked second for future performance (Appendix 13).

13.1.3 Impact of Research on Education in the Veterinary Medicine Programme

Research has influenced the professional programme and the professional students in a number of ways:

- Research programmes have enhanced and broadened the MVB undergraduate curriculum. Many research studies have been used in lectures and practicals and have formed the basis for some of the problem-based learning cases. For example, studies on muscular dystrophy in Japanese Spitz dogs have been used in clinical neurology (Stage 4 and 5 MVB) and in understanding of muscle degeneration and regeneration (Stage 3 and 4 MVB). Research findings on the emerging disease of Greyhound meningoencephalitis forms the basis of a problem-based exercise within microbiology teaching (Stage 3 MVB). Students are also encouraged to read scientific literature from the standpoint of a scientific reviewer and opportunities exist to critically analyse data, particular in the context of problem-based learning.
- Several modules require students to interrogate data, review manuscripts, prepare case reports and otherwise demonstrate that they have mastered generic skills relevant to veterinary research.
- Veterinary students are encouraged to attend graduate research seminars and also Irish Region meetings of the Association of Veterinary Teachers and Research Workers (AVTRW). Students who have completed summer research placements present their data at this meeting. From 2010/2011, attendance at the AVTRW meeting will be a core part of the MVB Stage 1 Graduate Entry Programme. Library staff and facilities also encourage students to interrogate research databases, particularly when undertaking research projects, electives and other project work.
- The School seeks to enrich the MVB undergraduate programme by providing opportunities for veterinary students to become part of a research group, either at UCD or at an international level. To encourage this, students have had the opportunities to apply for summer research bursaries. The students can also use this experience as a contribution to their extra-mural studies. Noteworthy was the success of two of our MVB students in obtaining funding for summer projects in 2004 and 2005 from the UK-based charity Cats Protection following a competition open to all of the UK-based veterinary schools, and the success of two students in 2009 and 2010 in winning a summer research scholarship funded by the Horse Welfare Trust. Students have also attended the Cornell Leadership Programme and Cambridge Summer School. In addition, a number of the Final Year based electives are with research active groups and again expose students to a vibrant research environment.
- The graduate entry system to the veterinary programme has increased the number of students who already have PhDs. The School has recognised their potential and has allowed the design of electives based on their previous research skills. Ten percent of the graduating class of 2006 undertook a period of research experience during their 5-year programme at UCD. Because of the increasing financial support for research-based extra-mural studies, the increasing exposure to and interest of students in research, and the opportunities for electives within the new curriculum, this percentage is increasing and the goal is to increase it to 50% over the next five years.

13.2 Comments

In summary, *all* students are required to acquire research skills, to evaluate research, and to link research to clinical and other applications during the programme. Their achievements are measured by a variety of tools including case presentations and reports, literature surveys, and data analysis exercises. A proportion of students (estimate 15%) engage directly in larger blocks of research through internally or externally funded summer studentships, summer schools or intercalated degrees (for example BSc pathology at RVC). Research performance of the school is strong, and research results incorporated into teaching as a routine. Although research-based electives are currently available as part of the 4-week elective period in Stage 5, the uptake of these has been slight, as compared with clinical electives. This is perhaps not surprising, given the focus of students at this stage on acquiring clinical skills and experience.

13.3 Suggestions

An increase in the number of research-based electives available at both pre-clinical and clinical stages of the programme is desirable. Because of their hands-on nature, however, it is likely that a relatively small number of students could be accommodated in each participating laboratory. UCD is currently the only veterinary school in the UK or Ireland not to offer the possibility of an intercalated degree, with a research emphasis, to students. Consideration is being given to providing such an option, perhaps through an extra semester, within the programme.

Chapter 14: Extra-Mural Studies (EMS)

14.1 Factual Information

14.1.1 Pre-Clinical EMS (Farm and Companion Animal Experience)

Students are required to i) become proficient in the handling and management of a variety of animal species and ii) to have good knowledge of the key essentials of the main food production systems (milk, beef, lamb, pig) at farm level. Each student is allocated a specific academic supervisor and an appropriate programme of farm and companion animal experience up to a maximum of twelve weeks following interview. This experience is obtained between the Christmas vacation of the first veterinary year and the end of the Easter break of the second veterinary year. The staff supervisor approves the farms or animal enterprises proposed. Students are subsequently examined at the end of their second year on their farm and companion animal experience, and on animal handling competencies (20 ECTS credits as part of EMS). Farm and companion animal experience provides the student with the opportunity to practice and become proficient in techniques demonstrated during animal handling practical classes within UCD. The students are advised on the two sub-components as follows:

Farm Animal and Equine Experience

- The primary objectives of farm/horse EMS are to provide hands-on experience while conducting routine chores with food-producing animals and horses, including exposure to the key elements of the main production systems such as stocking rates, housing requirements, grazing management, winter feeding, breeding policy, welfare, disease prevention and principles of good husbandry and production for optimum health.
- In order to maximize the benefits of this farm/horse experience EMS programme, the students are advised to concentrate on those species to which their previous exposure has been limited or non-existent. To this end, the timing of each training period is also important and the students are advised to schedule their EMS to coincide with the time of peak activity, as follows:
 - Dairy - Calving, early lactation, breeding
 - Beef - Calving, calf rearing and finishing
 - Sheep - Lambing
 - Horses - When indoors
 - Pigs - Anytime

Companion Animal Experience

Students that are lacking experience with companion animals are required to obtain experience for one week at a small animal hospital/clinic. Here the student should gain experience in handling, feed, cleaning, exercising and routine husbandry of dogs, cats and other companion animals. The student is required to learn how to approach, handle, restrain, and examine companion animals in a competent, professional manner. At the end of the week, the student should be able to carry out routine procedures such as lifting, restraining, nail clipping, ear cleaning and tablet administration. Students are advised that as this period does not constitute any part of clinical EMS, their emphasis should be on routine care and husbandry rather than clinical diagnosis and treatment.

Implementation and assessment of pre-clinical EMS

Students are interviewed in November of their First Year, to ascertain each individual's requirements for farm/companion animal experience, in terms of the types of farms and duration of the training period per farm. As part of the process, each student is responsible for locating and arranging his/her own EMS placements. In terms of farm/horse experience, each farm or farming enterprise must have the prior approval of the supervisor (as outlined in the Student Proposal Form) for insurance purposes. The student is expected to provide the supervisor with details of the address of the farm/stud proposed, the nature of the farming enterprise and the number of animals kept. Any student that is unable to find suitable placements is directed to consult their supervisor, who may refer them to a list of approved farms available. In addition, it is the role of the supervisor to help trouble-shoot any difficulties arising from such EMS experience.

Students are provided with detailed guidance on the data collection recommended to allow them evaluate each specific animal enterprise, and to complement or provide practical insight into the course material delivered in UCD. In addition, the student is provided with a list of core competences that they are expected to have mastered prior to examination.

Whilst detailed information is provided to students for all the main food-producing and companion animal species, the material outlined in Appendix 14, Table A, relating to dairy cattle is given as an example of the types of data they are expected to collect. Appendix 14, Table B, outlines the core competencies expected of students following completion of dairy/beef EMS. A similar system is used for the other species. The completion of this pre-clinical training to the satisfaction of the student's supervisor is a prerequisite for passing the Animal Handling examination at the end of the Stage 2 MVB programme.

14.1.2 Clinical EMS

During the third, fourth and fifth stages of the MVB programme, students are required to complete a minimum period of 24 weeks of Clinical Extra-Mural Studies (CEMS). Clinical EMS is a stand-alone 40-credit module that is graded overall as pass or fail. (A separate 1 week period applies to VPH EMS).

An introductory talk is given by the EMS Co-ordinator (Dr. Rory Breathnach) to Stage 3 students in the early stages of Semester 2 in order to provide general information on the goals of CEMS, guidelines for the completion of CEMS requirements and information on assessment and other ancillary matters. This verbal presentation is then supported by written protocols that are placed on the virtual learning environment, along with electronic versions of the CEMS placement and verification forms that the students/practice supervisor are required to complete. Prior to going on any placements, all students are made aware of their responsibilities as outlined in the UCD policy document on work-placements, the Veterinary Practice Act 2005 and the Code to Professional Conduct. Additional documentation available to students includes the framework of learning objectives and draft letters suitable for sending to CEMS providers.

CEMS provides students with the practical experience of the art and science of veterinary medicine, gained from a number of branches of the practising- and non-practising profession. The broad aims of EMS are to provide students with:

- Improved understanding of husbandry, health and disease in all species of domestic animals
- Opportunity to supplement the knowledge and experience gained through formal training within UCD
- Opportunities for more formal training in meat plant veterinary procedures and neutering/shelter medicine (Dog's Trust affiliation with UCD)
- Opportunity to develop proficiency in animal handling and commonly-employed veterinary techniques
- Opportunity to understand the basic principles of medical and surgical treatment, and the regulatory framework within which the profession works
- Opportunity to explore other avenues of veterinary endeavour such as basic and applied research, animal welfare programmes and conference attendance

The 24 weeks of clinical EMS experience includes a requirement for a minimum of:

- 2 weeks equine practice
- 4 weeks small animal practice (of which Dog's Trust rotation can count for one week)
- 6 weeks farm animal or mixed practice
- 1 week meat plant experience

The remainder of the time can be spent in practices, veterinary hospitals, laboratories, district veterinary offices (DVO) or other suitable establishments selected by the individual student and approved in advance by the EMS coordinator. While students normally nominate the EMS provider themselves, any student encountering difficulties is encouraged to contact the EMS coordinator. Students are allowed to allocate up to 6 weeks of their EMS requirements towards an approved research project. The vast majority of students also spend part of their 4-weeks clinical elective requirement at extra-mural locations, which may include specialist practices.

In line with the international nature of veterinary practice in the modern world, and the international nature of our student population, a total of up to 15 weeks EMS may be seen overseas with the approval of the EMS coordinator. Students are also allowed to off-set 1 week of approved conference attendance against their EMS requirements.

Certification of approval and attendance

Administration of the CEMS system is handled electronically through a system available on Blackboard (CEMS Forms 1, 2 and 3) that is also integrated with the Student Record system. The protocol in place is as follows:

- **CEMS 1** (Placement approval form) - sent electronically to the CEMS coordinator (*via* the School Office) for approval. This form contains an outline of what the student plans to achieve during the placement, along with administrative data relating to the name/address of the practice and the dates planned. Under normal circumstances, this form must be sent in at least 3 weeks in advance of the intended date to ensure approval/acceptance.
- **CEMS 2** (Placement Plan) - sent directly by the student to the CEMS provider, again outlining similar information to Form 1. At this stage, the learning outcomes are agreed, and modified as necessary, with the provider.
- **CEMS 3** (Placement Verification) - filled out by the CEMS provider to ensure sign-off on dates, the nature of work undertaken and the student performance/development. This form has to be submitted to the School Office within 1 month of the placement being completed.

The School Office maintains records of each students EMS placements and performs random checks with EMS providers to verify the accuracy of the information submitted. In addition, this system acts as an “early-warning” procedure should a student fall behind in terms of time or placements undertaken. CEMS forms are presented in Appendix 14.

Efforts are made to collect feedback from EMS providers which is general, rather than specific. However, inevitably, discussions on individual students are also held.

14.2 Comments and Suggestions

VCI guidance documents indicate a requirement for 26 weeks of clinical extra-mural experience. This requirement seems to mirror that of RCVS, since EMS is not an embedded feature/requirement of EAEVE accreditation procedures. At time of writing, a major review of EMS requirements is being undertaken by RCVS. Although the outcome is not yet certain, it seems likely that proposals will include a differentiation between *early* clinical EMS, with an emphasis on observation, and *later* clinical EMS, with an emphasis on participation. The EMS system under RCVS guidelines is also likely to evolve in the light of the new Professional Development Phase (PDP) covering the year immediately following graduation.

At UCD, although the core requirement has been for 24-weeks of CEMS for many years, the 26-weeks specified by RCVS may reflect the previous inclusion of VPH-related EMS in this figure. VPH-EMS is now accounted for separately under VPH 1 and VPH 2 modules. The old, 2-week requirement has been replaced with a new, more structured 5-day programme developed in conjunction with Meat Plants accepting students on placement. The administration of both pre-clinical EMS and CEMS requires review. A group, chaired by Dr Rory Breathnach, has been set-up to consider this, along with the administration surrounding clinical electives. It is hoped to move more of the administration of EMS to an electronic system, and in so-doing to enhance the feedback mechanisms from both placement providers and students. The group will be asked to consider, among other issues, whether a more prescriptive programme of CEMS, involving a selected number of practices, would provide a better platform for student learning and evaluation of experience.

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