UCD DUBLIN

UCD School of Veterinary Medicine

Self-Evaluation Report
EAEVE visitation
Dublin, 2020

UCD School of Veterinary Medicine

EAEVE ACCREDITATION

SELF EVALUATION REPORT 2020

Index

Introduction

Embedded in University College Dublin (UCD), Ireland's largest university, one of Europe's leading research-intensive universities and a member of the prestigious Universitas-21 network; the UCD School of Veterinary Medicine (SVM) is a constituent school, along with the School of Medicine, in the 'One Health' College of Health and Agricultural Sciences (CHAS). In the top 50 World QS-rankings for its discipline, the school dates from the original Veterinary College of Ireland founded in 1901. As the only SVM on the Island of Ireland, the school is of particular strategic importance in protecting Ireland's animal health and welfare status. Financially secure, the university appropriations are largely state-funded and recognise the importance of the SVM to Ireland, where agri-food is the largest indigenous industry, employing over 160,000 people with exports of products valued at €14.5 billion in 2019.

The SVM continues to enjoy the benefits of a purpose-designed academic and clinical facility on the main UCD campus. The CHAS and UCD have committed significant financial support for an expansion of the small animal hospital and the creation of a new facility on UCD Lyons Farm for the teaching of husbandry and handling of pigs and poultry; two species which offer unique biosecurity challenges in the context of teaching students. Further, existing facilities have been enhanced with a newly located and refurbished Clinical Skills Centre as well as new CT and MRI machines for both small animal and equine patients in our veterinary hospital. However, as identified in the SVM's 2020 Risk Register and Faculty 2020 survey, tutorial teaching space and office and laboratory space for staff and postgraduate students is a pressing issue and there will be a need to redevelop the Health Science precinct to deliver additional capacity to meet future needs and allow us to deliver the strategic growth planned for teaching and research.

The SVM offers two programmes of Veterinary Medicine: a 5-year undergraduate program and a 4-year graduate-entry program, which are in high demand from prospective students in Ireland and internationally. Entry to the programmes is highly competitive and graduates have an excellent track record in securing employment. Admission criteria and processes are subject to annual review and planned improvements include (i) the inclusion of two external veterinary practitioners on the Admissions Committee to provide expertise reflecting current professional requirements and (ii) a more robust system to monitor student intake metrics and correlate these with student progression, which will allow the SVM to further focus and refine the intake criteria. Finally, in common with many SVMs, the SVM continues to explore new avenues of intake and will implement a new pathway for mature entry students from 2021.

The SVM is fully committed to values of equality, diversity and inclusion, which are embedded in its strategic plan. With a 'One Health-One Welfare' motto, our vision is 'a flourishing veterinary school, positively impacting health, animal welfare, and the environment' underpinned by a mission to be an inclusive community, delivering excellence in education, research and clinical endeavour.

The University College Dublin (UCD) School of Veterinary Medicine (SVM) launched its 5-year strategic plan 2019 - 2024 'One Health-One Welfare' at the School Forum on Tuesday December 3rd, 2019. The SVM is fully committed to the university's values of equality, diversity and inclusion as evidenced by its recent Athena SWAN Bronze Award (https://www.ucd.ie/vetmed/newsandevents/athenaswanbronzeaward) and equality, diversity and inclusion is represented by a senior member of faculty and current Chair of the Veterinary Athena SWAN Action Team (Vet-ASAT) on the SVM's Senior Management Team (SMT).

Organisation: At the last visitation in October 2010, veterinary medicine activities occurred within a School of Agriculture, Food Science and Veterinary Medicine, which itself was a constituent school of the College of Life Sciences. In September 2011, an autonomous School of Veterinary Medicine was created within a new UCD College of Agriculture, Food Science and Veterinary Medicine. Since 2015, the SVM is one of five Schools in the College of Health and Agricultural Sciences. Professor

Michael Doherty replaced Professor Grace Mulcahy as Dean in September 2016. In July 2017, a strategic re-organisation of the academic sections within the SVM occurred. As a result of this strategic review, three new academic sections emerged, i.e. Equine Clinical Studies, Diagnostic Imaging, Anaesthesia and Small Animal Clinical Studies and a section dedicated to the veterinary nursing programme. At this time, a Communication Manager was appointed and an ambitious communication strategy was initiated, which resulted in the development of a significant portfolio of communication tools (SVM google community; stakeholder newsletters; enhanced website; social media, etc.) and social events (retired staff; 'veterinary sporting greats'). In 2017, the School was placed (and remains) in the top 50 world QS rankings for veterinary science in 2017; veterinary science along with sports-related sciences, is the highest QS-ranked subject in UCD. A newly located and refurbished Clinical Skills Centre (CSC) was launched in 2017 and a full-time Director for this centre was appointed in 2019. The CSC has many 'stations' which focus on skills related to both small and large animal procedures and the resources are closely aligned with learning outcomes of module content across programme years. Following a major development project in 2014, the dairy herd at UCD Lyons Farm was expanded to 200 milking cows, a state-of-the art rotary platform parlour (40 unit) was installed and the dairy cow housing and research facilities were revamped and the animal handling facilities for dairy cattle were extensively upgraded. The expanded dairy herd provides teaching data, clinical cases for final year teaching on the farm and some referral clinical cases for the UCD Veterinary Hospital.

Significant developments in the UCD Veterinary Hospital (UCDVH) include the appointment in 2017 of a boarded oncologist and the creation of an area in the UCDVH dedicated to oncology cases. In 2018, a new, combined 16-slice CT unit with a drop-down lift system for equine standing CT was installed and a 1.5 Tesla combined MRI unit was installed in 2020, which utilises a separate small animal/equine table system with new dedicated viewing room facilities. In 2016, the equine ambulatory service was enhanced by the appointment of two new equine clinicians. A new first opinion small animal practice rotation has been developed for the academic year 2020-21. In 2020, the SVM established a formal agreement with Dr. Niamh Lewis to provide advanced equine fertility services (intra-cytoplasmic sperm injection for in vitro fertilisation, and embryo transfer) from the UCDVH which has been approved an EU registered premises for the handling of oocytes and embryos.

Following a review of the curriculum in 2016, the development and implementation of an enhanced Bachelor of Veterinary Medicine (MVB) curriculum was initiated. This curriculum is outcomes-based and reverse engineered across the merged domains of knowledge, skills and professional attributes adopting Bruner's spiral curriculum design and delivering a scaffolded active learning approach. The competences relating to the development of practical/clinical skills and professional attributes are delivered vertically through Years 1-5.

In September 2016, Dogs Trust terminated (without warning) its relationship with the SVM (as well as with Schools of Veterinary Medicine in the UK). This posed an immediate threat to the small animal case load and in particular to the surgical competences (neutering) conducted by final year students there. A short term agreement allowed the SVM to complete all final year rotations for 2016-17 at the Dogs Trust and a new relationship was established with the Dublin Society for the Prevention of Cruelty to Animals (DSPCA), a shelter charity located close to the SVM in south Dublin; students are rostered to the veterinary suite in the shelter as part of their surgical skills rotation, under the supervision of UCD Module Coordinators of Small Animal Surgery and Interns. Procedures undertaken by students primarily relate to canine neutering. This rotation is largely analogous to, and has replaced, the Dogs Trust rotation. There have been no major problems since that time until the advent of the COVID-19 pandemic which is addressed in the addendum accompanying this SER.

The UCD School of Veterinary Medicine is being evaluated under the ESEVT SOP 2019 (30 May 2019).

Standard 1 - Objectives, Organisation & Quality Assurance Policy

UCD School of Veterinary Medicine

Standard 1. Objectives, Organisation and QA Policy

1.1 The Establishment must have as its main objective the provision, in agreement with the EU Directives and ESG recommendations, of adequate, ethical, research-based, evidence-based veterinary training that enables the new graduate to perform as a veterinarian capable of entering all commonly recognised branches of the veterinary profession and to be aware of the importance of lifelong learning. The Establishment must develop and follow its mission statement which must embrace all the ESEVT standards.

The University College Dublin (UCD) School of Veterinary Medicine (SVM) launched its 5-year strategic plan 2019 - 2024 'One Health-One Welfare' at the School Forum on Tuesday December 3rd, 2019 (https://www.ucd.ie/vetmed/newsandevents/strategicplan2019-2024/).

Our Vision: A flourishing veterinary school, positively impacting health, animal welfare, and the environment

Our mission: 'UCD School of Veterinary Medicine strives to be an inclusive community, delivering excellence in education, research and clinical endeavour'

Our Strategic Goals:

1. Excellence in education;
2. Exceptional student experience;
3. Impactful and innovative research;
4. Highest standards of animal care and welfare;
5. Effective engagement with stakeholders;
6. Inclusive and empowering community.

The SVM is fully committed to the university's values of equality, diversity and inclusion as evidenced by its recent Athena SWAN Bronze Award (https://www.ucd.ie/vetmed/newsandevents/athenaswanbronzeaward) and equality, diversity and inclusion is represented by a senior member of faculty and current Chair of the Vet Athena SWAN Action Team (Vet-ASAT) on the SVM's Senior Management Team (SMT).

The overall objective of the MVB curriculum is to develop competences progressively from novice to veterinary professional. Students are supported to develop the required knowledge, skills, and professional attributes for day one entry to the veterinary profession and to become lifelong learners, problem solvers and global citizens. The MVB enables the holder to register as a veterinary practitioner with the Veterinary Council of Ireland (VCI), in accordance with the Veterinary Practitioners Act (2005,in all other EU countries under mutual recognition procedures (European Directive 2005/36/EC), in the UK under the mutual recognition agreement signed by the VCI and RCVS in October 2019, and in the USA and Canada through the American Veterinary Medical Association (AVMA) COE Accreditation (Standard 3 for detail).

1.2 The Establishment must be part of a university or a higher education institution providing training recognised as being of an equivalent level and formally recognised as such in the respective country. The person responsible for the veterinary curriculum and the person(s) responsible for the professional, ethical, and academic affairs of the Veterinary Teaching Hospital (VTH) must hold a veterinary degree. The decision-making process of the Establishment must allow implementation of its strategic plan and of a cohesive study programme, in compliance with the ESEVT standards

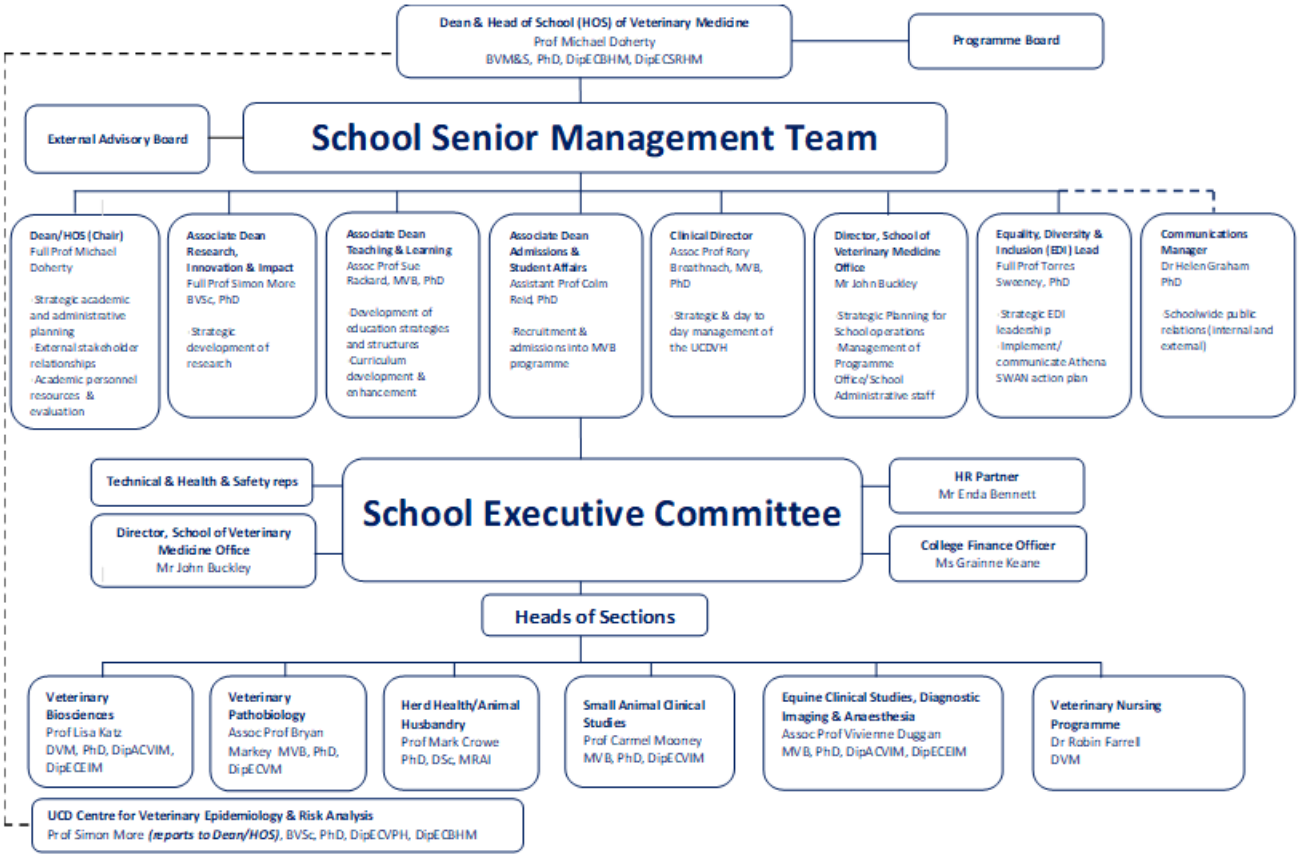
University College Dublin is an autonomous degree-awarding institution governed under provisions established in the Irish Universities Act, 1977 (http://www.irishstatutebook.ie/eli/1997/act/24/enacted/en/html). It operates within the governance framework in Irish Universities (Annex 1.1). Educational funding is provided from the Higher Education Authority (http://www.hea.ie). The UCD School of Veterinary Medicine (SVM) is an Executive School within the University, and one of five schools within the College of Health and Agricultural Sciences (CHAS). The Dean and Head of the SVM (Full Professor Michael Doherty, BVM&S (Edin.), PhD, MVM, DipECBHM, DipECSRHM, MRCVS)) is a registered veterinarian and the school's chief executive officer. The Clinical Director of the UCD Veterinary Hospital (Associate Professor Rory Breathnach, MVB, MSc, PhD, MRCVS) is also a registered veterinarian. The Associate Dean for teaching and Learning is Associate Professor Sue Rackard (MVB, PhD) also a registered veterinarian and has responsibility for the veterinary curriculum. The Dean/Executive Head of School reports to the Registrar/Deputy President on academic matters and to the Bursar on Financial Matters. The role of the Principal of the College of Health and Agricultural Sciences (Professor Cecily Kelleher) is to ensure maximum collaboration in the context of research, innovation and impact; teaching and learning and global engagement between the 5 schools in CHAS and represent the College and its constituent schools on the University Management Committee (Annex 1.2). The vision, mission and strategic objectives of the College of Health and Agricultural Sciences is available (https://www.ucd.ie/chas/t4media/UCD18076%20College%20of%20Health%20and%20Ag%20Sciences%20Strategy%20FINAL.pdf).

UCD School of Veterinary Medicine,
University College Dublin,
Belfield, Dublin 4.
D04 V1W8,
Ireland.
00353-1- 716 6100
Dean.vetmedicine@ucd.ie
Website: https://www.ucd.ie/vetmed/

Faculty, staff and students participate in governance through membership of committees, participation in working groups and through dialogue with school and university administration. Monthly meetings normally occur at the level of the six relevant academic sections at which matters of both an operational and strategic nature are discussed. The Heads of Section report to the SVM's Executive Committee (EC) under the themes of teaching & learning; research; veterinary hospital; human relations (HR) and finance (Figure 1.1). The technical and administrative staff are also represented at the EC as is the SVM's Health and Safety Committee. In addition to operational issues, Sections Heads raise issues of a strategic nature in relation to annual staff / budgetary planning, curriculum and clinical delivery. The Dean also schedules individual meetings with the Sections Heads throughout the year so that more informal conversations can take place.

At Executive Meetings, the Dean reports on issues of a strategic nature from the SVM's SMT and the CHAS SMT. The Dean brings School- strategic issues to meetings of the CHAS SMT, chaired by CHAS Principal Professor Cecily Kelleher. Professor Kelleher represents the SVM along with the other Schools within CHAS at UCD's UMT chaired by President Deeks. The Dean is a member of UCD's Extended Leadership Group (ELG), which brings input to the UMT in relation to UCD strategic planning and President Deeks chairs a meeting all UCD's Heads of School once a trimester at which issues are raised in an informal setting. The Dean and the SMT have regular meetings with the CHAS Finance Officer Ms Grainne Keane in preparation for the annual staff and budgetary planning process and the meetings with UCD's Bursar Mr. David Kelly at which the final budget is agreed.

Figure 1.1 SVM Organisational chart



Issues specifically relating to the development, delivery and assessment of the MVB degree programme, student requests and concerns as well as matters relating to the student code of conduct are dealt with at meetings of the SVM's Programme Board, which is chaired by the Dean and has faculty and student representatives of all years of the MVB programme as well as Heads of Subject, the Administrative Director of the Programme, the Student Adviser and the Associate Dean for Teaching and Learning. The Senior Management Team (SMT) meets bi-monthly, SVM Executive meetings are held monthly, CHAS (College of Health and Agricultural Sciences) SMT meetings meet monthly, SVM Programme Board meetings occur twice each trimester. The SVM's Athena SWAN Action Team (ASAT) meets monthly (Table 1.1).

Table 1.1 Major committee meetings within the SVM and CHAS

Senior Management Team (SMT)	Bi-monthly
School Executive	Monthly
CHAS SMT	Monthly
Programme Board Meetings	Twice per trimester
Vet-ASAT	Monthly

The Staff-Student Liaison Committee meets twice per trimester identifying any academic or non-academic issues of interest or concern to students ensuring good dialogue between academic staff and each class of the veterinary medicine programme. The composition and terms of reference of the major committees of the SVM are shown in Annex 1.3.

Given the strategic importance of UCD Lyons farm to the SVM, its teaching and research, the Dean sits on the UCD Lyons Farm Oversight Committee along with the Chair, Professor Cecily Kelleher, Professor Alex Evans, Dean of the School of Agriculture and Food Science and Dr Edward Jordan, Farm Manager. Any strategic decisions influencing the delivery of the MVB degree programme and the research of the SVM must be agreed at this committee. In addition to these major committees,

sub-committees and working groups are convened from time-to-time with specific short-term objectives.

Formal collaborations with other establishments are currently limited to the Dublin Society for the Prevention of Cruelty of Animals (DSPCA) which is used for surgical skills. At a local operational, educational level the Module Coordinator for Surgical Skills in final year of the MVB degree programme, supported by the SMT is responsible. This module coordinator reports to the Associate Dean for Teaching and Learning in the context of the Curriculum Committee, which then reports to the SVM's Programme Board chaired by the Dean. Any decisions of a strategic nature in relation to the SVM's relationship with the DSPCA and its CEO must have the approval of the Dean. The School anticipates the creation of a first opinion partnership with a small animal practice in Dublin and the preparatory work for this development has been completed and will be described in more details under Standard 4.

1.3 The Establishment must have a strategic plan, which includes a SWOT analysis of its current activities, a list of objectives, and an operating plan with a timeframe and indicators for its implementation.

The University College Dublin (UCD) School of Veterinary Medicine (SVM) launched its 5-year strategic plan 2019 - 2024 'One Health-One Welfare' at the School Forum on Tuesday December 3rd, 2019. https://www.ucd.ie/vetmed/t4media/UCD%20SVM_Strategic%20Plan_2019-2024.pdf.

The operational plan based around six strategic goals is included with actions, outcomes, key performance indicators and timeframes within the SVM's 5-year strategic plan 2019 - 2024 'One Health-One Welfare' https://www.ucd.ie/vetmed/t4media/UCD%20SVM_Strategic%20Plan_2019-2024.pdf.

Complementary documents include a planning template aligned to UCD Strategy 2020-2024 'Rising to the Future' which was created in June 2020 is available as a pdf, as is a 'Risk Register' created in February 2020.

1.4 The Establishment must have a policy and associated written procedures for the assurance of the quality and standards of its programmes and awards. It must also commit itself explicitly to the development of a culture which recognises the importance of quality, and quality assurance, within their Establishment. To achieve this, the Establishment must develop and implement a strategy for the continuous enhancement of quality. The development and implementation of the Establishment's strategy must include a role for students and other stakeholders, both internal and external, and the strategy must have a formal status and be publicly available.

Quality assurance at institutional level is delivered under the Framework for Quality Assurance in Irish Higher Education (Appendix 4). The Irish QA system fully conforms with the ENQA / ESG standards (https://www.ucd.ie/quality/ucdqualityoffice/). The last institutional review of UCD was carried out by Quality and Qualifications Ireland (QQI) in October 2019 (http://www.ucd.ie/quality/externalreviewofucd2019). UCD's arrangements for quality assurance and enhancement are described in the Annual Institutional Quality Report that is provided to QQI each year. The ethos is that quality enhancement and assurance is a collective responsibility and that it is the professionalism and creativity of faculty and staff, individually and collectively, that makes the most vital contribution to the enhancement of provision, through their attention to their students' experience as learners, to the development of their disciplines, their engagement with their teaching practice and the provision of excellent support services.

The key features of UCD's quality assurance and enhancement are set out in the UCD Quality Assurance and Quality Enhancement Policy http://www.ucd.ie/quality/ucdqualityframework/ucdqualityassurancequalityenhancementpolicy/ and include the following: a commitment to widespread involvement of faculty, staff, students and other stakeholders in quality assurance processes; critical self-reflection and rigorous peer review; systematic collection and analysis of evidence; multiple avenues for student, faculty and staff input to quality processes; and the use of external evaluation such as external examiners, members of quality review teams and professional, statutory and regulatory bodies. This policy is supplemented by a set of quality assurance procedures and guidelines including periodic quality review of schools and support units; guidelines for review group members; and guidelines for the review of collaborative taught arrangements. Two members of the SVM's faculty sit on UCD's Academic Council Quality Enhancement Committee. The most recent university-level quality review of the SVM was carried out in December 2014; http://www.ucd.ie/t4cms/VetMed_FINAL%20RGR%20accepted%20by%20UCDGA.pdf.

The SVM is currently accredited by the Veterinary Council of Ireland (VCI), the European Association of Establishments of Veterinary Education (EAEVE), the AVMA COE and the Australasian Veterinary Boards Council.

Outcomes assessment

The SVM has developed a comprehensive approach to gathering outcomes data which helps evaluate teaching and assessment approaches across the programme as well the attainment of day one competence at graduation. These data are channelled into the School Management team, School Executive and critically the Programme Board's Curriculum Review Committee to support change which is effective and timely. Examples of outcomes-informed changes are the new curriculum design, core experiential communication skills training embedded in years 2 & 3, the development of longitudinal *Professional Growth* and *Clinical Skills* curricula, increased case-based learning and reduced lecture numbers. The School has undertaken a comprehensive review of assessment across the curriculum using external examiner feedback, external consultation and has upskilled many faculty through participation in AMEE/ESME online programmes and the International Advanced Assessment Course (www.hpac.sg). As a result, the School has modernised assessments and developed the MVB Assessment Matrix to collate information across the whole curriculum.

A system of undergraduate External Examiners, appointed by subject area, exists for all modules in the SVM curriculum. External examiners review module content, module assessments (at the planning stage and following completion by students). They normally visit the SVM at the end of the academic year to review the examination process across modules and the student performance (in 2020, this was done remotely via Zoom meetings). External examiners submit reports that are reviewed by Module Coordinators and Subject Heads who provide appropriate responses and changes if required. These responses are then communicated to University Registry. For the academic year 2019/2020, the SVM's Programme Board will have a meeting dedicated to the reports of the External Examiners to discuss their implication at both module level and the level of the curriculum.

1.5 The Establishment must provide evidence that it interacts with its stakeholders and the wider society. Such public information must be clear, objective and readily accessible; the information must include up-to-date information about the study programme, views and employment destinations of past students as well as the profile of the current student population. The Establishment's website must mention the ESEVT Establishment's status and its last Self Evaluation Report and Visitation Report must be easily available for the public.

The SVM's External Advisory Board is made up of colleagues from equine, farm animal and small animal practice as well as colleagues from the DAFM (Department of Agriculture, Food and the

Marine) and representatives of the agricultural and pharma industries; it meets with the School's SMT annually. This allows constructive feedback in relation to key aspects of strategy relating to curriculum, research and the veterinary hospital as well as on-going development projects. The creation of Animal Health Ireland (http://animalhealthireland.ie/) of which UCD is a stakeholder has facilitated an on-going constructive conversation around the farm animal curriculum and research based on the prioritisation of issues of animal health and welfare since an original Delphi study (More *et al.,* 2010). In addition to this formal structure, the School receives feedback from external stakeholders in the context of our outcomes assessment process. In the context of the implementation of the Spiral Scaffolded Curriculum (Chapter 3), the SVM has engaged colleagues from both small and large/farm animal practice in developing the communication modules within the 'professional strand'. The development of a mentoring programme for new graduates is an excellent example of a development that emerged from discussions with our external stakeholders.

1.6 The Establishment must monitor and periodically review its activities, both quantitative and qualitative, to ensure that they achieve the objectives set for them and respond to the needs of students and society. The Establishment must make public how this analysis of information has been utilised in the further development of its activities and provide evidence as to the involvement of both students and staff in the provision, analysis and implementation of such data. Any action planned or taken as a result of this data analysis must be communicated to all those concerned.

The SVM's strategic plan (2019-2024) was created following a comprehensive 'bottom-up' process in which Heads of the academic sections, following section-level discussion, fed into several externally-facilitated workshops leading to the creation of this plan. In addition to its important role in performance for growth (P4G) meetings, dealing with staff development, this plan informs discussions around strategic allocation of resources at meetings of the academic sections, the Executive Committee, the SMT as well as at meetings between the Dean with individual Heads of Section. Ultimately, this process informs the annual discussions with both the CHAS finance officer and the UCD Bursar. The veterinary medicine programme has undergone curricular review and change since 2015 and continues to change. By adopting an outcomes-based approach, decisions about change are evidence-based and ensure that graduates leave with the knowledge, skills and attributes required for successful careers in the modern workplace. Our comprehensive mixed-methods approach to the assessment of outcomes employs a variety of approaches to gather feedback from a range of key stakeholders. This approach allows us to monitor the impact of curricular change and informs future decision-making. It is fundamental to ensuring that the curriculum remains dynamic and responsive to a changing society.

The Components of the Outcomes Assessment approach include the following:
Examination Results; Internal and External Student Surveys; External Student Surveys; Student feedback to module coordinators; Annual Student Focus groups (at Year level); Formal Student representative reporting into the Curriculum Review Committee (CRC); Class representative feedback to Year Coordinators and Student Adviser; Staff/Student Liaison Committee; Student Progress Committee feedback; External Stakeholders: graduates, employers, EMS providers, External Advisory Board (EAB); External Examiners: multiple subject external examiners review teaching and assessment across the programme.

External Consultation: External educational development consultants, are consulted in specific areas e.g., assessment (Prof. Katherine Boursicot (https://www.hpac.sg/core-team), clinical skills curriculum (Prof Emeritus Sarah Baillie (http://www.bris.ac.uk/vetscience/people/sarah-baillie/index.html), communication skills (Dr. Carol Gray (https://www.liverpool.ac.uk/law/staff/carol-gray), professional curriculum (Professor Trudie Roberts (https://medicinehealth.leeds.ac.uk/medicine/staff/712/professor-trudie-e-roberts)).

1.7 The Establishment must undergo external review through the ESEVT on a cyclical basis. Evidence must be provided of such external evaluation with the assurance that the progress made since the last ESEVT evaluation was linked to a continuous quality assurance process.

The last ESEVT/EAEVE visitation to the UCD School of Veterinary Medicine was in 2010. While at that visit the School received "Full approval" status with no deficiencies there were some items flagged for improvement and these were dealt with as follows:

Exposure to 1st opinion cases
The Dogs Trust link was seen as an excellent initiative providing such coverage but the lack of an equine ambulatory clinic was raised. The Dogs Trust link ran successfully until September 2016. In September 2016 the Dogs Trust terminated (without warning) its relationship with the SVM (as well as with Schools of Veterinary Medicine in the UK). This posed an immediate threat to the small animal case load and in particular to the surgical competences (neutering) conducted by final year students there. A short term agreement allowed the SVM to complete all final year rotations for 2016-17 at the Dogs Trust; and a new relationship was established with the Dublin Society for the Prevention of Cruelty to Animals (DSPCA), a shelter charity located close to the SVM in south Dublin; students are rostered to the veterinary suite in the shelter as part of their surgical skills rotation, under the supervision of UCD Module Coordinators of Small Animal Surgery and Interns. Procedures undertaken by students primarily relate to canine neutering. This rotation is largely analogous to, and has replaced, the Dogs Trust rotation. We have now (July 2020) also initiated a collaboration with a leading small animal practice for a first opinion rotation involving individual students in busy practices.

An equine ambulatory service has also been developed that has been detailed earlier in this chapter.

Curriculum should include more epidemiology and immunology
An epidemiology module established in Year 1; and a move of immunology teaching into a new module in Year 2 has occurred.

Enhanced management of EMS recommended
The "MyProgress" tool online has been established to manage and provide feedback on both preclinical EMS and clinical EMS (EPT) placements.

Encouraged to develop a strong research strategy, using the current thematic programmes as a base, and to find ways of encouraging clinical/translational research.
This has been achieved through the activities of the Schools Research, Innovation & Impact Committee over the intervening period and our strategic plan with a sub-operational plan for research activities is actively in place.

Elective bovine caesareans, while providing valuable experience for students, needed to be reviewed from an ethical perspective
Following ethical consideration, these elective bovine surgeries have now been dispensed with from the teaching programme.

The Hospital Income was seen as low in comparison with other similar schools.
Hospital income at the SVM has increased substantially since the visitation in 2010 (from € 1.5 million in 2009/10 to € 2.2 million in 2014/15 to € 2.7 million in 2018/2019).

Comments
The UCD School of Veterinary Medicine is a constituent school in the 'One Health' College of Health and Agricultural Sciences (CHAS). This College is operating well and aligns to our strategic

objectives. It brings the schools of medicine, public health, veterinary medicine and agricultural science in a streamlined College in a strong position for collaboration in teaching and research.

Suggestions for improvement

The creation of the SVM's strategic plan was a positive and inclusive experience for those involved; it would have benefited from some direct student involvement. As identified in the SVM's 2020 Risk Register and Faculty 2020 survey, tutorial teaching space and office and laboratory space for staff and postgraduate students is a pressing issue and there will be a need to redevelop the Health Science precinct to deliver additional capacity to meet future needs and allow us to deliver the strategic growth planned for teaching and research.

Standard 2 - Finances

UCD School of Veterinary Medicine

Standard 2. Finances

2.1 Finances must be demonstrably adequate to sustain the requirements for the Establishment to meet its mission and to achieve its objectives for education, research and services. The description must include both expenditures (separated into personnel costs, operating costs, maintenance costs and equipment) and revenues (separated into public funding, tuition fees, services, research grants and other sources).

The SVM's overall financial and staffing resources have continued to increase as Ireland recovers from recession. This has allowed the SVM to increase the academic and administrative staffing in key areas while also reversing previously imposed pay cuts and investing in new equipment and in the physical infrastructure of the SVM. As this SER is being finalised in Summer 2020 there is uncertainty around the impact COVID-19 will have on the future financial position of the SVM. However, in the event of a significant reduction in fee revenue, the School has a reserve (directly controlled by the SVM with oversight from the Director of Finance) to draw on to help smooth out any shortfalls. In addition, given the importance of the SVM to the College and the wider University, both academically and in terms of funding, the University has given assurances that it would be amenable to providing funding and/or budgetary flexibility to ensure that priority strategic resources could continue to be provided, if required to ensure the quality of the programme is maintained. This is evidenced by the fact that the College of Health and Agricultural Sciences (CHAS) and the University agreed in May 2020 to allow the first phase of the expansion of the Small Animal Hospital to proceed in spite of any potential fee revenue reduction, by providing full financial support.

The University's **global financial model** is described at https://www.ucd.ie/bursar/bursarsoffice/fpma/ucdfinancialmodel/. The overview of the financial model is contained in Annex 2.1. UCD is primarily funded by a Block Grant from the Higher Education Authority, the statutory planning and policy development body for higher education and research in Ireland. The Block Grant consists of a grant in lieu of fees, often referred to as "free fees", for EU undergraduate students and a recurrent grant allocation. The recurrent grant allocation is driven primarily by student numbers, which are weighted by the relative costs of providing education in different disciplines. The University also receives non-exchequer fees i.e., fees that are not funded by the HEA, all fees except EU undergraduate fees. The Block Grant is not distributed directly to Schools, but rather is retained centrally at institutional level and is therefore not shown as revenue in this report. Within UCD, the SVM is set its own budget for Net Direct Expenditure (NDE), which encompasses the day-to-day operational budget for the School Pay and Non-Pay costs less any Direct income e.g., revenue from the hospital. There is also a base level of fee income which each school is expected to achieve and 40% of any increases in this versus budget are allocated back to the school as an increase to NDE budget. When allocating resources, UCD starts from the current level of resourcing rather than starting from a zero base. There are commitments in place for virtually all units, whether academic or support, that cannot be changed in the short term. Accordingly, rather than starting from a zero-base budget under which every item must be justified, our starting point is the current budget for each unit. The current budget therefore acts as the base for setting a new budget.

The principal source of additional income to the university therefore is Fee Income. Research Income (whether direct or indirect) is restricted and subject to the rules of the funding agency. As such, research income and research expenditure are generally seen as operating side-by-side with the UCD Financial Model rather than being a component part. The School may also receive additional funding on a discretionary basis for strategically important items of expenditure either directly to the school from the College or via a University scheme for all schools (e.g., minor works scheme).

The University has adopted a procedure on acceptable overheads (indirect costs) on research grants. The latter requires indirect cost as follows:

1) National State Funding Agency/Sponsor – Most national state funding agencies/sponsors allow for indirect costs/overheads in line with the HEA / *Forfas* Report of the Group on Research Overheads, July 2003. This report recommends a standard overhead rate of 30% for laboratory-based research and a standard overhead rate of 25% for desk-based research.
2) Non-Standard Funding Agency/Sponsor – Where a non-standard funding agency/sponsor has terms and conditions attached to a particular call for proposals, the PI includes the maximum allowable charge for indirect costs/overheads when preparing the budget.

The average overhead margin paid by the SVM on research income during academic years 2017-2020 was 15.4%.

Details on the **annual tuition fees** and charges are published on the University website https://www.ucd.ie/students/fees/.

Table 2.1.1a Annual fees and charges in 2018-2019 for students undertaking 60 ECTS or more per year.

	EU Entrant eligible for "Free Fees"	EU Entrant, not eligible for "Free Fees"	International (Non-EU) Entrant
Undergraduate entry, 5 year programme	€3,254.00	€ 10,004.00	€30,700.00
Graduate entry, 5 year programme	N/A	€ 16,200.00	€30,700.00
Graduate entry, 4 year programme	N/A	€ 20,300.00	€36,300.00

Under the terms of the Free Fees Initiative, the Irish Exchequer pays tuition fees to the University on behalf of students registered for the first time on qualifying, full-time, undergraduate degree programmes. These students must however pay a "contribution charge" which is the same for all students of the University regardless of their course of study. The Programme Fee published on the University website is therefore a composite fee which includes the Student Contribution and the Student Centre Levy of €254. Any fees derived from students are credited to the university centrally and are not directly allocated to the SVM.

UCD shares resources associated with additional Net Fee Income on a formulaic basis, providing clear incentives and expectations to schools. This is called the **Fee Incentivisation** system. Because additional Net Fee Income leads to additional resources for a unit, the incentivisation is also called Performance Based Funding. 50% of net additional fee income is allocated to the university's Performance Based Fund formulaically. Distributions from this fund are made to academic units and for institutional purposes on a discretionary basis. An individual school will receive 40% of its net additional fee income as-of-right but may also receive additional funding on a discretionary basis either directly to the school or via a scheme for all schools (e.g., central support for PhD Students). An example of this is shown in Annex 2.2.

Table 2.1.1. Annual expenditures during the last 3 academic years (in Euros)

	18/19	17/18	16/17	Mean
Instruction Academic Support and Student Services Expenditure	€ 8,975,485	€ 8,755,385	€ 8,438,625	€ 8,723,165
Research Expenditure	€ 4,596,562	€ 4,674,842	€ 4,600,000	€ 4,623,801
Teaching Hospital Expenditure	€ 6,886,331	€ 6,338,364	€ 6,141,747	€ 6,455,481
Diagnostic and other clinical lab expenditure	€ 7,380	€ 27,291	€ 3,840	€ 12,837
Facilities Operations and Maintenance, Utilities and other infrastructure expenditure	€ 517,008	€ 662,223	€ 769,809	€ 649,680
Capital Expenditure	€ 438,402	€ 506,667	€ 368,358	€ 437,809
Other Expenditure	€ 0	€ 0	€ 0	€ 0
Total Expenditure	**€ 21,421,169**	**€ 20,964,772**	**€ 20,322,379**	**€ 20,902,773**

The SVM operates within a general funding system in which the UCD management centrally covers payment of all the main expenditure related to staff salaries and maintenance costs (electricity and water supply, security and gardening, repairs, etc.). Matters specific to the SVM building, i.e. servicing of equipment, and building maintenance must be paid for by the SVM budget. Expenditure relating to academic instruction and student support has increased over the past three years to support evolving educational needs and the cost of national pay awards, in part due to a phased government restoration of pay, following cuts in previous years. The SVM has strategically added staff including Assistant Professors in Oncology and in Farm Animal Clinical Studies, two Assistant Professors in Equine Ambulatory Services and a part-time (0.6) Special Lecturer in Veterinary Biosciences, employed a Communications Manager and have increased academic and administrative staff in the small animal medicine area. Research expenditure has remained stable over the past three years. The increase in expenditure in the UCDVH over the last 3 years reflects a steady growth in the number of small animal cases reflecting the national economic recovery and also reflects our increased capacity because of additional nursing staff and new and improved facilities. Expenditure in the diagnostic and clinical laboratories is a minor proportion of the SVM budget with some fluctuations both upward and downward across the three-year period. Expenditure on facilities and infrastructure fell in 2018/19 from previously higher levels primarily due to the fact that new CT and biochemistry machines were introduced in early 2018. The new equipment has led to a reduction in maintenance and repair costs which are reflected in the lower costs for 2018/19.

Capital spending investments included the introduction of improved ventilation to the library in 2018/19 and an upgrade of the clinical skills centre took place in 2017/18. The SVM also invested in a DSPCA surgical suite and in a new surgical skills lab in the hospital. Other improvements included a new open plan office for academic staff and extra teaching space and refurbished another room to facilitate a new CT scanner for both small animals and equines.

Government appropriation relates to direct government funding to the SVM for nationally strategic posts. University appropriation has increased over the past 3 year reflecting state pay awards, pay restoration for staff and funding for the increased staffing referred to as part of instruction costs. Fees derived from students are credited to the university centrally and are not directly allocated to the SVM, and therefore excluded from Table 2.1.2.

Table 2.1.2. Annual revenues during the last 3 academic years (in Euros)

	18/19	17/18	16/17	Mean
Government appropriation to SVM	€ 209,605	€ 170,340	€ 200,000	€ 193,315
University appropriation to SVM	€ 13,286,123	€ 13,129,604	€ 12,482,742	€ 12,826,112
Revenue derived from EU students (available for SVM use)	€ 0	€ 0	€ 0	€ 0
Revenue derived from International students (available for SVM use)	€ 0	€ 0	€ 0	€ 0
Revenue derived from continuing education courses (available for SVM use)	€ 0	€ 0	€ 0	€ 0
Teaching Hospital external revenue	€ 2,744,758	€ 2,472,613	€ 2,400,000	€ 2,539,124
Diagnostic & other clinical lab external revenue	€ 445,730	€ 339,033	€ 258,000	€ 347,588
Extramural research grants & contracts	€ 4,596,562	€ 4,674,842	€ 4,600,000	€ 4,623,801
Returned overhead for extramural research grants and contracts	€ 90,561	€ 62,744	€ 60,000	€ 71,102
Gifts & endowment income	€ 0	€ 0	€ 0	€ 0
Other revenue	€ 0	€ 0	€ 0	€ 0
Total Revenue	€ 21,373,339	€ 20,854,176	€ 20,000,742	€ 20,601,041
Funds carried forward from previous budget	€ 1,470,000	€ 1,330,000	€ 1,325,000	€ 1,375,000

Teaching Hospital Revenue has grown steadily, despite ongoing challenges in attracting and retaining small animal surgeons. A 5% increase to prices charged to clients for consumables and services was applied in 2017/18. A new clinical Boarded oncologist has boosted case numbers in 2018/19. Diagnostic and clinical laboratory revenue has increased in 2018/19 due to new CT and MRI machines being introduced in early 2018, which have significantly boosted hospital revenue. Revenue derived from research grants has remained relatively static over the last 3 years, reflecting a challenging research funding environment. Following a period of stability, there was a significant increase in 2018/19 reflecting changes implemented to the University Research Overhead Allocation Model. Funds carried forward from previous years primarily relate to reserves kept back for strategic and capital investment, including the planned expansion of the Small Animal Hospital.

Table 2.1.3. Annual balance between expenditures and revenues (in euros)

Year	Total expenditure	Total Revenue	Carry Forwards	Variance
2016-17	€ 20,322,379	€ 20,000,742	€ 325,000	€ 3,363
2017-18	€ 20,964,772	€ 20,854,176	€ 5,000	-€ 105,596
2018-19	€ 21,421,169	€ 21,373,339	€ 140,000	€ 92,171
Mean	**€ 20,902,773**	€ 20,742,752	**€ 156,667**	**€ 3,354**

The discrepancy between 2018/19 and 2017/18 cancel out approximately and can be attributed to a timing difference in finalising year-end accounts.

2.2 Clinical and field services must function as instructional resources. Instructional integrity of these resources must take priority over financial self-sufficiency of clinical services operations.
The Establishment must have sufficient autonomy in order to use the resources to implement its strategic plan and to meet the ESEVT Standards.

UCD Teaching hospital revenue has been described in Section 2.1. The hospital does not operate as a separate financial entity from the SVM and falls under the line management of the Dean. Revenue from the teaching hospital is used to part-fund hospital running costs with the balance of costs subsidised from the SVM's annual budget allocation. The hospital's Clinical Director is accountable for ensuring that the Hospital is run as cost effectively as possible, however it is primarily considered a "teaching resource" rather than a profit-making entity.

Since 2013, UCD has been a 49% partner in the **Belfield Pet Emergency Hospital** (BPEH), a joint venture with approximately 30 Dublin-based practices to provide a high-quality emergency out-of-hours (OOHs) service for small animal clients. The Dean and Associate Professor in Small Animal Medicine are members on the executive board of the BPEH. The continued success of the BPEH in recent years has led to an annual case load that now exceeds 5,000/year (growing by more than 10% per year), and the recruitment of additional practices. This formed one of the key pillars in the decision for the small animal hospital extension currently under planning. The **UCD Lyons Farm** is managed as a shared resource between the SVM and the UCD School of Agriculture and Food Science. The annual running costs of Lyons Farm total approx. €0.6 million p.a. are separately funded, rather than being funded by the SVM (Further detail on the farm provided under 4.3).

The financial model applicable to the SVM provides the Dean with autonomy regarding staffing decisions and control of finances. Any increases to the annual budget allocation to the SVM are driven by increases in fee revenue as a result of fee rate increases set by the SVM, or changes to the number or mix of students. The SVM's overall financial and staffing resources have continued to increase as the country recovered from the 2008 recession. This has allowed the SVM to increase academic and administrative staffing in key areas. As this SER is currently being prepared there is too much uncertainty to know what impact COVID-19 will have on the future financial position of the SVM. In the event that there were to be a significant reduction in fee revenue as a result of the impact of COVID-19, the SVM has a reserve (directly controlled by the SVM with oversight from the Director of Finance) to draw on to help smooth out any shortfalls.

2.3 Resources allocation must be regularly reviewed to ensure that available resources meet the requirements.

Finances are a standing item on the School Executive agenda which the College Director of Finance attends as appropriate. Subsequently, decisions around the School budget are communicated to all staff at Academic Section meetings by Heads of Sections who are members of the School Executive Committee. The College Director of Finance also has regular meetings with the School Senior Management Team in relation to budgetary planning.

Financial issues related to students are raised at trimester meetings between the Dean and Student Representative (VetSoc). In addition, relevant financial issues are also raised and discussed at the School's Programme Board which has significant student representation.

Like most UVHs, the challenge of increasing competition from corporate/private referral practices is a threat to be addressed. Equally, as UCDVH strives to identify niche areas of expertise as unique selling points, we need to be cognizant not to lose sight of the pivotal teaching value of first-opinion

cases. In order to ensure and maximize the steady flow of case material for student exposure (both primary and referral), the following specific actions were taken in the last three years:

Strategic investment in new facilities:

- UCD has committed €3.3 million to invest in a small animal hospital expansion, due to commence building in 2020;
- UCD spent just under €1 million to introduce a new, state-of-the-art combined small animal/equine standing CT machine (no anaesthesia required);
- The SVM formed a strategic (concession-based) partnership with General Electric to introduce a new state-of the-art 1.5 Tesla MRI machine in 2019;
- The SVM spent significant sums upgrading the surgical suite at the DSPCA in order to ensure that the facility was appropriate to train the students in neuterings, etc.
- The SVM established a consultancy agreement with Dr. Niamh Lewis (expert in equine reproduction). A small, purpose-built equine clinical reproduction laboratory was constructed in early 2020 to facilitate this project.

All of the above investments are targeted at full, or partial, case referral to UCDVH. Marketing and advertising of these facilities to veterinarians and clients are in place.

Strategic investment in UCDVH staff and clinical teaching:

- Recruitment of a full-time boarded oncologist (only one in Ireland) to carve out a niche market in oncology;
- Formation of a strategic alliance with a boarded neurologist;
- Strategic alliance with a leading, multi-branch first opinion practice: A formal agreement is in place with Village Vets, who nominated three branches to participate.

Future plans:

With the support of €1 million philanthropy and support from UCD and Enterprise Ireland, the creation of a sustainable agriculture 'UCD Herd Health Hub' on UCD Lyons Farm in association with the School of Agriculture and Food Sciences (SAFS) Agri-Tech initiative is planned for 2021-2022. Further funding of €20 million for the deliverable of a UCD Lyons Farm Knowledge Centre is in advanced negotiation. A second proposal for an Equine Centre of Excellence (cost €27.4 million, and incorporating advanced clinical, rehabilitation and reproductive services) is currently in the hands of a corporate fund-raiser.

The SVM anticipates that fee income will increase by 14% over the next five years (not withstanding the impact of COVID-19), driven by an increase in non-EU students. This will enable the school to continue to invest in its staff and facilities. Hospital income and costs should both increase due to the planned expansion of the Veterinary Hospital. However, the expansion project has been delayed due to the COVID-19 crisis and detailed modelling of the additional revenues and costs has not yet been completed. The SVM also plans to maximise both clinical research and clinical income in the context of the new CT and MRI machines in the Veterinary Hospital and the growth of veterinary clinical oncology, linked to the development of a Veterinary Hospital 'Clinical Research Centre' and a major development of the Small Animal Hospital to include specialised oncology and rehabilitation suites.

Comments

The SVM is the only School of Veterinary Medicine on the island of Ireland. Given the continued strength of the agricultural industry in Ireland this ensures that the SVM occupies a very important strategic position and this is not expected to change in the future. This is reflected in the University appropriations, which are largely state funded, and recognise the importance of the SVM to the whole island. This revenue stream continues to be the most significant component of SVM revenue,

accounting for 63% of revenue over the past five years. Threats to hospital income come primarily from the competition posed by corporate and other private referral practices that retain boarded specialists in key areas such as internal medicine and small animal surgery. In addition, as first opinion practice capabilities increase year-on-year (typically with visiting specialists), the range and volume of tests/procedures required upon referral diminish, thereby affecting income. To counter such threats, the UCDVH has expanded the range and depth of services and staff provided and sought to carve-out niche areas as unique UCD selling points e.g. oncology, MRI, equine dentistry, advanced equine reproduction techniques. The success of these ventures, which to date have not been countered by private practice, has been reflected in the meaningful increases in hospital income over the last five years. Another major mitigation strategy to counter private practice competition is that we remain the only site on the island that can offer the true, holistic range of combined clinical and paraclinical specialities/equipment/support services to fully investigate and treat most disease conditions in the various domestic animal species. An area of concern is the availability of specialist diplomates across a range of disciplines. As with other university veterinary hospitals, the SVM is in active competition with corporate practices for the same small pool of specialists in surgery, imaging, anaesthesia etc. The problem is further compounded by the ability of certain disciplines to offer their services remotely by means of tele-reporting. Whilst not in a position to compete with private sector salaries, the SVM has nonetheless continually succeeded in selling the beneficial concept of a university career; as such, we continue to have all disciplines staffed by a significant number of diplomate specialists that provide highest quality clinical training. The SVM has always focused on recruiting surgeons, where possible, from its clinical residency training cohort. The last three small animal academic surgeons recruited have all originated via this training resource. Whilst recruitment and retention of small animal surgeons remains an issue, the new MRI and DI (Diagnostic Imaging) world class facilities upgrade has made the hospital a more attractive place for surgeons to work in, as will the new Animal Rehabilitation Centre contained in the approved small animal hospital expansion plan. Other concerns and risks to note are in relation to non-EU student fee revenue (this is not directly allocated to the SVM; however, it has an impact on the budget allocation model for the SVM. There is a risk from a growing number of UK AVMA accredited SVMs impacting on international recruitment.

Suggestions for improvement

The SVM will continue to maintain and expand its funding base within the University structure. In the context of a global pandemic and in addition to mitigation strategies focusing on exploring opportunities to diversify the applicant pool and improve our Top 50 QS global subject ranking. The SVM has actively explored external sources of funding such as that received for the Chair in Animal Welfare and Ethics and the Pathology Residency Programme.

Standard 3 - Curriculum

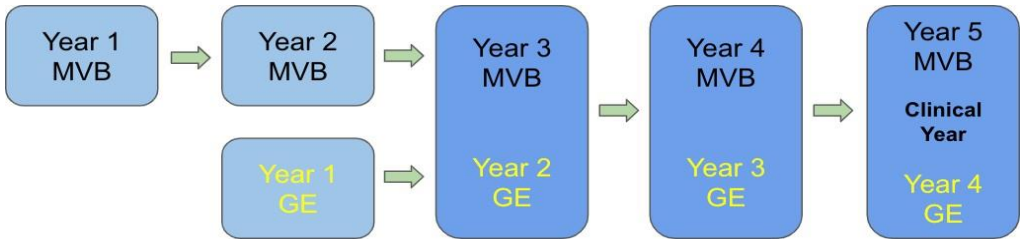
UCD School of Veterinary Medicine

Standard 3. Curriculum

3.1 The curriculum must be designed, resourced and managed to ensure all graduates have achieved the graduate attributes expected to be fully compliant with the EU Directive 2005/36/EC (as amended by directive 2013/55/EU) and its Annex V.4.1. The curriculum must include the subjects (input) and must allow the acquisition of the Day One Competences (output) listed in Annex 2. This concerns Basic Sciences, Clinical Sciences in companion animals (including equine and exotic pets), Clinical Sciences in food-producing animals (including Animal Production and Herd Health Management), Food Safety and Quality, and Professional Knowledge.

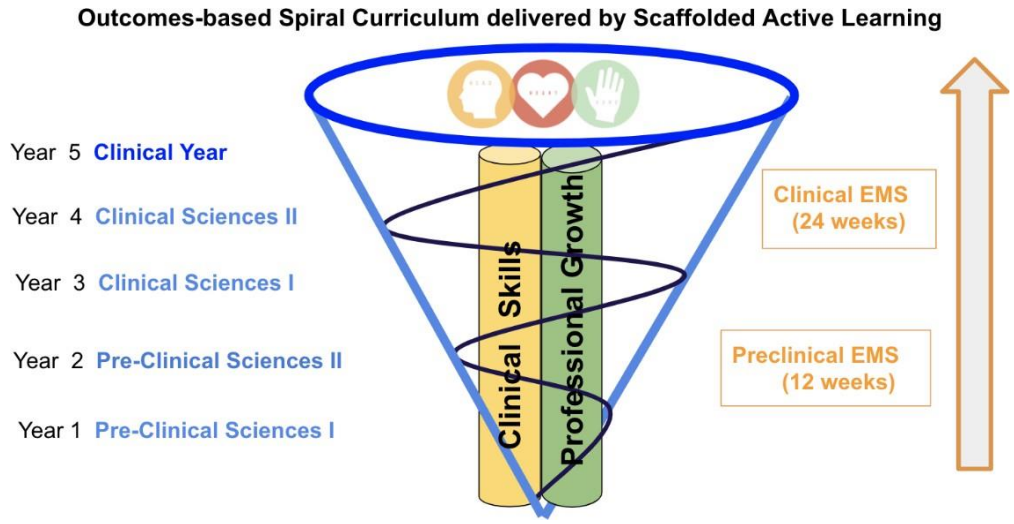
The overall objective of the MVB curriculum is to develop students' competences progressively from novice to veterinary professional. We aim to produce graduates who can build successful careers and add value to society. Students are supported to develop the required knowledge, skills, and professional attributes for day one entry to the veterinary profession. They are supported to become lifelong learners, problem solvers and global citizens. The MVB enables the holder to register as a veterinary practitioner with the Veterinary Council of Ireland (VCI), in accordance with the Veterinary Practitioners Act (2005), in all other EU countries under mutual recognition procedures (European Directive 2005/36/EC), in the UK under the mutual recognition agreement signed by the VCI and RCVS in October 2019, and in the USA and Canada through AVMA COE Accreditation. There are two pathways through the MVB programme, a five year 'school-leaver' entry route and a four-year graduate entry route. These student cohorts merge in Year 3 of the five-year programme and Year 2 of the four-year programme (Figure 3.1).

Figure 3.1 Summary of pathways to MVB Degree award



The MVB curriculum, following its recent review, is outcomes-based and adopts a reverse-engineered approach from day one competence across the merged domains of knowledge, skills and professional attributes as shown in Figure 3.2. Programme Outcomes are mapped to AVMA, EAEVE, RCVS and VCI Day One Competences. Implementation of change commenced in the 2017/18 programme cycle. Following a recent review, the enhanced MVB curriculum is outcomes-based and reverse engineered across the merged domains of knowledge, skills and professional attributes adopting Bruner's spiral curriculum design and delivering a scaffolded active learning approach (Figure 3.2). The competences relating to the development of practical/clinical skills and professional attributes are delivered vertically through Years 1-5. Developing competence is assessed based on Miller's pyramid (knows; knows how; shows how; does). The contribution of individual modules to overall programme outcomes, and to Day One Competences, are highlighted in module descriptors, which are available on the UCD website.

Figure 3.2



The veterinary curriculum is not set at national level in Ireland. The SVM Programme Board (Governing Board), chaired by the Dean is ultimately responsible for the regulation and quality assurance of the overall programme and the academic welfare of the students registered to it. The Board is bound by regulations, policies and procedures of the University, and is subject to review by Academic Council or it's nominated committee. The veterinary medicine programme is governed by a number of academic and administrative roles and structures that are responsible for management, delivery, assessment and enhancement of the overall curriculum. These include the Dean, Associate Dean for Teaching and Learning, the SVM Programme Board, Curriculum Review Committee (with its associated Year Curriculum Review Groups), Heads of Subjects, Year and Module Coordinators, Programme Manager and student year representatives. A revised Curriculum Review Committee was established in 2015 and its members and Terms of Reference (TOR) defined. The committee's structure, membership and TOR were further revised in 2019 (Annex 3.1). The CRC is described further in 3.4.

Table 3.1.1a. Curriculum hours in each academic year taken by each student in the 5-year programme

Academic Years	A	B	C	D	E	F	G	Total
Year 1	187	36	73	106	132	0	0	534
Year 2	211	49	34	107	95	0	0	496
Year 3*	345	10	43	139	54	6	0	597
Year 4*	336	39	14	116	115	24	3	647
Year 5*	0	79	160	0	19	962	0	1220
Total	**1079**	**213**	**324**	**468**	**415**	**992**	**3**	**3494**

A, Lectures; B, Seminars; C, Supervised Self Learning; D, Laboratory & desk-based work: E, Non-clinical animal work; F, Clinical animal work; G Other (Abattoir); H, Total.

Table 3.1.1b Curriculum hours taken in year 1 by each student in the 4-year GE programme

Academic Years	A	B	C	D	E	F	G	Total
Year 1*	133	99	123	150	174	0	0	679

** Note that curriculum hours in years 2-4 GE are the same as years 3-5 for the 5-year students*

Table 3.1.2. Curriculum hours taken by each student in 5-year degree (4 year GE, where differs, shown in brackets)

Academic Years	A	B	C	D	E	F	G	H
Basic subjects								
Medical physics	3 (0)	0	0	0	0	0	0	3 (0)
Chemistry (inorganic and organic sections)	0	0	0	0	0	0	0	0
Animal biology, zoology and cell biology	6 (0)	0	0	0	0	0	0	6 (0)
Feed plant biology and toxic plants	2 (1)	0	0	0	0	0	0	2 (1)
Biomedical statistics	7 (0)	0	16 (0)	6 (0)	0	0	0	29 (0)
Specific veterinary subjects								
Basic Sciences								
Anatomy, histology and embryology	50 (13)	57 (44)	24 (40)	55 (36)	82 (136)	0	0	268 (269)
Physiology	77 (18)	8 (21)	19 (27)	28 (5)	35 (0)	0	0	167 (71)
Biochemistry	43 (10)	2 (0)	0 (11)	17 (4)	0 (0)	0	0	62 (25)
General and molecular genetics	17 (0)	0 (3)	10 (0)	0	0	0	0	27 (3)
Pharmacology, pharmacy and pharmacotherapy	44 (28)	0 (1)	4 (12)	16 (12)	0	0	0	64 (53)
Pathology	55	4	8	2	34	7	0	110
Toxicology	5	0	0	0	0	0	0	5
Parasitology	43	3	8	22	0	0	0	76
Microbiology	59	7	8	51	0	0	0	125
Immunology	33 (0)	2 (0)	0	12 (0)	0	0	0	47 (0)
Epidemiology	23 (6)	3	0	5	0	0	0	31 (14)
Information literacy and data management	4 (2)	0	9 (11)	2 (11)	0	0	0	15 (24)
Professional ethics and communication	36 (20)	2 (14)	13 (20)	79 (84)	0	0	0	130 (138)
Animal health economics and practice management	17 (11)	4	14 (9)	32	0	0	0	63 (56)
Animal ethology	9	5	0	19	0	0	0	33
Animal welfare	7	4 (2)	0	16	0	0	0	27 (25)
Animal nutrition	19	0	0	20	8	0	0	47
Clinical Sciences								
Obstetrics, reproduction and reproductive disorders	66	18	16	10	50	10	0	170
Diagnostic pathology	45	2	0	14	24	48	0	133
Medicine	134	42	25	5	3	157	0	366
Surgery	103	7	3	0	12	329	0	454
Anaesthesiology	20	3	0	0	0	89	0	112
Clinical practical training	0	15	120	0	6	242	0	383
Preventive medicine	5	6	0	0	4	0	0	15
Diagnostic imaging	17	0	0	0	0	80	0	97

Therapy in common animal species	6	4	0	0	0	0	0	10
Propaedeutics	0	1	0	0	0	30	0	31
Animal Production								
Animal Production, breeding, husbandry and economics	44 (28)	9 (11)	5 (0)	0 (0)	82 (10)	0	0	140 (49)
Herd health management	30	0	6	10	0	0	0	46
Food Safety and Quality, Veterinary Public Health and One Health Concept								
Veterinary legislation	21	5	6	20	22	0	3	77
Control of food, feed and animal by-products	11	0	4	10	18	0	0	43
Zoonoses	9	0	1	0	2	0	0	12
Food hygiene and food microbiology	9	0	3	11	27	0	0	50
Food technology	4	0	2	6	6	0	0	18

Table 3.1.3. Practical rotations under academic staff supervision (excluding EPT)

Module/Subject area	List of practical rotations (Discipline/Species)	Duration (weeks)	Year of Programmes
Small animal clinical studies (SACS)			
	Small Animal Internal Medicine	4 (2 + 2)	Final year
	First Opinion Internal medicine	1	"
	Intensive care unit	1	"
Farm animal clinical studies (FACS)			"
	FACS 1- Autumn	3	"
	FACS 2- Spring	2	"
Anaesthesia and Diagnostics - Multispecies			
	Anaesthesia	2	"
	Diagnostics	2	"
	Paraclinical/Pathology	1	"
Small and large animal surgery			
	Intro to surgery	1	"
	DSPCA*	1	"
	Small animal surgery	2	"
	Large animal surgery	2	"
Equine clinical studies			
	Equine field service*	1	"
	Equine Internal Medicine	1	"
Electives		3	"

* *Ambulatory or off-site*

Years 1 & 2 (5yr) / Year 1 (4yr)

Biological principles of health are integrated into systems-based modules. Instruction is aimed at understanding integrated structure and function. The clinical relevance of concepts taught is used to engage students in the underpinning science of their future practice. Pharmacological concepts are also introduced from year one, building on the student's physiological and biochemical knowledge. Mechanisms of disease and the body's response (cellular and whole body) are introduced in year two. Year one of both pathways includes a professional module which introduces students to the important professional attributes they need to develop through the course of their programme. Practical animal

handling skills focusing on the safe handling and restraint of common species is also taught and assessed. Principles of One Health are introduced, and an elective module entitled "One Health-Bridging Human & Veterinary Medical Sciences" is available. Many MVB students participate in UCD's One Health Society events (https://societies.ucd.ie/onehealth/). This is an interdisciplinary institutional initiative engaging the university community across many disciplines including veterinary medicine, medicine, nursing, agricultural and environmental science. For further details of student research opportunities see Standard 10. Under UCD 'Horizons' regulations, students must take 50 ECTS "core" credits, and 10 credits are taken as "elective choice" in Years 1 and 2. The Students may take elective modules offered by the School, or may choose electives, timetable permitting, from the wide range on offer throughout UCD. A description of UCD Horizons is provided for prospective students at https://www.myucd.ie/applying-to-ucd/ucd-horizons/. Graduate entrants to the 4-year programme do not take "elective choice" modules.

Year 3 &4 (5yr)/ Year 2&3 (4yr)

Trimester 1 focuses on the principles of veterinary pathobiology, from molecular and cellular, to organismal, including disease control mechanisms and a case-based learning approach. Infectious (and zoonotic) diseases of domestic and global significance are addressed in this module and consideration of disease in both contexts continues in the later systems modules. In parallel, students learn about applied anti-pathogen and anti-inflammatory therapies using an integrated approach with the veterinary pathobiology module. This teaching has been refined and was an early adopter of the principles of universal design for learning (the use of a variety of teaching methods to remove any learning barriers giving all students equal opportunity to succeed), an approach we aim to embed in all our teaching. The principles of disease prevention and biosecurity are emphasised in the systems modules in years 2, 3 and 4 and particularly for farm animal species in the context of the Herd Health and Population Medicine module. In trimester 2 students are introduced to the principles of veterinary medicine and surgery in a module which also introduces clinical examination in a range of species (principles and hands-on opportunities), principles of diagnostic imaging, and also incorporates hands-on skills training in the Clinical Skills Centre in Day 1 clinical and surgical techniques. This module forms the basis for subsequent clinical and surgical teaching which is further developed in the body systems modules which are taught in the same trimester and through year four with coordinated input from microbiologists, parasitologists, pathologists and clinicians. Case-based learning is embedded broadly in these modules to allow students to practice problem solving, clinical reasoning, sourcing and using evidence to make and apply clinical judgements.

Instruction on zoonoses, food safety and environmental health occurs in the two core Veterinary Public Health (VPH) modules delivered in Year 4. These modules teach students about the main zoonotic and foodborne hazards (biological and chemical), their importance in animal and human populations and the principal transmission/exposure routes. Tuition also demonstrates the inter-relationship of animals and the environment in the context of dissemination and spread of zoonotic pathogens among animal populations and to humans in Ireland, the European Union and the wider global context. The 'One Health' concept is reinforced throughout both VPH modules to illustrate to students the challenges and risk mitigation options associated with the various public health hazards originating in animal populations. The roles of the veterinarian in public health protection, zoonoses control and food safety are demonstrated in the context of clinical practice and food chain risk management at local, national and international levels. Relevant legislation pertaining to monitoring and control of zoonoses, feed and food safety as well as agricultural policy and international trade are also provided in the VPH training. The principles of human foodborne outbreak investigations are introduced using epidemiological investigative techniques and case studies. The modules provide students with material pertaining to the main food-borne hazards (both biological and chemical) of relevance, their reservoirs (animal and environmental) and epidemiology at pre-harvest and post-harvest levels. Both VPH modules also extensively cover disease prevention/control through the development and practical implementation of risk management strategies at both the pre- and post-

harvest levels. Students are also required to complete a prescribed programme of Extra Mural Studies (EMS) at an approved abattoir before entering the final year of the programme.

Students are introduced to the principles of epidemiology and evidence based veterinary medicine in Year 1. Diseases in populations and their control are introduced in Veterinary Pathobiology in Year 3 and further developed in the systems modules and in Herd Health and Population Medicine in Year 4. Students reconsider epidemiological principles and learn epidemiological methods in Years 4 and 5 working through problems in small-group tutorials and on-farm. Emphasis is placed on epidemiology at its most practical and clinically relevant levels. Through this systematic approach, all students are expected to gain an understanding of the epidemiology and control of animal diseases of importance within Ireland, Europe and internationally. Disease prevention and control strategies are integral to the Veterinary Pathobiology module in Year 3, to systems modules in Years 3 and 4 and to the Herd Health and Population Medicine module in Year 4.

Year 5 / Year 4 (GE)
In the final year of the programme students further develop their knowledge, skills and professional competence across a range of species during clinical rotations in UCD Veterinary Hospital (UCDVH) and other off-campus clinical sites under the guidance of faculty. They develop their skills: history-taking, physical examination, diagnostic procedures (imaging, clinical and morphological pathology), case management and monitoring, treatments, basic surgical procedures, problem solving, maintenance of case records and client communication.

- The **Farm Animal** rotation addresses the individual farm animal in the hospital context and the application of health and fertility management at herd and flock level on co-operating dairy farms and at the UCD Lyons Farm.
- The **Equine** rotation exposes students to a range of routine equine cases through the Equine Field Service and more in-depth case management with cases seen in UCDVH and at UCD Lyons Farm.
- **Surgical skills** are developed through a programme of practicals and tutorials that build on Year 3 skills and clinical skills practice in Year 4, before students move through rotations in large and small animal surgery in UCDVH, also spending a week at an animal shelter (DSPCA) which provides further opportunities for elective neutering procedures in dogs and cats as well as exposure to shelter medicine and a range of first opinion cases.
- The **Small Animal Clinical Studies** 6-week rotation develops skills through experiential learning in first opinion, internal medicine, and Intensive Care Unit rotations.
- Through the **Anaesthesia** rotation students learn to apply the principles of safe anaesthetic practice to large and small animal patients.
- In the **Diagnostic Imaging** rotation (building on an introduction to radiographical interpretation in anatomy classes and principles of diagnostic imaging teaching in Year 3) students safely take and interpret radiographs and develop a deeper understanding of the application of ultrasound and alternative imaging modalities.
- In the **Paraclinical rotation**, students perform a complete necropsy in pairs, including the collection, processing and interpretation of relevant samples culminating in a student-led presentation and discussion of the specific cases.
- In the various clinical rotations, students perform and interpret a wide variety of routine clinical pathology tests (haematology/biochemistry, urinalysis microbiology, FNAs, cytology etc.).
- In parallel with the main structure, there are two vertical strands with modules or elements in most or all years that are developed longitudinally - **Professional Growth** and **Clinical Skills**.

Our new curriculum design embodies the philosophy that competence is a habit of **lifelong learning**. We aim to develop competence through the habitual use of communication, knowledge, technical

skills, clinical reasoning, emotions, values combined with reflection in daily practice. A longitudinal professionalism curriculum from year one to final year has been substantially introduced (informed by outcomes assessment data from recent graduates and employers) and will be fully in place by 2022. It is responsive to contextual changes in the veterinary profession aiming to prepare students for ever-changing societal expectations.

In year one students are introduced to the concept of **professionalism** outlining the attributes expected of the new graduate. Topics covered include exploring personal values, responsible use of social media, team-working, leadership styles, understanding regulatory frameworks and professional standards, fitness to practice, wellness, business and professional identity development. This strand sees the expansion of 'professional' modules from year one of the programme to all other years, culminating in final year with a 'Professionalism Week' which will focus on transitioning to the workplace as a new graduate. Six sub-themes are introduced in year one and build each year in alignment with their progressive knowledge and skills development - Business and Law, Ethics and Animal Welfare, Personal Development, Communication, Evidence-based Veterinary Medicine (EBVM), Health and Safety. During clinical Extra Mural Studies (EMS), external practical training which commences in year three of the programme, students have opportunities to develop further insight into the professional aspects of practice, gaining a deeper understanding of the ethical, legal, financial and welfare issues that face practitioners during day-to day activities through this valuable workplace-based learning.

Practical animal handling skills are taught in years 1 and 2 and are reinforced during preclinical EMS. These experiences act as building blocks for subsequent clinical examination practical classes in a range of species in year 3. The basic clinical skills are first developed in Year 3 MVB/Year 2GE through structured classes in the **Clinical Skills** Centre (using models) and act as the building blocks for performing clinical and surgical procedures when on rotations and on clinical EMS. Students undertake 24 weeks of clinical EMS from the second trimester of Year 3 MVB/Year 2 GE, providing opportunities over time to progress from observation to assisting and then performing procedures. The Clinical Skills Centre has an open-door policy and a full-time manager with skills relevant to years 3, 4 and 5 available to students for practice to supplement scheduled classes and build their skills throughout rotations. See curriculum digest for further details.

Case-based learning is embedded across the programme to ensure important concepts and knowledge are acquired through a student-active approach to learning. This also gives students an opportunity to develop and practice their problem-solving skills and clinical reasoning for many years before they reach the clinical year. The conduct of rotations, irrespective of the discipline involved, follows a common template. Student numbers per rotation vary from 3-4 (ICU, equine ambulatory) up to 22-24 (Farm animal clinical studies; Annex 3.2). Larger groups get sub-divided into sub-groups of ~7 or less in the case of farm animal. All disciplines have one or two dedicated Service Chiefs (SCs) on duty, which are supported by our DVMS students (Doctor of Veterinary Medical Specialisation/Residents in Specialist Training), interns, nurses and animal care attendants (ACAs). Student responsibility is maximised to the extent possible by law and ethical guidelines; all this information is detailed within the Student Hospital Handbook. At the beginning of each rotation and morning rounds, the SC will orientate the students and assign specific responsibilities (typically **two** students/case). Each student is made aware of their key duties related to patient welfare and case management. In all rotations with direct client exposure, the student takes lead responsibility for case preparation the night before. Students are responsible for taking the history and performing an initial physical examination, then present the case to their senior and agree a management plan. The student retains responsibility for performing many aspects of the plan, assisted by staff. Under supervision, they perform many routine diagnostic procedures and are expected to have real-time information at morning/evening rounds. Students are responsible for clinically examining and devising a SOAP (Subjective, Objective, Assessment and Plan) analysis twice daily. In addition, by attending at Board

Rounds and working with clinicians/Nurse Coordinators, they assist in scheduling procedures with collegiate disciplines, highlighting the importance of team-play/triaging to accommodate patient need/flow management. On surgical rotations, students scrub-in on their cases, assist the primary surgeon and draft the initial surgical report. In anaesthesia, students are responsible for reviewing patient files, performing pre-anaesthetic checks, formulating the medication plans and direct participation in all relevant procedures. In DI, the students assist in imaging procedures and image interpretation. The students are also expected to follow the progress of the case holistically. Students on equine ambulatory and Herd Health visits perform all relevant work ups, formulate diagnostic/treatment plans, and assist in record keeping. Students on Out of Hours duties have access to a large amount of teaching material and are enabled to perform a significant degree of practical 'hands-on' tasks, including routine procedures and surgeries (e.g., abomasal) under supervision. Students play an important role (direct or observational) in client communication in relevant disciplines, from initial history taking to client discharge and follow-up. Under guidance, students also take responsibility for drafting the patient discharge and letter to the referring veterinarian. At discharge consultations and on ambulatory visits, the students may lead initial client communication (in the presence of a clinician) of the diagnosis, prognosis, treatment and follow-up plan. They are also given the opportunity to address any questions posed. This exercise significantly promotes skill sets in communication and empathy. No efforts are made to avoid student exposure to observing adversarial or difficult communications with clients. Rather, we emphasise the benefits of how this exposure can better prepare them for the real world. However, it is made clear that students may absent themselves from any situation they find either traumatic or upsetting. Subsequent follow-up with the clinician then attempts to educate/mentor on future strategies to deal with such scenarios. The students are made aware of how they should remain neutral when clients make disparaging comments. Staff emphasise that a calm, reasoned and non-adversarial approach (with continual communication) can successfully mitigate most scenarios. The SVM also emphasises the thoughts and actions students should adopt to ensure personnel safety. To maximise the teaching value of each case, various board/ward rounds, seminars and tutorials are scheduled in which the students present their cases. Board rounds are brief and focused with each student giving a detailed presentation on their specific case(s) to their peers and staff. This approach allows dissemination of pivotal information to all, and further promotes their communication skills and self-confidence. In addition to new material, detailed medical records, images etc. related to high-quality teaching material previously seen in UCD are retained for future delivery to subsequent student groups.

Class visits to commercial beef and broiler processing plants are arranged for students during completion of the **Veterinary Public Health (VPH)** modules during trimester 1 of Year 4. Groups of 10-12 students are accompanied by VPH faculty and visits are hosted by Official Veterinarians (OV) from the Department of Agriculture, Food & the Marine (DAFM) based in these facilities. Students see all aspects of operations within these premises, including the lairage, kill floor, chills, packing areas as well as boning halls and value-added facilities where a range of processed meat and poultry products are prepared. In addition to learning about the operational processes with these facilities, students also gain insight into the main OV duties associated with ante-mortem inspection, food chain information, humane slaughter, post-mortem inspection and traceability as well as boning and value-added areas within the factories. At the end of Year 4, all students are also required to complete a one-week EMS placement in an approved abattoir under the supervision of DAFM Official Veterinarians (one to one). Placements are arranged for students by the SVM. Abattoirs are all large DAFM licensed and supervised facilities. Learning objectives are provided to each student as a guide and cover all key areas that they should prioritise during the placement. These include animal transport, equipment and procedures, ante-mortem inspection and food chain information, humane slaughter, dehiding and evisceration, post-mortem inspection, offal and animal-by-products, carcase chilling and deboning, good hygiene practices and food safety management systems as well as sampling and testing carried out in the plant. In addition, students are required to complete a written assignment based on this placement which must be reviewed by the DAFM OV as well as

VPH faculty. In Final Year, a one-week VPH elective is also offered to students. This includes a placement for two days with Local Authority Veterinary Officers where students can be taken to a range of food premises under their supervision, including for example, smaller scale abattoirs, boning plants, value added meat processing facilities, artisan cheese and fermented dairy processing operations and cold stores.

Table 3.1.4. Curriculum hours offered by the SVM as elective modules for each student 2018-2019 (5-year degree)

Electives	A	B	C	D	E	F	G	Total
Basic subjects								
Mindfulness for Health		24	35					59
Basic Sciences								
Exotic Species in Health and Disease	12		40		32			84
Clinical Sciences								
Large Animal Hospital Elective	1		20			73		94
Food Safety and Quality, Veterinary Public Health and One Health Concept								
Introduction to One Health	24							24

As stated previously, in the first and second Years of the 5-year programme, students may freely choose from modules across the university. Some UCD core programmatic modules offer a small number of elective places, while others such as the UCD "Discovery" modules (https://www.ucd.ie/students/registration/discoverymodules/) have been created for the sole purpose of providing elective choice to UCD students. In their final year, students take a three-week specialised elective rotation that allows students to go deeper into a discipline (clinical or research) or species of interest. Specific electives offered by the SVM include animal welfare, state medicine/field epidemiology, equine AI, laparoscopic AI and embryo production in sheep, superovulation and embryo transfer in cattle, and oestrous synchronization in cattle. The assisted reproductive technologies electives are each limited to 6 students. Students may also choose to spend time outside of the SVM engaging in elective/externship projects in specialist veterinary practices, other academic institutions or research laboratories. Prior to commencing any external elective, the elective must be approved by an appropriate member of the Faculty. The elective is a pass/fail module. Assessment is based on a student/supervisor negotiation of a Learning Contract based on clinical knowledge and application or other areas of opportunity for learning, particular to the setting where the elective is undertaken. In addition to these specific learning objectives, a range of Professionalism and Generic Patient Care Objectives are assessed by the Elective Setting Supervisor. Approval of an elective requires that it is a specialty practice and/or the elective provider holds some additional qualification (e.g., diploma or certificate) indicating that the experience gives the student the opportunity to go deeper into their area of interest. Students apply for their electives through Infohub and once approved, the practice signs off on their learning objectives using MyProgress. Limitations on freedom to choose internal final year electives are related to supply and demand and are managed using a lottery system within elective groupings (Annex 3.3).

Table 3.1.5. Optional courses proposed to students (not compulsory)*

Subjects	A	B	C	D	E	F	G	Total
Clinical Sciences								
Assisted Reproductive Technologies:								
- Laparoscopic AI and ET in Sheep		4				36		40
- Equine AI		4				36		40
- Superovulation and ET in cattle		4				36		40
- Oestrous synchronization in cattle		4				36		40
Veterinary Public Health						40		40
Companion animal behaviour						40		40
Research						40		40
Herd health (cattle) Riverview, Bandon						40		40
Pigs						40		40
Poultry						40		40
Chestergates						40		40

* Elective rotations offered in Final year.

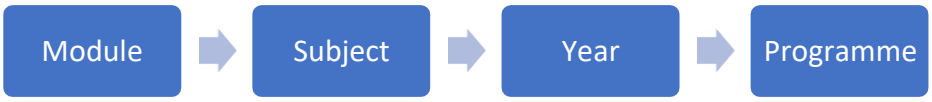
The assessment strategy for the degree programme is described in Standard 8. The SVM maintains a programmatic approach to assessment across all years which has a strong focus on assessment for learning. This approach also focuses on ensuring that the assessment type is appropriate for the domain of competence being tested (e.g., skills vs knowledge) and aligns to the module's learning outcomes which in turn are mapped to Programme Outcomes (POs). A range of assessment methods is used to evaluate students' progress throughout the programme and is summarised in the MVB Assessment Matrix. Direct Observation of Procedural Skills (DOPS) is used to assess clinical skills in final year (Annex 3.4). Each DOPS can be attempted in a number of clinical services. Students present when they feel they are ready to attempt a specific DOPS. Failure to complete the DOPS satisfactorily prompts feedback and development of a remediation plan. The student can attempt the DOPS again in the same rotation (if feasible) or another appropriate rotation. Central oversight of student progress in DOPS completion allows identification of a struggling student and supports early intervention to ensure a remediation plan can be put in place and DOPS can all generally be successfully completed in the scheduled modules.

3.2 Each study programme provided by the Establishment must be competency-based and designed so that it meets the objectives set for it, including the intended learning outcomes. The qualification resulting from a programme must be clearly specified and communicated and must refer to the correct level of the national qualifications framework for higher education and, consequently, to the Framework for Qualifications of the European Higher Education Area. The Establishment must provide proof of a QA system that promotes and monitors the presence of an academic environment highly conducive to learning including self-learning. Details of the type, provision and updating of appropriate learning opportunities for the students must be clearly described, as well as the involvement of students. The Establishment

must also describe how it encourages and prepares students for self-learning and lifelong learning.

The veterinary medicine programme has undergone curricular review and change since 2015 and continues to change. By adopting an outcomes-based approach, decisions about change are evidence-based and ensure that graduates leave with the knowledge, skills and attributes required for successful careers in the modern workplace. The SVM's comprehensive mixed-methods approach to the assessment of outcomes employs a variety of approaches to gather feedback from a range of key stakeholders. This approach allows us to monitor the impact of curricular change and informs future decision-making. It is fundamental to ensuring that the curriculum remains dynamic and responsive to a changing society. A range of data collection tools are deployed multiple times throughout the year to collate both quantitative and qualitative data, which are triangulated by the Curriculum Review Committee. Engagement in QA occurs at all levels (Figure 3.3).

Figure 3.3 Levels of engagement



Methods of engagement
The methods of engagement in QA for the curriculum occurs via: Examination Results (performance data); Internal Student Surveys (end of module survey); External Student Surveys - StudentSurvey.ie (formerly Irish Survey of Student Engagement) (https://studentsurvey.ie/); Individual student feedback to module coordinators, Associate Dean for Teaching and Learning (ADTL) and Dean. Annual Student Focus groups (at Year level); Student representative reporting into the Curriculum Review Committee (CRC); Class representative feedback to Year Coordinators and Student Adviser; Staff/Student Liaison Committee; Surveys of graduating students, recent graduates (within 3-5 years), employers; Feedback from placement providers for EMS; Student Adviser (anonymised feedback from students who utilize the service); Student Progress Committee feedback.

Internal Stakeholders include students and faculty members while **external stakeholders** include graduates, employers, EMS providers and the External Advisory Board (EAB). In addition, multiple **Subject External Examiners** review teaching and assessment across the programme

External educational development consultants are consulted in specific areas e.g. assessment (Prof Katherine Boursicot; (https://www.hpac.sg/core-team), clinical skills curriculum (Prof Emeritus Sarah Baillie; http://www.bris.ac.uk/vetscience/people/sarah-baillie/index.html), communication skills (Dr Carol Gray; https://www.liverpool.ac.uk/law/staff/carol-gray), and professional curriculum (Professor Trudie Roberts; https://medicinehealth.leeds.ac.uk/medicine/staff/712/professor-trudie-e-roberts).

Mechanisms used by the SVM and its Programme Board for harnessing outcomes data and determining need for change:

- Module Examination results are considered at the Programme Exam boards and recommendations for module enhancement can be identified and considered by the Curriculum Review Committee (CRC);
- Student feedback on modules is addressed by the module coordinator with input from relevant Subject Heads. Proposed changes to modules and assessment strategies are guided by the Lecturer in Veterinary Education and ADTL and are considered by the CRC to ensure alignment with programme goals before being signed off by the Dean;
- ISSE results at programme area level are considered at SMT, School Executive, Programme Board and CRC to inform curricular change – e.g., enhancing feedback;

- Focus Group feedback at Year level is channelled through the Year Coordinator for response by module coordinators. A report which is reviewed by the HOS and ADTL is furnished to the students to close the feedback loop. This feedback is also considered by the CRC;
- Survey data from graduating students, graduates and employers are considered by the SMT, CRC, School Executive and Programme Board. Proposals for curriculum change are informed by this data;
- Students from the preclinical and clinical years of the programme and final year are represented on the CRC. Their feedback is received and short term/long term actions are adreed utilizing a 'you said, we did' approach;
- Staff/Student Liaison Committee meeting findings are shared with the ADTL for consideration/action;
- Feedback from EMS providers is collated by the EMS supervisor and reported into the CRC;
- Student Advisor and Student Progress Committee feedback is anonymised and trends identified relating to academic performance are identified;
- External Examiner reports are considered by the relevant module coordinators, Head of Subject, ADTL, HOS and CRC and inform decision making at module and programme level.

Since the last EAEVE accreditation visit a major curriculum review was undertaken and a new curriculum design and philosophy developed as described in section 3.1. Review included consultation with all major stakeholders. Major structural changes focus on the development of longitudinal curricula for practical/clinical skills and the development of professional attitudes and behaviours. These changes were agreed following analysis of outcomes assessment data, curriculum mapping processes and an audit of in-module practical skills teaching across the programme. Where structures have not yet changed principles of pedagogical enhancement are broadly applied to enhance student learning. These include:

- Reduction of teacher-led approaches in favour of student-active learning approaches where possible; increased interactivity in lectures; identification and removal of unnecessary repetition; increased use of a 'just in time' rather than 'just in case' approach to knowledge construction; development of reflective, lifelong and independent learning skills; making clinical relevance clearer and earlier; ensuring relevance to Day One Competence; improving vertical and horizontal integration; modernizing assessment practices supported by training opportunities for faculty; embedding universal design for learning principles where possible to enhance inclusivity.
- The new curriculum design arising from the consultative process embodies the philosophy that competence is a habit of lifelong learning. We aim to develop competence through the habitual use of communication, knowledge, technical skills, clinical reasoning, emotions, values combined with reflection in daily practice. The current and planned MVB curriculum review and change road map will be fully implemented by 2022 (Annex 3.5).

3.3 Programme learning outcomes must:
Ensure the effective alignment of all content, teaching, learning and assessment activities of the degree programme to form a cohesive framework; include a description of Day One Competences; form the basis for explicit statements of the objectives and learning outcomes of individual units of study; be communicated to staff and students; be regularly reviewed, managed and updated to ensure they remain relevant, adequate and are effectively achieved.

The programme learning outcomes are reviewed regularly by the CRC and approved by the SVM Programme Board. Details of the curriculum's structure and its modules are defined and published online each academic year through the UCD Curriculum Management System (CMS), linked from UCD Registry (https://www.ucd.ie/registry/). CMS lists the curriculum's vision and programme outcomes. The full, current list of 32 programme outcomes and mapping to ESEVT and VCI

competences is provided in Appendix 2. Furthermore, for each module, learning outcomes, indicative content, teaching and learning strategies, student effort hours, prior learning requirements, assessment and feedback strategies are documented and published. Prior to the commencement of each academic year curricular information is updated by the SVM and published online. In addition to CMS, a second School-level curriculum mapping system 'Sofia' is used to track the integration of standards, programme outcomes, content domains and assessment mappings. Through this system data can be filtered by topic, standard and teaching activities thereby offering a user-friendly, evidence-based approach to identify curriculum redundancies. It offers greater insights to curriculum evolution than the UCD CMS alone. Curriculum mapping data combined with the outcomes assessment data, student focus group data and module evaluation data provide insights into the curriculum that identifies gaps, redundancies and overlaps of content as well as instructional quality and effectiveness. This data is shared with faculty and associated programme governing committees to support curriculum monitoring to prevent 'curriculum creep' and the decision-making process for curriculum renewal to ensure programme objectives are being met.

3.4 The Establishment must have a formally constituted committee structure (which includes effective student representation), with clear and empowered reporting lines, to oversee and manage the curriculum and its delivery. The committee(s) must: determine the pedagogical basis, design, delivery methods and assessment methods of the curriculum; oversee QA of the curriculum, particularly gathering, evaluating, making change and responding to feedback from stakeholders, peer reviewers and external assessors, and data from examination/assessment outcomes; perform on going and periodic review of the curriculum at least every seven years by involving staff, students and stakeholders; these reviews must lead to continuous improvement. Any action taken or planned as a result of such a review must be communicated to all those concerned; identify and meet training needs for all types of staff, maintaining and enhancing their competence for the ongoing curriculum development.

The SVM Programme Board (Governing Board) is ultimately responsible for the regulation and quality assurance of the overall programme and the academic welfare of the students registered to it. The Board is bound by regulations, policies and procedures of the University, and is subject to review by Academic Council or it's nominated committee. The Curriculum Review Committee (CRC) oversees the management of the curriculum and its delivery and reports to the SVM Programme Board, which is chaired by the Dean. Recommendations for curriculum change are made by the CRC and are subject to approval by the SVM Programme Board. Members of the CRC are the Associate Dean for Teaching and Learning (chair), Year Coordinators, student representatives from all years of the programme(s), Lecturer in Veterinary Education, the Programme Manager, PreCEMS and CEMS Supervisors, leaders of 'current projects' '(e.g. Clinical Skills Curriculum, Professional Growth Curriculum, Case-based learning and Assessment) and the Student Advisor. The Dean and Subject Heads are ex officio members of the CRC. The remit of the CRC is to (Annex 3.1):

- Perform ongoing and periodic review of the curriculum at least every seven years by involving staff, students and stakeholders;
- Ensure the curriculum provides a framework for students to develop the competences required for entry to the veterinary profession in Ireland and internationally;
- Maintain quality of the MVB and graduate entry programmes and ensure accreditation standards are maintained;
- Set priorities, provide recommendations, develop specific proposals and implement proposed changes (approved by SVM Programme Board) to continually improve the student learning experience;
- Develop processes for central oversight and ongoing monitoring and evaluation of the MVB and graduate entry programmes;
- Consider coherence of all aspects of the curriculum at programme level.

Members of the Curriculum Review Committee (and the Year Curriculum Review Groups) are actively involved in continuing professional development opportunities relating to medical/veterinary medical education and educational research. This helps faculty to innovate and identify best practice to inform curricular change. The SVM also arranges in-house staff development events in line with curricular and assessment enhancements to support the delivery of change. A SVM Teaching and Learning Special Interest Group was formed in the SVM in 2019 and holds monthly 'show and tell' workshops to share practice or get input into teaching or assessment challenges. Additionally, external consultant expertise in Veterinary Education (Professor Emeritus Sarah Baillie) and Assessment in the Health Professions (Katherine Boursicot) have regularly informed decision making to ensure we always aim for best practice. Multiple Subject External Examiners are appointed across the programme and visit at least once per year to review module curricula, learning outcomes, appropriateness of content, teaching methods and assessment approaches (https://www.ucd.ie/registry/staff/registryservices/assessment//index.html).

Graduating students are surveyed online regarding their preparedness for employment in the Spring Trimester of final year. Students are encouraged to complete the survey through email invitation with two further email reminders sent over 4 weeks subsequently. The Year 5 coordinator and clinical rotation leaders encourage completion and social media channels are used to highlight the survey further. It is promoted at the VCI and RCVS registration day in UCD, and students are invited to complete a paper-based version. Paper based completed surveys are added manually to SurveyMonkey. Ethical approval (https://www.ucd.ie/researchethics) for incentivization of students was gained for the 2020 data collection cycle to enhance response rates. Detailed analysis showed less satisfaction in preparedness for business/financial aspects of the workplace, communication skills and emergency and critical care. To address these findings the SVM has commenced embedding a vertical business/financial theme in the programme with relevant content now being taught in years 1, 3 and 4. Communication skills training is now core curriculum in Years 3 and 4. Improving proficiency in basic clinical skills improves preparedness for emergencies and critical care. To achieve this, we have commenced embedding a clinical skills curriculum and introducing OSCEs for assessment of clinical skills. We have also created a section of the Clinical Skills Centre which is always available to the students for practice and strongly promote self-motivated engagement as this is critical to mastery of technical skills. Surveys are sent to **alumni** via the UCD Alumni Office mailing list and promoted through the alumni newsletter, SVM website, SVM Twitter and UVH Facebook accounts. Graduates employed in the UK are targeted through the Veterinary Schools Council Graduate Survey (https://www.vetschoolscouncil.ac.uk/wp-content/uploads/2020/06/VSC-Graduate-Employer-Surveys-2019.pdf). Securing a reasonable response rate is an ongoing challenge as email addresses cannot be held or used without permission under the GDPR 2018. In 2020 the SVM secured agreement with the VCI to award 1 CVE point for completion of the survey to enhance response rates. Readiness for emergency and critical care management and communicating with clients in difficult circumstances were identified as areas where preparedness could be enhanced. Other themes emerging were greater emphasis on training in basic clinical skills, a desire to feel more confident and more prepared for transitioning into employment. Curriculum changes such as building vertical clinical skills and professional curricula as well as embedding more student active learning opportunities are aimed at addressing this feedback. Since 2018, the SVM has utilized a strategy of a team of brightly uniformed senior students equipped with iPads to mingle with **employers** at the annual Veterinary Hospital Conference and encourage completion on the day. Additional targeted emails are sent to practices noted by graduates on the UCD First Destinations.

UK based employers are targeted through the Veterinary Schools Council Employers Survey (https://www.vetschoolscouncil.ac.uk/wp-content/uploads/2020/06/VSC-Graduate-Employer-Surveys-2019.pdf). Focus groups have been completed with employers to enhance data collection (2018 and 2020). For most competences, respondents rated their employees as meeting expectations. Displaying ethical conduct and discussing and applying new veterinary treatments and procedures

were identified as strengths. Lowest level of satisfaction was associated with basic surgical skills and emergency and critical care management. These findings aligned with those of graduating students and recent graduates and have informed the development of a new clinical skills curriculum.

In summary, the SVM has developed a comprehensive approach to gathering outcomes data which helps evaluate teaching and assessment approaches across the programme as well the attainment of day one competence at graduation. These data are channelled into the SVM Management team, SVM Executive and critically the SVM Programme Board, CRC and Stage (i.e., year) Curriculum Review Groups (SCRGs) to support change which is effective and timely. Examples of outcomes-informed changes are: the new curriculum design, core experiential communication skills training embedded in years 2 & 3, the development of longitudinal Professional Growth and Clinical Skills curricula, increased case-based learning and reduced lecture numbers. The SVM has undertaken a comprehensive review of assessment across the curriculum using external examiner feedback, external consultation and has upskilled many faculty through participation in UCD Teaching and Learning Certs and Diplomas, AMEE Essential Skills in Medical Education (ESME) online programmes (https://amee.org/courses) and the International Advanced Assessment Course (https://www.hpac.sg/index.html). As a result, the SVM has modernized assessments and developed the MVB Assessment Matrix to collate information across the whole curriculum and demonstrate alignment with Miller's pyramid. In preparation for the modernisation of assessment methods and practices, workshops from both external and internal providers were, and continue to be, delivered to support all staff.

3.5 External Practical Training (EPT) is compulsory training activities organised outside the Establishment, the student being under the direct supervision of a non-academic person (e.g. a practitioner). EPT cannot replace the core intramural training nor the extramural training under the close supervision of academic staff (e.g., ambulatory clinics, herd health management, practical training in FSQ and VPH). Since the veterinary degree is a professional qualification with Day One Competences, EPT must complement and strengthen the academic education inter alia by enhancing student's professional knowledge.

The main form that EPT takes within the SVM is in the form of Extra Mural Studies (EMS). This term is therefore used throughout the text of the SER. Students undertake work placements during the preclinical and clinical phases of the programme. These are programme progression requirements and complement core learning. They are defined as an off-campus supervised workplace learning experience. In the pre-clinical years (year 1 GE / 1-2 MVB), students undertake 12 weeks of pre-clinical work placements/extra mural studies (EMS). In the clinical years (years 2-4 GE / 3-5 MVB) they undertake 24 weeks of placements/clinical extramural studies (CEMS). Pre-clinical EMS provides students with the opportunity to experience a range of companion animal and farming enterprises and to support the development of animal handling skills for common domestic species. Students are required to undertake 2 weeks of dairy, sheep, equine, pig, companion animal experience, 1 week of beef experience and 1 week of an alternative enterprise, amounting to 12 weeks in total. Students make their own arrangements with practices and establishments that they wish to attend. Placements can be undertaken outside Ireland. Students are assigned an EMS supervisor who must pre-approve all placements through a UCD online Placement System (MyProgress link). Students identify and record online their learning objectives for each placement. Students are provided opportunities to feedback on their overall experience of EMS through online student module questionnaires, and verbally with the module coordinator. Placement providers can provide feedback to the SVM via the EMS webpage (https://www.ucd.ie/vetmed/study/clinicalextramuralstudies/).

Clinical EMS provides students the opportunity to experience 'real-life' veterinary practice that complements and supports their professional, knowledge and skills development within the core curriculum. Students commence their clinical EMS over the final 2.5 years of their programme, 24

weeks of placements must be completed and includes a minimum of 2 weeks equine practice, 4 weeks companion animal practice, 4 weeks farm animal/mixed practice and 1 week for a meat plant experience. The remaining weeks may be taken in any type of practice, hospitals, laboratories, district veterinary offices in a minimum of two-week blocks. Students may apply to perform a research project for a maximum of 6 weeks. As with pre-clinical EMS, students make their own arrangements with practices and establishments they wish to attend. Placements can be undertaken outside Ireland. All placements must be approved by the Clinical EMS Supervisor online before being undertaken. Students are encouraged to form a relationship with a base practice which they will return to regularly throughout their clinical years. The SVM has built a good relationship with many practices who support the system and provide feedback for ongoing enhancement.

Table 3.5.1. Curriculum days of External Practical Training (EPT) for each student

Fields of Practice	Minimum duration (weeks)	Year of programme	Year of programme (GE)
Production animals (pre-clinical)	9	1-2	1-2
Companion animals (pre-clinical)	2	1-2	1-2
"Alternative enterprise" (pre-clinical)	1	1-2	1-2
Production animals (clinical)	4	3-5	2-4
Companion animals (clinical)	4	3-5	2-4
Equine (clinical)	2	3-5	2-4
FSQ & VPH	1	4-5	2-4
Free choice (approved clinical placement)	13	3-5	2-4

3.6 The EPT providers must have an agreement with the Establishment and the student (in order to state their respective rights and duties, including insurance matters), provide a standardised evaluation of the performance of the student during their EPT and be allowed to provide feedback to the Establishment on the EPT programme. There must be a member of the academic staff responsible for the overall supervision of the EPT, including liaison with EPT providers.

Preclinical EMS (PreCEMS) providers (e.g. sheep farmers at lambing time) contact the SVM indicating that they will accept students for placements or students nominate farms themselves (the detailed EMS document that is circulated to students is in Annex 3.6). The details of potential placement establishments are forwarded to their assigned PreCEMS supervisor for approval (example included in Annex 3.7). Criteria for approval include the adequacy of scale of the operation to ensure students have sufficient opportunity to gain the relevant experience. Placement providers are then contacted to confirm that their details have been posted and students contact them directly to make placement arrangements. The placement provider signs off verifying that the student completed the placement and can email or phone the PreCEMS supervisor with feedback (example of feedback form included in Annex 3.8).

Clinical EMS (CEMS) providers are contacted by the student to arrange CEMS which is subject to approval by the CEMS coordinator before commencement. Placement providers are directed to the SVM EMS webpage (https://www.ucd.ie/vetmed/study/clinicalextramuralstudies/) to prepare for accepting a student on placement. This page provides information on what is taught in each year, expectations of the placement provider and the students on placement as well as an insurance statement. The website contains a link for providing feedback to the EMS coordinator. Placement providers are offered a free webinar on EMS which is worth 2 CVE points upon completion. Student feedback from the practice preceptor is requested at the end of each placement. Feedback forms are submitted online using MyProgress software. Alternatively, supervisors may complete an offline

form and submit this via email. At the end of the placement the CEMS provider completes a form for the student via the MyProgress app and provides feedback on the student which is emailed to EMS administrator. All feedback and comments are assessed and any issues are addressed directly should they arise. The CEMS web page provides a link where CEMS providers can download the form and submit it in confidence should they not wish to discuss feedback with the student. Contact details for the ems administration team and module co-ordinator are available via this portal if CEMS hosts wish to contact UCD directly about any veterinary student regarding CEMS. All feedback is addressed by the CEMS co-ordinator and follow up with the CEMS provider is by email or phone call. Spot check phone calls and emails are performed regularly after completion of placement forms have been submitted by students to monitor any attempts at falsification of documentation.

3.7 Students must take responsibility for their own learning during EPT. This includes preparing properly before each placement, keeping a proper record of their experience during EPT by using a logbook provided by the Establishment and evaluating the EPT. Students must be allowed to complain officially and/or anonymously about issues occurring during EPT. The Establishment must have a system of QA to monitor the implementation, progress and then feedback within the EPT activities.

A document on preclinical EMS is circulated to all students in year 1 (Annex 3.6). They are also asked to attain prior approval and submit feedback (Annex 3.7, Annex 3.8). In Professional Growth 3, students prepare a mind map using the requirements of Clinical EMS and provide a clear plan of how they will meet those requirements, their learning objectives and their reasoning behind their choice of clinical placement. Students identify their learning objectives for each placement, record them online through the UCD Placements system and then they are approved by the module coordinator. As part of the preparation for EMS, students must complete the 'EMS Driving Licence' (http://www.ems.vet.ed.ac.uk/emsdl/) before commencing EMS. Student feedback from the practice preceptor is requested at the end of each placement. Feedback forms are submitted online using MyProgress software. Students provide feedback on their overall experience of clinical EMS through online student module questionnaires, programme experience questionnaires, focus groups, and verbally with the module coordinator. Successful completion of EMS requires the submission of all feedback forms and overall compliance with clinical EMS regulations.

The **complaints process for EMS** is essentially as outlined in Standard 7 for all student complaints and appeals. Information on the UCD process is linked from the UCD Student Engagement, Conduct, Complaints and Appeals website https://www.ucd.ie/secca/. If an issue arises during EMS the student should raise it as soon as possible with the EMS coordinator or School Office. Issues can normally be resolved easily and quickly at School level.

Comments

Through curriculum review we identified the strengths and weaknesses of the existing curriculum and used the opportunity to build on strengths and address the weaknesses.

Strengths

- A SVM with a focus on community and wellbeing for all faculty, staff and students;
- A new, clearly articulated curriculum philosophy and design which is outcomes-based and underpinned by a competency framework to support students to become day one competent veterinarians ready for the modern workplace internationally;
- The adoption of a set of evidence-based pedagogical principles that are learner-centred and continue to be applied to the new and existing curriculum (see section 3.1) to support students' problem-solving skills and day one competence development;
- Dedicated and talented faculty with interest in teaching and learning (many hold UCD Teaching and Learning Certificates / Diplomas, AMEE-ESME Certificate in Medical Education) who are dedicated to the professional and personal development of our students;

- Access for faculty to enroll in UCD Teaching and Learning Certs and Diplomas to develop their educational expertise. Support from SVM management to undertake AMEE, ESME and the in-house provision of staff development to support change;
- Active SVM Teaching and Learning Special Interest Group who meet monthly and share good practice;
- Bespoke staff development sessions are organised to support implementation of curricular enhancements (e.g. communications skills facilitator training, clinical skills curriculum, Writing & Reviewing Single Best Answer MCQs, OSCE examiner training);
- Full-time lecturer in Veterinary Education and Educational Technologist to support curriculum development and implementation;
- Teaching informed by clinical and research activity of talented faculty;
- An enhanced Clinical Skills Centre to support skills development inside and outside of scheduled classes with a dedicated Clinical Skills Manger with links into international special interest groups (NOVICE) and sharing of best international practice. An open-door policy and promoting a culture to students that this place is for them to freely attend and practice;
- A commitment to continue to modernize and enhance assessment practices across the programme;
- New Communications Skills programme through the developing Professional Growth Strand which has evolved as an action from the findings of outcomes assessment data;
- Modern well-equipped hospital on the main UCD campus with a caseload which is consistently harnessed for teaching of final year students in the various clinical rotations
- UCD has its own teaching and research farm (UCD Lyons Farm) providing students and academics with access to large animal enterprises for the delivery of teaching and research programmes;
- Student friendly clinical rotation-based final year with individually tailored timetables for each student allowing flexibility in choosing external electives and CEMS placements at busy times in seasonal farm animal and equine practice;
- A full-time student advisor dedicated to student well-being and an active peer-mentoring scheme;
- EMS experiences which complement the curriculum and allow students to gain experience in real work settings;
- Research-informed education, with faculty using their own research to inform teaching.
- Opportunities for students to participate in research.

Weaknesses

- Lecture volume is still higher than is desirable (particularly years 3&4) and efforts continue to reduce teacher-led approaches and drive a scaffolded active learning approach seeing students more active in their learning and thus further developing their life-long learning skills;
- Modules with many contributors are challenging to manage to ensure integration of concepts, avoidance of unnecessary repetition, relevance to day one and assessment modernization. Managing 'creep' in such modules is particularly challenging as new developments in veterinary science and medicine are embedded. This continues to be addressed using curriculum mapping software (Sofia);
- The existence of many small modules (5 ECTS) in a year has a tendency to support silo teaching and assessment which can impact on student workload (in terms of teaching and assessment) and relevance of both to real-life scenarios. Work on this is ongoing in curriculum development and re-structuring;
- Student Feedback - Ensuring timely and actionable feedback for students remains challenging however it is very much a current institutional level focus and is supported in regulation (https://www.ucd.ie/itservices/ourservices/managementadministrativesystems/curriculummanagementreporting/studentfeedbacksurveymanagement/).

- Tendency towards a reliance on implicit teaching of professional attributes which is currently being addressed;
- Clinical and practical skills were/are individual module-based and not combined in a framework for competence development - this is currently being addressed by building a central vertical clinical skills curriculum;
- The curriculum supporting the development of relevant and adequate day one business skills requires further development. We continue to work with various stakeholders to develop this including students and other Vet Schools in the UK. We engage actively with the European Veterinary Business Alliance (EVBA) as student partners to drive engagement in this important aspect of learning and look for synergies between their activities and the core curriculum.

Suggestions for improvement

The SVM considers curriculum revision as an ongoing dynamic process informed by developments and best practice in veterinary educational and assessment approaches and guided by assessment of outcomes by students, graduates, employers as well accreditation standards (MVB Curriculum Review and Change Roadmap, above).

Immediate plans for 2021/2022 include:

- Introduce a Professional week into Trimester 2 of Year 5 focusing on the transitioning from student to the workplace.
- Introduce Professional Growth 2 (5 ECTS module) into Year 2 and refine and enhance content across the vertical professionalism strand.
- Further embed, develop and refine a vertical clinical skills curriculum.
- Increase the embedding of case-based learning and reduce lecture load across the programme.
- Enhance vertical and horizontal integration of modules.
- Continue to develop simplified structures and reduce the number of modules per year.
- Continue to refine and modernize assessment approaches across the curriculum.
- Introduce standard setting of examinations.
- Enhance business teaching.
- Ensure relevance of teaching and assessment to Day One Competence.

Standard 4 - Facilities & Equipment

Standard 4. Facilities and equipment

4.1 All aspects of the physical facilities must provide an environment conducive to learning, including internet access. The veterinary Establishment must have a clear strategy and programme for maintaining and upgrading its buildings and equipment.
Facilities must comply with all relevant legislation including health, safety, biosecurity, accessibility to people with reduced mobility, and EU animal welfare and care standards.

The SVM is situated at Belfield, on the main campus of University College Dublin, Ireland's largest University (Appendix 3, Figure 3.1). The campus is easily accessible for students, staff and clients, having excellent links to major road and public transport networks and being within easy reach of both Dublin City Centre (10 minutes by bus or car), and to major agricultural and sport horse regions. The core facility occupied by the SVM is a building of area 3,800m^2, which is divided into two sections of similar size: the UCD Veterinary Sciences Centre and the UCD Veterinary Hospital (UCDVH). The UCD Veterinary Sciences Centre consists of three levels (lower ground floor, ground floor, and 1st floor), which are built around a sizeable central courtyard. The UCDVH is a single level building, connected to the main structure; the anatomy teaching area, the necropsy room, the bio-secure isolation large animal isolation facility and the veterinary public health teaching areas are situated adjacent to the UCDVH on the same level.

The SVM also has an integral presence at the University farm (UCD Lyons Farm; 35 Km from main campus; 250Ha; Appendix 3, Figure 3.2) where teaching and research activities in the farm animal and equine areas take place. Maintenance of the facilities in main campus is carried out by the University on a cyclical basis. Substantial upgrades and new facilities require a business plan to be drawn up and be approved by the University. Research Labs in the Veterinary Sciences Centre are operated in compliance with the Safety, Health and Welfare at Work act 2005 and the relevant General Application regulations 2007. Equipment is serviced in line with the appropriate General Application regulations and relevant Statutory Instruments. Biological laboratory work is carried out in line with the 2013 (formerly 1994 and 1998) Biological Agents Regulations, Chemical work is carried out in line with the Chemicals Safety Act 2008 and 2010. Where appropriate and required laboratory methods and facilities operate under additional licence from the relevant overseeing body; X-ray, CT, radioactive iodine unit and the hormone assay laboratory (Radioimmunoassay) operate under licence from the Radiological Protection Institute of Ireland (RPII). The newly established ICSI laboratory and Embryo transfer facility is licensed by the Department of Agriculture and the Marine to operate under an EU approved licence in accordance with Council directive 92/65EEC and Regulation S.I. No. 12/1996 European Communities (Trade in Animals and Animal Semen, Ova and Embryos) Regulation 1996. The UCDVH also operates in full compliance with all relevant Health and Safety legislation. In conjunction with the UCD SIRC office, a comprehensive range of SOPs are in place to cover all aspects of patient/client care, staff and student safety. The range of protocols includes use of cytotoxic drugs, use of specialized equipment, use of potentially hazardous chemicals/anaesthetic agents and potential exposure to zoonotic infectious agents. In addition to in-house oversight through the UCD SVM Health and Safety Committee, SIRC organize an external company to audit hospital facilities and functions on a contractual basis. Service contracts are in place to ensure the safe functioning of all anaesthetic machines, scavenging units, chemical fume hoods, autoclaves etc.

4.2 Lecture theatres, teaching laboratories, tutorial rooms, clinical facilities and other teaching spaces must be adequate in number, size and equipped for the instructional purposes and must be well maintained. The facilities must be adapted for the number of students enrolled. Students must have ready access to adequate and sufficient study, selflearning, recreation, locker, sanitary and food service facilities. Offices, teaching preparation and research laboratories must be sufficient for the needs of the academic and support staff.

Lower Ground Floor (UCD Veterinary Sciences Centre; Appendix 3, Figure 3.3)
Academic staff offices occupy corners of the UCD Veterinary Sciences Centre on the lower ground floor. This floor also houses the UCD Centre for Veterinary Epidemiology and Risk Analysis, clinical diagnostic laboratories, some research laboratories, open-plan office accommodation for faculty, residents, graduate students and researchers, a common room shared by staff and final year students and one floor of the veterinary library. The diagnostic laboratories are situated so as to allow easy access for sample delivery etc. with the adjoining UCD Veterinary Hospital (UCDVH).

Ground Floor (UCD Veterinary Sciences Centre; Appendix 3, Figure 3.4)
The ground floor contains the reception lobby area with its plasma screen highlighting faculty publications and a wall 'decal' of our 'One Health – One Welfare' vision and mission. The adjacent room 101A/B is a teaching seminar / group work / tutorial space that can be sub-divided and is occasionally used for meetings including the meeting of the important Staff-Student Committee. The veterinary library is also housed on the ground floor; in response to the report, following the last visit of COE / AVMA, the SVM has installed a state-of-the art ventilation system in the library (additional details regarding the library are provided under Standard 5. Adjacent to the library is the Vet-Ed Hub, a centre with a staff that helps drive innovation and best practice in discipline specific teaching and learning and supports teaching and learning scholarship. The ground floor also contains two large teaching laboratories, 103 (wet lab) and 109. Wireless access to the UCD network is provided for computer use and Laboratory 109 has been adapted to provide for use of e-learning of histology and related subjects. Laboratory 109 may also be divided for seminar / group work / tutorial space. A recently refurbished and relocated Clinical Skills Centre which is key to the implementation of our new spiral, scaffolded curriculum is found adjacent to Laboratory 103. Details about this invaluable resource, which is overseen by a newly appointed director, are provided under library resources (Standard 5 below). Three lecture theatres (114, 115, 116), two of which are tiered and can accommodate 101, 134 and 90 people respectively, and one of which is flat (room 116), with moveable seating (so also flexible for tutorials / seminars) are situated on the ground floor. It is important to note that the SVM also routinely uses several large capacity lecture theatres in the adjacent O'Brien Science Centre and the Health Sciences Centre (5-minute walk from the SVM). Larger capacity lecture theatres in the adjacent O'Brien Science Centre and the Health Sciences Centre are approximately a 5-minute walk from the SVM (Appendix 3, Figure 3.1). These are available through a central booking system. The student common room and cafeteria provide a pleasant local social space for our students and the ground floor contains male and female student locker rooms and restroom facilities.

1st Floor (UCD Veterinary Sciences Centre; Appendix 3, Figure 3.5)
The 1st (top) floor houses the School Office (Dean-Head of School; Administration Team Offices; Boardroom; office of the Student Adviser). The remainder of the floor is taken up by research laboratories, academic staff offices, postgraduate/post-doc office accommodation and a small-group teaching room.

The anatomy teaching laboratory
The anatomy teaching laboratory is situated off the main hospital breezeway adjacent to the veterinary pathology/ necropsy room. It comprises a large purpose-built wet room with floor drains and an inbuilt air handling unit to change the air and minimize exposure to any embalming chemicals for all users. Up to 90 students can be accommodated at any one time in the area. The facility is equipped with a digital camera and projector facilities and a good sound system, facilitating live demonstrations to the whole group during classes. There are up to 30 dissection trolleys available for student dissection and display of protected materials, dry specimens and models during teaching sessions. There a long dry bench along one wall of the room, where radiograph light boxes, microscopes with relevant slides, models and dry specimens can all be made available. In addition to the main teaching lab there is a small annex room where students can access specimens on request and spend time in

self-directed learning. Staff facilities to support the work in the area include a reception area inside the back door where specimens can be made ready for class, staff office space and there is a small workshop where specimen development work is carried out (skeletal development, preparation of potted specimens etc.). Students are directed during class to the facilities in the Clinical Skills Centre.

Student recreational area
The SVM's student café area offers a social space for students supported by the SVM's Student Adviser. Lockers are provided to every student with a total of 479 lockers in the SVM. The SVM library offers an excellent local study environment described in detail under Standard 5. Students also use the SVM lecture theatres and other rooms for evening educational events organized by VetSoc. During study times, in advance of examination periods, the SVM makes all appropriate spaces available to students for study. Further, theatre 116 is transformed in a relaxing, meditative space overseen by the Student Adviser. A shared common room with basic kitchen facilities is available to the final year students when in the veterinary hospital. Students on the Belfield campus also avail of an excellent range of University facilities including, the state-of-the art UCD Student Centre (15-minute walk from the Veterinary Sciences Building) with its excellent sports facilities including a 50 metre Olympic Swimming pool, cinema, pharmacy, debating chamber and theatre. The Student Health Centre is also situated in UCD Student Centre. The attractively landscaped Belfield campus hosts student accommodation, numerous shops, cafés and restaurants, offering student social facilities, sports facilities, bank, post office. UCD Estate Services have also partnered with Irish Village Markets to host a pop-up catering event on every Thursday in UCD aimed to promote diversity and explore food trends. Significant on-campus student accommodation is available (http://www.ucd.ie/residences/).

Students on call
A dedicated apartment within the hospital accommodates five interns, whilst an additional three are accommodated on separate campus accommodation. Students are rostered 'on call' as part of their 'core hours' rotation, when 'on call' they remain awake at all times and do not have scheduled sleep breaks. Rest and feeding facilities are made available in the Common Room to which they have 24/7 access.

Administrative and Faculty Staff Offices and Staff facilities
These are adequate and well-furnished, although the increase in staffing has led to the need to develop open-planned desk space such as that on the ground floor. However, as faculty numbers increase across the university, the issue of provision of space remains a strategic priority for the SVM and the College of Health and Agricultural Sciences in the years ahead.
On campus Staff have access to the recently opened Staff 'University Club' (adjacent to the Veterinary Sciences Building).

4.3 The livestock facilities, animal housing, core clinical teaching facilities and equipment used by the Establishment for teaching purposes must: be sufficient in capacity and adapted for the number of students enrolled in order; to allow safe hands-on training for all students; be of a high standard, well maintained and fit for the purpose; promote best husbandry, welfare and management practices; ensure relevant biosecurity and bio-containment; be designed to enhance learning.

UCD Lyons Farm (Appendix 3, Figure 3.8)
The UCD Lyons Farm (250 hectares) is a core resource for teaching and research activities in the SVM. *Governance* - the farm is jointly managed by the Schools of Agriculture and Food Science and the SVM. There is a Lyons Farm Oversight Committee that consists of the College Principal, the Deans of Veterinary Medicine and Agriculture, and the Farm Manager. Underneath this sits the Lyons Farm Management Committee (the SVM has three representatives) that deals with day to day management decisions and research project approval. There are sub-committees that monitor species

performance and contribute to relevant management decisions. The farm has to balance teaching, research and commercial needs. The Mission Statement of the farm (as outlined in the SVM strategic Plan) is to provide for the teaching and research needs of both schools; as such, the Committee does not make decisions that would impact negatively on SVM teaching activities. In the recent past the farm has added to pig and poultry teaching facilities for the SVM.

Commercial aspects - the Farm Manager looks after daily activities and is responsible for the economic performance of the farm. Milk produced is sold to a commercial dairy cooperative. Research projects are assessed at the application stage and any shortfall or negative impact on commercial performance is paid from the associated research grant. Projects that cannot cover their economic shortfalls are not approved.

*Teachin**g*** - teaching activities are prioritized and are taken as a core deliverable for the farm. The farm is a critical resource providing animals for teaching in the first (animal handling), second (nutrition, reproductive biology, food animal systems), fourth (clinical reproduction) and final years (clinical activities) of the veterinary curriculum. Allocations of teaching animals are agreed each year with no difficulties being encountered. The SVM sends the Farm Manager lists of required animal resources which are subsequently provided. Substantial additions in teaching animals would need to be discussed and agreed by the Oversight Committee and Management Committee; should a shortfall in production performance arise, this would need to be compensated from teaching budgets of the SVM. Usage of non-clinical animals at the farm are subject to ethical approval and project licence as required under EU directive (2010/63/EU) transposed in Ireland under S.I. no. 543 of 2012 and implemented by the Scientific Animal Protection group in the Health Products Regulatory Authority (www.HPRA.ie).

Farm facilities - In addition to clinical teaching, practical classes in animal handling, nutrition, reproduction and herd health are held at the farm. The farm is also used for research projects by academic staff of the SVM. The farm's dairy herd currently consists of 200 milking cows. A major development project for the herd and the dairy was undertaken in 2014. This expanded the dairy from its initial herd size of 100 cows. As part of the development a state-of-the art rotary platform parlour (40 unit) was installed and the dairy cow housing and research facilities were re-vamped. The animal handling facilities for dairy cattle were also extensively upgraded at that time. The expanded dairy herd provides teaching data, clinical cases for final year teaching on the farm and some clinical cases for the UVH. There are loose pens for 150 beef cattle. There is individual housing for 30 sheep and loose pens for 500 ewes. Currently the farm has a flock of approximately 350 breeding ewes. The pig unit consists of individual and loose housing for 20 and 400 animals respectively and it is predominantly a research facility. There is individual loose box housing for 15 mares and appropriate stocks / facilities for restraint of horses in both teaching and research. The farm also has a lunging arena and an area where trot-ups are possible to teach equine handling. A new veterinary teaching facility to accommodate two farrowing sows and their progeny has been installed so that sows and piglets (~22-24) are available for student teaching on pig health husbandry and handling in Semester 2. A newly renovated laying hen facility is also present for ~30 hens that will be managed throughout the year and will be available for student classes on poultry health, husbandry and handling. The UCD Lyons Farm also has two staff offices (4 desks) and desk space for students as required while based there for research. In addition, there is one teaching laboratory and one procedures room for both teaching and research. The farm is host to a busy animal nutrition research laboratory and a world-renowned cattle/sheep In Vitro Fertilisation (IVF) research laboratory. Travel time to the farm is approximately 45 min by bus/car at times when traffic is busy.

FSQ and VPH

Intra mural: Practical classes in post-mortem meat inspection are delivered in the Veterinary Public Health (VPH) teaching laboratories. Instruction and introductory material are delivered before each

practical class in H093 which is a class 2 laboratory. Students then move to the adjacent wet laboratory (H094) after dressing with the appropriate PPE. This wet lab is a specially designed facility to deliver meat inspection practicals to small groups of students. It contains a number of stainless steel sinks, including a foot operated sink for handwashing, non-slip resin floor with drainage, a boot washing station, stainless steel benching and a walk-in chill for storing specimens for practical classes. The lab is also fitted with an overhead rail and rollers with hooks to allow carcases and other specimens to be hoisted and suspended for teaching and demonstration purposes. Carcases and specimens including heads, plucks (heart, lungs, trachea and oesophagus), kidneys and livers and whole broiler carcases are obtained from abattoirs and transported to the VPH Teaching laboratory. Classes are delivered by OVs (DAFM) aided by VPH academic staff. Students have the opportunity in these classes to examine, palpate and incise specimens and learn the various procedures used to carry out post-mortem meat inspection as laid down in relevant legislation.

Extra mural: Slaughterhouses processing broilers and cattle are selected for visits for teaching students. The beef plant is a large throughput facility which carries out a wide range of downstream processing operations. For example, it has 3 boning halls as well as a large further processing/value-added facility on site which produces a range of processed meat products, including comminuted products such as ground beef, burgers, diced beef as well as vacuum packed primals and retail cuts. The broiler processing facility is the largest processor in the Republic of Ireland, processing circa 1.5 million birds per week, of which approximately 50% are further processed on site. Students see a wide range of value-added products being processed and packaged, from whole carcasses, portions, comminuted products, marinated products etc. The SVM has a close collaborative relationship with the Department of Agriculture, Food & the Marine (DAFM). With the support of the Chief Veterinary Officer, students have access to all DAFM supervised slaughter plants throughout Ireland and their Veterinary Inspectors (VIs) along with faculty play a key role in teaching our students in these facilities. Class visits to beef and broiler slaughter plants are arranged for students each year during completion of the veterinary public health modules. These visits are facilitated and hosted by DAFM VIs based in these facilities and are supported by Factory Management. Students have access to all aspects of operations within these establishments, including live animals and the main duties associated with *ante-mortem* inspection, food chain information, humane slaughter, *post-mortem* inspection as well as boning and value-added areas. All DAFM supervised factories are large high-volume processing facilities which operate on an all-year round basis. Furthermore, DAFM veterinary staff are present on site on a full-time basis in each facility. In addition, at the end of year 4, all students are required to complete a 1-week EMS placement in a DAFM supervised slaughterhouse (low throughput local authority supervised abattoirs are not used). Students placed in these establishments work directly under the supervision of DAFM VIs. Students can select any DAFM supervised facility throughout Ireland and placements are arranged for students by the SVM. Learning objectives are provided to each student as a guide and cover all key areas that they should prioritise during their time on site.

4.4 Core clinical teaching facilities must be provided in a veterinary teaching hospital (VTH) with 24/7 emergency services at least for companion animals and equines. Within the VTH, the Establishment must unequivocally demonstrate that standard of education and clinical research are compliant with all ESEVT Standards, e.g. research-based and evidence-based clinical training supervised by academic staff trained to teach and to assess, availability for staff and students of facilities and patients for performing clinical research and relevant QA procedures.

The UCDVH is run by the Clinical Director (CD) who reports to the Dean; a Hospital Management Group meets once/month (chaired by the CD) with representatives nominated from all clinical and paraclinical disciplines, nursing and animal care staff, as well as relevant administrative grades. The UCDVH operates all year-round on a 24/7 basis. Consultations are primarily scheduled on a Monday-

to-Friday basis. UCDVH provides 24/7 Out of Hours (OOHs) cover for all patients currently under its care in all disciplines. New OOHs emergencies are additionally accepted in equine and farm animal as requested; this aspect also includes our equine ambulatory service. In the case of small animal, UCD is a 49% stakeholder in the Belfield Pet Emergency Hospital (a joint venture with over 25 surrounding small animal practices), to which OOHs small animal emergencies are referred with the potential to be transferred the following (working day) morning to UCD if required. As such, students are exposed to a full range of both elective and emergency cases.

Standard consultations Monday-to-Friday include both elective and emergent cases in all clinical disciplines. Clinical rotations include small animal medicine, ICU, small animal surgery, large animal surgery farm animal medicine, diagnostic imaging, anaesthesia and clinical pathology. External rotations to support the predominantly referral nature of the in-house UCDVH rotations include the Small Animal Surgery rotation at the DSPCA (one week concentrating predominantly on canine neutering procedures), first opinion small animal practice (one week at Village Vets), the Equine Field Studies rotation (ambulatory service, one week) and the Herd Health Visits conducted as part of the farm animal medicine rotation.

The Small Animal Medicine (SAM) caseload provides for comprehensive student exposure to cardio-respiratory, oncology, gastrointestinal, endocrine, dermatology, urinary tract, metabolic, haematopoeitic and neurology cases. Elective cases are scheduled daily with emergency slots also made available as required to accommodate direct transfers from the BPEH or external practitioners. The majority of SAM cases are admitted for hospitalization for at least that day; the length of stay is typically 2-4 days for overnight patients. The service is further enhanced by formal relationships with visiting experts in cardiology and animal behavior; veterinary and human dentists also provide professional assistance for UCDVH when required. The surgery disciplines operate two distinct services (orthopaedics and soft tissue); referrals cover a wide variety of teaching material, both elective (e.g. TPLOs, TECA/BO, hepatic shunts) and emergency (e.g., acute abdomens, spinal compressions). Minimally invasive technologies routinely offered include arthroscopy, thoracoscopy and laparoscopy. More refined techniques (e.g., total hip replacement) are performed less frequently. Whilst equine referrals continue to attract a large number of orthopaedic and respiratory cases, we have achieved a dramatic increase in dental/skull referrals, facilitated in large part by the introduction of a new equine standing CT. UCDVH also provides off-site equine services in the form of dynamic endoscopy (overland scoping) and a formal arrangement with a leading equine first opinion/referral practice in Northern Ireland. Students participate fully in all off-site services. Our relationship with Dublin Zoo facilitates instruction in the safe handling and management of zoo animal species.

The in-house equine medicine service focusses on all aspects of internal medicine and dermatology, with referrals under all major body systems. The service also regularly assesses horses presenting for non-specific “poor performance”. An external diplomate specializing in emergency/critical care (including foals) is also retained by UCDVH. The ambulatory equine field service visits single horse owners, livery yards, riding schools and charitable organizations. Cases include vaccination, deworming diagnostics and treatment protocols, pre-purchase examinations, dental procedures and lameness investigations. Medical cases include common disorders such as weight loss, respiratory disorders and dermatological diseases. UCDVH entered into a formal agreement with Dr. Niamh Lewis in 2019 to provide advanced equine fertility services direct from the hospital.

The Farm Animal Clinical Studies (FACS) rotation is based within the main UCDVH but is augmented by animals maintained on Lyons farm and the off-site herd-health visits. The in-house unit accepts a wide variety of species/medical conditions (bovine, ovine/caprine, pig, llama and occasional other exotics). Our Herd Health service is comprised of experts in dairy/beef/sheep herd/flock management, clinical reproduction, epidemiology and nutrition; the group investigate various population disease outbreaks and production loss issues.

Our Diagnostic Imaging (DI) and Anaesthesia disciplines provide the full range of patient care and diagnostic work-up compatible with the services previously outlined. The new combined small animal/equine (standing) CT unit and 1.5 Tesla small animal/equine MRI unit means UCDVH now offers the full range of modern imaging services required. The Pathology service conducts post-mortem (PM) examinations on cases derived from UCDVH, external practices, Lyons farm, Dublin Zoo and various animal charities. These sources provide material from all common domestic species, zoo animals, small exotic mammals and aquatic life. Our Clinical Pathology service likewise performs a similar supporting role for clinicians in all relevant disciplines (cytology/haematology/biochemistry). The diagnostic service in microbiology and parasitology accepts samples from all veterinary species submitted by UCDVH clinicians and pathologists as well as by external veterinary practitioners. The diagnostic laboratories collaborates with numerous external laboratories to ensure the full range of modern assays required for internal/external cases (e.g., gene testing, PCR assays etc.).

Clinical activity commences within UCDVH in the form of Board Rounds and initial patient assessment at 7.30- 8.00 am in all disciplines. Final Board rounds and patient preparation for OOHs care occurs between 5.00 and 6.00 pm each evening. All consultations involve the full involvement of students; under direct supervision or responsibility of the clinical staff, they are delegated certain tasks and functions as part of case work-up and management. All the above facilities and establishments, whether on site within UCD or by external collaboration, meet all relevant national Practice Standards.

UCD Veterinary Hospital (UCDVH; Appendix 3, Figure 3.6 and Figure 3.7)
The UCDVH is broadly partitioned into the small animal hospital and large animal (farm animal & equine) hospital with zones for small animal medicine, small animal surgery, large animal medicine and large animal surgery. The reception and accounts areas service both the small and large animal clinics. Clients have direct access from a separate client car park. The central dispensary is adjacent to reception and has restricted access. The small animal medicine area includes seven consulting and three treatment rooms, one nurses' station, and two dedicated wards, one each for cats and dogs, respectively. There is an isolation room dedicated to animals with infectious diseases, and a separate room for cats receiving radioisotope therapy. One procedure room is primarily dedicated to oncology cases and the administration of cytotoxic agent therapy. Physical therapy procedures are performed in one specific treatment room. The small animal surgery area consists of a procedures room, three large operating theatres and a minor procedures room, all served from a large preparation/induction room. There are three separate work stations (one nurse, one student and one anaesthesia), a dedicated ward for cats and three dog wards (one being overflow). A central sterilisation unit supports both the large and small animal hospital units. Equipment and techniques available for small animal surgery include arthroscopy/laparoscopy/thoracoscopy, a full range of orthopaedic equipment and implants, full soft tissue and cardiovascular instrumentation, an operating microscope and video camera recording system. The hospital has a food preparation area and storage facilities. An outdoor exercise area is provided for dogs. The intensive care unit, with space for up to ten animals, is also located immediately adjacent to the wards and induction room.

The diagnostic imaging facility is located between the small and large animal surgical units. Diagnostic equipment includes a portable x-ray unit, three fixed-position ultrasound machines (cardiac, abdominal and multi-purpose), three portable ultrasound machines, a small animal DR x-ray facility, a large animal CR x-ray facility with a specialised floor-to-ceiling suspension unit. A new, combined 16-slice CT unit utilizes a table for small animal examinations, and a drop-down lift system for equine standing CT. A 1.5 Tesla combined MRI unit installed in 2020 utilizes a separate small animal/equine table system, with new dedicated viewing room facilities. All images are stored on a PACS system which is accessible hospital-wide to all staff and students.

A dedicated apartment within the hospital accommodates five interns, whilst an additional three are accommodated on separate campus accommodation.

The large animal surgery/medicine facilities include two operating halls, two padded induction/recovery boxes, three procedure rooms and ancillary preparation and storage areas located adjacent to the large animal accommodation. Standing surgeries, dental and endoscopic procedures can be carried in two of the procedure rooms (including Room H112). A base area is also provided for the equine ambulatory service. Large animal surgery rooms, diagnostic imaging, recovery and accommodation areas are linked by an overhead rail hoist. The equipment available for large animal surgery includes video-endoscopy, arthroscopy, laparoscopy, AO/ASIF fracture repair equipment in addition to standard soft tissue and orthopaedic surgical instrumentation. There is a walled lunging ring, with additional lunging rings and trotting up zones in the hospital yard. The farm animal area consists of 13 hospitalisation places for cattle, 7 hospitalisation places for small ruminants; a central handling crush facility appropriate for common standing bovine surgeries such as abomasal displacement, as well as a rotating crush which allows safe surgeries involving the distal limbs, reproductive tract in adult cows and bulls. The Large Animal Isolation facility offers 5 hospitalisation places for farm animals and horses. An adjacent paddock area consists of 4 small paddocks: 3 equine and 1 bovine; there is also a 50 metre lunging and equine lameness examination area.

The diagnostic pathology laboratories are located on the ground floor of the Veterinary Sciences Centre where the building links to the adjoining clinical facilities of the UCD Veterinary Hospital (UCDVH). This situation facilitates easy access for sample delivery etc. These fully-functioning clinical pathology laboratories are comprehensively equipped with advanced, automated, and newly-acquired technology. Most laboratory data are captured by a recently-introduced, customized, laboratory-information-management system (LIMS) that interfaces with the hospital management system. The data is then reviewed by staff and reported out to the clinical staff by the LIMS. There is an out-of-hours and student lab, adjacent to the main lab that is equipped with slide-staining facilities, microscopes and easy-to-operate benchtop analysers: Siemen's Rapidpoint 500 blood-gas analyser, Abaxis VetScan VS2 biochemsitry analyser and Abaxis VetScan HM5 haematology analyser. The main laboratory equipment is comprised of a Siemen's Advia 2120 analyser for haematology, a Siemen's Atellica CH 930 chemistry analyser for clinical chemistry, and Immulite 1000 and Centaur CP automated immunoanalysers. Additionally, there are multiple Olympus microscopes for morphological examination of haematology and cytology preparations, a Trinity biotech KC4 analyser for haemostasis, and a Guava EasyCyte flow cytometer for immunophenotyping of lymphomas and leukemias. An Aerospray 7120 Haematology Slide-stainer Cyto-centrifuge is used for slide preparation. Cytology microscopes are equipped with digital cameras and analytical software for routine inclusion of photomicrographs in cytology reports and for cytomorphometric diagnosis. There are two GE IN Cell 1000 analysers for investigative, cellular imaging and analysis. Excellent and well-equipped necropsy facilities, together with staff changing and showering areas also form part of the UCDVH complex. Spacious and well equipped post-mortem room, together with staff changing and showering areas within the UCDVH complex. Handling gear available to manipulate large carcases (cattle/horses). Carcases are submitted for post-mortem examination from farm animal, equine and small animal veterinary practices throughout Ireland and from the UCDVH. In addition, zoo species are submitted from Dublin Zoo and from other zoological collections in Ireland. The Irish seal sanctuary is a further source of cadavers. Two large cold rooms contain skips for the retention of animal tissue prior to disposal. A trim room adjoins the post-mortem room and there is a 'public access' gallery where clinicians/surgeons/students can view specimens without the need to change into full PPE. The necropsy facility is adjacent to the anatomy teaching facility. A student changing room is shared by these facilities. There are also excellent facilities for processing tissue for histopathology in a large laboratory space (Room 022)

shared with clinical pathology. A multi-headed microscope is available for the training of residents and undergraduates.

The SVM meets all relevant national Practice Standards for Veterinary Medicine.

4.5 The Establishment must ensure that students have access to a broad range of diagnostic and therapeutic facilities, including but not limited to: diagnostic imaging, anaesthesia, clinical pathology, intensive/critical care, surgeries and treatment facilities, ambulatory services, pharmacy and necropsy facilities.

Details of facilities for diagnostic imaging, anaesthesia, clinical pathology, intensive/critical care, surgeries and treatment facilities, ambulatory services, pharmacy and necropsy have been described in 4.3 above. Every student in final year is rostered on every rotation. Swipe cards to the hospital give students access to all clinical areas at all times. So if they have a particular interest in free time they can participate in any area of interest.

4.6 Appropriate isolation facilities must be provided to meet the need for the isolation and containment of animals with communicable diseases. Such isolation facilities must be properly constructed, ventilated, maintained and operated to provide for animal care and for prevention of spread of infectious agents. They must be adapted to all animal species commonly handled in the VTH.

Both small and large animal isolation facilities are available in UCDVH and appropriate protocols posted there and are included in the handbook provided to students. Students are also given instruction in biocontainment throughout the didactic curriculum, in practical/clinical teaching at UCD Lyons Farm, and on herd health visits. The large animal isolation facility consists of 3 boxes plus a treatment room with stocks contained in a separate enclosed yard with restricted access. There are disinfection, changing and cleaning facilities associated with each box. For small animals there is an isolation room dedicated to animals with infectious diseases. The isolation facility in small animal is divided into two distinct sub-units. The first unit is for infectious diseases, including but not limited to viral diseases (e.g. parvovirus, infectious hepatitis), bacterial (e.g. leptospirosis, salmonellosis) or certain parasitic infections/infestations. This unit consists of five individual kennels. The second unit, consisting of two large walk in kennels, is for the housing of dogs with MDR infections (e.g., MRSA discharging wounds resulting from infected orthopaedic implants). Strict barrier nursing protocols and SOPs are in operation, and include restriction on which specific staff can enter, the wearing of PPE and relevant disinfection protocols for specific disease entities. Facilities to allow effective PPE and disinfection are available both within and outside the isolation facility. The infection control group within the school monitors on an ongoing basis for any emerging diseases and from time to time may recommend additional control measures.

4.7 The Establishment must have an ambulatory clinic for production animals or equivalent facilities so that students can practise field veterinary medicine and Herd Health Management under academic supervision.

The equine field service visits equine clients within a 20km radius of the campus, mostly to the South. A wide variety of cases are seen including dental disease, wounds, lameness, endocrine disease, sports medicine and parasite control advice and management. Two academic clinicians run the service whereby 4 students attend calls alongside the clinician. The service provides an emergency service, backed up by the UCD Veterinary Hospital. A crew cab jeep is used for the ambulatory service. This can carry the driver plus 4 students and has capacity to carry necessary clinical equipment and drugs.

Herd health cases from private practices are referred to UCDVH from all areas of the country. Students are made aware of any herd health investigation visits that are taking place during their Farm Animal Clinical Studies rotation. Students that wish to attend are brought on these visits. Herd health

visits are conducted by board certified specialists in bovine health management or animal reproduction as appropriate, with the assistance of a resident in bovine health management. As part of the Farm Animal Clinical Studies rotation, students will also attend herd fertility visits on commercial dairy farms. These visits are conducted by boarded specialists and/or residents in animal reproduction. Additionally, whilst on UCD Lyons Farm for the purposes of practical classes, any animals requiring veterinary attention are flagged to the clinician conducting the class. These first opinion cases are investigated and treated by the students under the supervision of the clinician.

4.8 The transport of students, live animals, cadavers, materials from animal origin and other teaching materials must be done in agreement with national and EU standards, to ensure the safety of students and staff and to prevent the spread of infectious agents.

The School transport consists of two 8 seater plus driver minibuses, one 6 seater plus driver minibus with large cargo area, a jeep for towing a horse box / trailer (the SVM has three trailers suitable for transporting horses, cattle and small ruminants) that are used for collecting live animals, an equine ambulatory jeep and a 2 seater van. Larger groups of students are accommodated using UCD recommended transport companies to hire in buses e.g., for large groups of students attending classes at Lyons farm. The 6 seater minibus / van (Fiat Ducato) is used for transport of animal cadavers and animal organs. It is licenced as a vehicle for transporting Category 1 waste.

4.9 Operational policies and procedures (including e.g. biosecurity, good laboratory practice and good clinical practice) must be taught and posted for students, staff and visitors and a Biosafety manual must be available. The Establishment must demonstrate a clear commitment for the delivery of biosafety and biosecurity, e.g. by a specific committee structure. The Establishment must have a system of QA to monitor and assure clinical, laboratory and farm services, including a regular monitoring of the feedback from students, staff and clients.

UCD's parent safety statement was developed by the UCD Safety Office and is used as the basis for developing more detailed safety statements specific to each academic and administrative unit https://www.ucd.ie/sirc/healthsafety/safetystatements/. The Dean has responsibility for ensuring the Health and Safety of all staff and students of the SVM. Health and Safety is a standing item on School Executive, Hospital Board and Section meetings, and includes incident reports. The SVM Health and Safety Committee regularly reviews safety protocols, holds fire drills and reports on incidents. Risk assessments have been developed for each laboratory and clinical procedure and are on-file with the Safety Office. Any incidents in which the safety of staff or students has been compromised are reported to the UCD Safety Office who investigate and report. Safety audits of specific areas and procedures have taken place over the last few years (carried out by independent consultants on behalf of the UCD Safety Office). Generally, the reports have been very satisfactory (all passed, no major incidents to report). Some minor improvements that have been recommended include the provision of additional eye wash stations and improved laboratory seating, in some individual cases. Facilities Management is provided by the UCD Buildings and Services Office. As Operations Manager, Mr. Dave Mason liaises with Buildings and Services for maintenance and other requirements. Some elements of facilities management, including cleaning, are outsourced by UCD Buildings and Services. Waste disposal, including clinical waste, is handled locally by the SVM through a contract negotiated annually with a commercial waste disposal company. The adequacy of Facilities Management by UCD Buildings and Services is monitored through regular meetings between the School Office, Operations Manager and the Buildings Office, which include inspections of the buildings as appropriate.

Comments

The development of pig and poultry teaching facilities for Veterinary Students is a welcome addition and will be used during 2020/2021.

Suggestions for improvement

A small Animal Hospital Development / expansion is planned that will expand our capacity for oncology and other small animal capacity. The Dean of Veterinary Medicine and the Dean of the UCD School of Agriculture and Food Science have been working closely together on an ambitious development plan for UCD Lyons Farm, which includes the creation of a Knowledge Centre with a 'Dairy Herd Health Hub', teaching and education spaces, meeting rooms, laboratories, faculty and student offices, and a Agri-Tech Innovation Centre. Furthermore, the Dean and the Clinical Director have the support of the university to seek funding to develop a UCD Lyons Centre for Equine Health Care, Rehabilitation and Fertility; including a Funded Chair (Professorship) in Equine Lameness and Rehabilitation. We are currently pursuing funding for this project.

Standard 5 - Animal Resources & Teaching Material of Animal Origin

Standard 5. Animal resources and teaching material of animal origin

5.1 The number and variety of healthy and diseased animals, cadavers, and material of animal origin must be adequate for providing the practical and safe hands-on training (in the areas of Basic Sciences, Clinical Sciences, Pathology, Animal Production, Food Safety and Quality) and adapted to the number of students enrolled. Evidence must be provided that these data are regularly recorded and that procedures are in place for correcting any deficiencies.

The VTH working model is designed to address all issues relating to optimal case material/exposure for student teaching. In small animal (medicine and surgery), the majority of cases are referral-based and provide a wide spectrum of exposure that includes all specialities (internal medicine, oncology, soft tissue surgery, orthopaedics etc.) and levels of complexity (elective, emergent and urgent). To ensure comprehensive exposure to routine Day 1 competences, the VTH has core rotations in first opinion small animal practice, local charities (the DSPCA) and external placements in first opinion practice as part of elective rotations and Clinical EMS. Our equine caseload follows a similar path in that the vast majority of in-house cases are referral based, with first opinion exposure through our core rotation equine ambulatory service as well as elective and CEMS placements. The farm animal unit sees an excellent blend between what would be appropriately classified as first opinion material and more complex referral cases. All clinical disciplines are serviced by excellent ancillary support disciplines including diagnostic imaging, anaesthesia, clinical/morphological pathology and physical/rehabilitation services. The number of patients accepted by each service is dictated by establishing the correct balance between quantity/diversity of case load, and sufficient time for effective teaching to maximize the student learning experience. Whilst most clinical cases recorded on our system are individual-based, our Herd Health group and Equine Ambulatory unit do provide high quality exposure to population medicine issues. Student involvement in all aspects of patient care and management is exceptionally high, with students performing virtually all tasks consistent with their year of learning and ethical constraints. To ensure appropriate exposure, the care of in-house patients is typically allotted to a maximum of 2 students/case. The vast majority of large animal cases are hospitalized which enables longer-term exposure to high quality case material; a similar situation pertains in small animal. The fact that all above rotations are mandatory ensures that each student gets guaranteed and fair exposure to all above aspects of the clinical teaching programme.

The SVM in UCD uses cadaver material, normal healthy animals and clinical / hospital animals in order to meet its requirements in anatomy, animal handling, animal production and clinical training. There is a reasonable blend of species achieved, reflecting animal species ownership in both farm animal and as pets. The establishment has its own farm (Lyons farm) that provides much of the normal farm animal teaching resources in addition to some of the clinical animal resources for the farm animal species. The University Veterinary Hospital then has a substantial companion animal and equine caseload in addition to some farm animal caseload.

Teaching anatomy and pathology in the UCD School of Veterinary Medicine utilises cadavers from large and small animals. There is access to fresh whole cadavers and isolated organs and sections of cadavers for large and small animals.

Sources:

- All material used for teaching in pathology is obtained through the schools' diagnostic services;
- There are many historic anatomy teaching specimens used and in storage where no records of source are available;
- Companion animals for use in anatomy teaching are all sourced through the Schools Body Donor Programme, where owners donate their animals remains for use in teaching or research;

- Large animal parts are acquired through Department of Agriculture approved abattoirs, or a small number may be donated through the body Donor programme;
- Dairy calves are sourced through a post-mortem donation to the school from farmers;
- A small number of occasional animals are sourced through a tissue share agreement across the University to maximise resource utilisation with respect to cadavers used for other university teaching or research facilities (all material is initially sourced under approval from the University Animal Research Ethics Committee);
- Some wildlife facilities in the country (Dublin Zoo, The national Reptile Zoo etc) may donate animal remains following Post Mortem Examination to the School;
- Wildlife casualties are sourced occasionally from rescue facilities or veterinary practices under the Body Donor Programme and a Wildlife Dealers Licence held by selected staff;
- Cull ewes are purchased through the UCD Farm manager for use in anatomy teaching. These are humanely dispatched off site and transported to Belfield for embalming or freezing for use as fresh-frozen specimens;
- Fish are sourced through the Irish Marine Institute and are caught under their ongoing fisheries stock monitoring programmes. They are not caught for use in the School of Veterinary Medicine;
- Plastinated specimens recently acquired are purchased from the University of Murcia;
- Occasionally specimens have been purchased from Carolina Biological.

All the acquisition of animals and animal remains for use in Anatomy operate under protocols approved by the UCD Animal Research Ethics Committee.

Storage

Storage for fresh specimens to be used shortly after acquisition is in the large walk in cold room. This cold room is also used for defrosting fresh-frozen specimens. Storage for future use can be in the freezers which include two large walk-in freezers on site and two chest freezers (for smaller specimens). Dry specimens (osteological, potted, plastinated) is in a storage room with lockable cabinets, many of which are glass fronted to observe specimens when not in use. There are shelving units in an annex room where other osteological specimens and some freeze-dried specimens are held. Embalmed/fixed specimens are either stored in the cold room (non- submerged) or submerged/partially submerged in boxes in an outside area.

Disposal method

Cadaveric materials ready for disposal from the UCD School of Veterinary Medicine are put in a Category 1 waste management skip held on site in a chilled room. This is then removed off site by a licenced Category 1 waste management company.

Table 5.1.1. Cadavers and material of animal origin used in practical anatomical training

Species	2018-2019	2017-2018	2016-2017	Mean
Cattle				
Fresh Calves	16	13	0	10
Embalmed calf (fresh acquired each year)	1	1	1	1
Fresh bovine Heart / lungs	15	15	15	15
Fresh bovine eyes	40	40	25	35
Fresh bovine reproductive tracts	76	76	76	76
Fresh mammary gland	2	2	2	2
Fresh distal bovine limbs	4	4	7	5
Fresh calf forelimbs	2	0	0	0.6
Fresh calf hind limbs	0	2	0	0.6

Fresh kidneys	4	4	4	4
Fresh stomachs	2	2	2	2
Catalogued material (cattle)				
Plastinated reproductive tracts	1	1	1	1
Fixed reproductive tracts	3	3	3	3
Fixed stomach	3	3	3	3
Fixed kidneys	4	4	4	4
Skulls	3	3	3	3
Cow skeleton	1	1	1	1
Bovine limb bones (boxed)	3	3	3	3
Bovine teeth on boards	2	2	2	2
Bovine pelvic bines	2	2	2	2
Bovine sacrum bones	1	1	1	1
Freeze dried bovine larynx	1	1	1	1
Small ruminants				
Fresh lamb	1	1	1	1
Embalmed sheep (fresh acquired each year)	5	10	11	9
Fresh goat	4	6	3	4.3
Embalmed sheep distal limbs	6	6	12	8
Goat mammary glands	2	2	0	1
Prosected fresh goat limbs	0	0	6	2
Goat female reproductive tract	0	0	2	0.6
Sheep female reproductive tract	4	4	4	4
Catalogued material				
Sheep skulls	3	3	3	3
Sheep partial skeleton	1	1	1	1
Deer skulls	4	4	4	4
Pigs				
Fresh pigs	1	1	0	0.66
Fresh porcine viscera	8	8	8	8
Fresh forelimb	2	2	0	1.33
Female reproductive tract	4	4	4	4
Catalogued material				
Plastinated kidney	2	2	2	2
Freeze dried fore limb	1	1	1	1
Fixed male reproductive tract	1	1	1	1
Fixed mammary gland	1	1	1	1
Skull	4	4	4	4
Juvenile skeleton	1	1	1	1
Companion animals				
Embalmed dogs (fresh acquired each year)	30	30	30	30
Fresh dogs	4	5	9	6

Embalmed dog elements	30	30	30	30
(from previous year)				
Fresh cat	1	0	4	1.6
Fresh dog heads	2	2	4	2.6
Catalogued material				
Fixed canine prosection	5	5	5	5
Fixed canine hearts	2	2	2	2
Plastinated female reprod tracts	1	1	1	1
Fixed feline prosection	1	1	1	1
Fixed feline limbs	2	2	2	2
Fixed feline heart	2	2	2	2
Plastinated brains	5	5	5	5
Dog skull	6	6	6	6
Split dog skulls	20	20	20	20
Cat skulls	5	5	5	5
Canine skeleton	1	1	1	1
Canine forelimb bones (boxed)	18	18	18	18
Canine hind limb bones (boxed)	18	18	18	18
Feline bones boxed	3	3	3	3
Dried dog limb specimens	4	4	4	4
Plastinated split dog heads	3	3	3	3
Freeze dried feline larynx	1	1	1	1
Canine hyoid apparatus	1	1	1	1
Fixed brains	8	8	8	8
Fixed cat kidneys	4	0	0	1.3
Equine				
Embalmed horse (fresh acquired each year)	1	1	1	1
Fresh heart and lungs				
Fresh yes	15	15	15	15
Fresh viscera	30	30	30	30
Fresh head	2	2	2	2
Mare reproductive tracts	2	2	2	2
Penis	10	10	10	10
Kidneys	1	1	1	1
Equine distal limbs	4	4	4	4
Equine hind limbs	4	6	10	6.66
	0	2	0	0.66
Catalogued material				
Fixed hearts	3	3	3	3
Plastinated heart	1	1	1	1
Plastinated uterus	2	2	2	2
Fixed penis	1	1	1	1
Fixed stomach	2	2	2	2
Fixed comparative kidneys	4	4	4	4

Fixed mammary gland	1	1	1	1
Fixed half head	1	1	1	1
Fixed Embryos	1	1	1	1
Skulls	5	5	5	5
Skeleton	1	1	1	1
Limb bone boards on wall	2	2	2	2
Plastinated fore limb	1	1	1	1
Dried GI tract	1	1	1	1
Dried half head	1	1	1	1
Teeth displays	2	2	2	2
Pelvic bones	3	3	3	3
Freeze dried larynx	1	1	1	1
Hyoid apparatus	2	2	2	2
Fixed brain (pony)	2	2	2	2
Plastinated head	1	1	1	1
Poultry & rabbits				
Fresh rabbit	0	0	2	0.66
Catalogued material				
Rabbit skulls	4	4	4	4
Chicken skeleton	10	10	10	10
Fixed prosected rabbits	2	2	2	2
Fixed rabbit kidneys	2	2	2	2
Aquatic animals				
Elasmobranchs	10	15	15	13.3
Bony fish	30	15	15	18.3
Catalogued material				
Resin embedded fish	1	1	1	1
Selection of fish otoliths	1	1	1	1
Whale vertebrate	1	1	1	1
Sea turtle skull	1	1	1	1
Dolphin skull	1	1	1	1
Sealion limb bones	1	1	1	1
Grey seal skull and limb bones	1	1	1	1
Selection of disarticulated fish skeletons	1	1	1	1
Exotic pets				
Fresh guinea pigs	2	0	0	0.6
Pigeons	6	12	12	10
Fresh lizards	4	5	4	4.3
Fresh turtles	3	0	0	1
Fresh gerbils	0	0	1	0.3

Fresh python snake	0	0	1	0.3
Catalogued material				
Fresh dried baby boas	3	3	3	3
Fixed snakes	5	5	5	5
Rat skeleton	1	1	1	1
Turtle bones	1	1	1	1
Snake skin	1	1	1	1
Fixed lizards	7	7	7	7
Fixed turtles	3	3	3	3
Potted prosected turtle	1	1	1	1
Freeze dried bearded dragon lizard	1	1	1	1
Others (specify)				
Fresh pigeon wings	5	0	50	1.66
Fresh hippopotamus kidneys	0	1	0	0.33
Fresh alpaca bladder & kidneys	0	1	0	0.33
Fresh mute swan	0	1	0	0.33
Hedgehog	0	0	1	0.33
Grey squirrel	0	0	1	0.33
Catalogued material				
Fixed lion heart	1	1	1	1
Fixed lioness distal limb	1	1	1	1
Hedgehog skull	1	1	1	1
Sea turtle skull	1	1	1	1
Dolphin skull	1	1	1	1
Duck skull	1	1	1	1
Macaw upper skull	1	1	1	1
Selected ostrich bones	1	1	1	1
Comparative limb bones (sealion, Mara)	1	1	1	1
Freeze dried kingfisher	1	1	1	1
Bat skeletons	2	2	2	2

Students are provided with continual access to clinically normal animals (under UCD ethical and Health Products Regulatory Authority approval covering EU Directive 2010/63) for teaching purposes throughout the MVB course. This legislation regulates usage of animals in research in addition to the use of healthy normal animals for teaching purposes. Under the legislation the establishment, individual teacher / researcher and the project requires approval. Projects are reviewed by the University Ethics committee before submission to the national body (managed by the Health Products Regulatory Authority) for license authorisation. Usage of normal animals for teaching purposes includes years 1-2 animal handling and husbandry classes with all major domestic species and exotics; pig and poultry handling classes have also recently been introduced given the increased challenge of student access to pig and poultry units due to biosecurity concerns. Large animal exposure is primarily conducted on UCD Lyons farm; whilst the pig and poultry numbers are smaller than cattle/sheep etc., they are sufficient for the intended teaching purposes. Classes involving

companion and exotic species are conducted within the UCDVH; staff and client-owned (volunteer) healthy animals are utilized, including dogs, cats, gerbils, hamsters, guinea-pigs and rabbits. All students are exposed to all species by ensuring a round-robin system. Cat friendly handling sessions are conducted utilizing the American Association of Feline Practitioners- and the International Society of Feline Medicine-approved guidelines. The introduction of mandatory pre-entry animal exposure experience (60 hours) has also proved highly successful in improving the students' exposure to normal animals; a wide variety of scenarios are accepted including lambing experience, beef/dairy farm work, stable work, pet shop etc. Students in years 1 and 2 also undergo preclinical EMS placements (total of 12 weeks) for dedicated animal husbandry training (managed through an online system). Students may request exemptions for specific placements based on prior experience (e.g. raised on a dairy farm), otherwise they spend 2 weeks each on key species/production systems. Such placements must be satisfactorily completed before presenting for their formal animal handling competency examinations. The large animals maintained on UCD Lyons farm are also used in later years to teach body condition scoring, clinical nutrition and clinical reproduction (e.g., pregnancy diagnosis, embryo transfer etc.), as well as to provide electives to final year students in advanced reproductive techniques (see section 4.3.3). The extensive research work conducted at Lyons farm further enhances the quality of this teaching resource.

The SVM farm, based at the UCD Lyons Campus, maintains large, commercial dairy cattle and sheep herds, in addition to a smaller equine cohort. In addition, our Herd Health programme has expanded significantly and provides focused, off-site case exposure that addresses common population medicine issues including mastitis control, fertility disorders, dairy/beef production issues, nutritional advice and epidemiological investigations. These "hands-on" farm visits typically involve assessment of medium-to-large size flocks/herds, with detailed reports to address the key issues investigated.

Table 5.1.2. Healthy live animals used for pre-clinical training (animal handling, physiology, animal production, propaedeutics)

Species	2018-2019	2017-2018	2016-2017	Mean
Cattle (Adult)	340	340	340	340
Cattle (Calves)	55	55	55	55
Small ruminants	330 (sheep)	330 (sheep)	330 (sheep)	330
Pigs	0	0	0	0
Companion animals	72	72	72	72
Equine	137	137	137	137
Poultry & rabbits	12	12	12	12
Exotic pets (guinea pigs, hamsters, gerbils)	36	36	36	36
Others (specify)	-	-	-	-

[1]*These are counted as student interactions. For example 20 cattle used at Lyons farm for a subgroup of 26 students replicated over 6 weeks for the full class is counted as 120.*

Access to diseased animals is provided to students through:

- Clinical rotations in UCDVH
- Clinical rotations operated in partnership with other organizations
- Herd health and ambulatory clinical rotations
- Clinical extra-mural studies and clinical electives

The caseload of UCDVH continues to provide the basic foundation of clinical teaching and case exposure. Our final year is entirely lecture-free, with students spending the day in a hospital-based setting, passing through the various specialist rotations according to their individualized timetables.

The majority of the caseload within UCDVH is referral-based; first opinion exposure does occur within our hospital but is greatly enhanced by our off-site ambulatory services, external placements with partner organizations, BPEH and Clinical EMS. Within the hospital, the core clinical rotations include the following:
Surgery (small animal and large animal); Anaesthesia; Diagnostic Imaging; Small Animal Medicine (includes ICU/Emergency Care and first opinion weeks); Equine Clinical Studies; Farm Animal Clinical Studies (including Herd Health visits); Paraclinical rotation (cases received for post-mortem and diagnostic laboratory sampling).

Mandatory, off-site (UCD-core and partner) rotations/visits include:
Dublin Society for the Prevention of Cruelty to Animals (Neutering and Shelter Medicine); Equine Ambulatory Service (Equine Field Service - EFS).

To complement the above exposure, students in final year are offered a three-week elective during which they select a topic of personal (specialist) interest; these electives are offered both in-house and externally through structured programmes with collaborating units (often UCD-staff assisted). Within Small Animal Medicine (SAM), the 85% referral caseload provides for comprehensive student exposure to cardio-respiratory, gastrointestinal, endocrine, dermatology, urinary tract, metabolic, haematopoeitic and neurology cases. Elective cases are scheduled daily and emergency slots are offered to accommodate direct transfers from the BPEH, or external practitioners. The case load in oncology has increased significantly since 2018 with the appointment of a diplomate in that specialty. The 15% first-opinion caseload seen includes common disorders (GI, respiratory etc.) and preventive medicine protocols (vaccinations, deworming, micro-chipping etc.), and is further supported by the BPEH case material. The in-house ICU/Emergency rotation varies in patient numbers/week as the case load is less predictable, but overall numbers/year are compatible with curriculum requirements. Our emergency case numbers are significantly boosted by the contribution of the BPEH service. The majority of cases presented to SAM are admitted for hospitalization; the length of stay is typically 2-4 days, but many cases remain in situ for significantly longer. Our SAM service is further enhanced by formal relationships with visiting experts in cardiology and animal behavior, and by a formal relationship with an external neurology diplomate. Dental specialists (veterinary and human) provide professional assistance to UCDVH when required. However, we currently experience low case numbers in small animal first opinion, dentistry (routine and complex) and exotics. To address these latter three challenges, we transferred our first opinion small animal rotation to an external placement in 2020. In addition, we have attempted to maximize student exposure to caged bird species though collaborations with Dublin Zoo and focused CEMS/Elective placements with a private avian practitioner.

In Small Animal Surgery (SAS), elective neuters form a significant part of student teaching both onsite and in the DSPCA. At both sites, each student typically performs 1 - 2 neuters as primary surgeon. The SAS team operate two services (orthopaedics and soft tissue), with the case load approximately 90% referral in nature. Referrals cover both elective (e.g., TPLO, hepatic shunt) and emergency (e.g., acute abdomen, spinal compression) presentations. In addition to arthroscopy, minimally invasive techniques also offered include thoracoscopy and laparoscopy. More refined techniques (e.g., total hip replacement) are performed less frequently. The medical oncology service has promoted an increased soft tissue surgical case load, in addition to the normal material generated by SAM and emergency services. Whilst referral-grade surgical material is beyond the Day1 competences of new graduates, the teaching value relates to full student exposure to case work-up, key decision making and adoption of essential surgical principles (e.g., tissue handling, haemostasis, asepsis). Our orthopaedic service is further supported by our Physical Therapy service (staffed by a qualified physiotherapist) and a scheduled Pain Management Clinic to be formally launched in 2020 by a specialist anaesthetist.

The Large Animal Surgery (LAS) service accepts a wide range of referred material; the majority of cases are equine, though significant numbers of farm animals (e.g., displaced abomasum, cutaneous neoplasms) and exotics (derived from our association with Dublin Zoo and other private parks) also arise. Whilst equine referrals continue to attract a large number of orthopaedic and respiratory cases, we have significantly increased our dental/skull referrals due to one of our diplomate surgeons becoming doubly-boarded in equine veterinary dentistry. This enhanced dental case load has also been facilitated by the introduction of the new equine standing CT (the only one in Ireland). The core surgical intervention performed by students in LAS is equine castration. Our diplomate surgeons also provide off-site services to maximize exposure, including a dynamic endoscope service and the formal arrangement with Tullyraine Veterinary Clinic; students participate fully in all such off-site services. Our relationship with Dublin Zoo facilitates instruction in the safe handling, anaesthesia and surgical approach to zoo animals.

Case exposure in Equine Medicine and Reproduction is comprised of one week in UCDVH and another on the field service. Dedicated time is also spent on Lyons farm for clinical reproduction. The in-house service focusses on all aspects of internal medicine and dermatology (including preventive medicine). The service also regularly assesses horses presenting for "poor performance". Routine diagnostic procedures include clinical pathology, endoscopy (respiratory and GIT), cardiac monitoring and advanced imaging. In addition to core staff, an external diplomate specializing in equine emergency/critical care (including foals) and a cardiology expert are retained by the hospital. The ambulatory service has expanded both in terms of case numbers and the varied nature of material recruited. UCD now employs two full-time academic clinicians to provide the service, and the client-base continues to grow. All emergency or complex cases encountered are referred into UCDVH. The SVM has a formal agreement with Dr. Niamh Lewis to provide advanced equine fertility services from our hospital base; in addition to routine reproductive issues, Dr. Lewis is a world-recognized expert (Boarded in the USA and EU) in niche techniques relating to ovum pick up (OPU), intra-cytoplasmic sperm injection (ICSI) for IVF, and embryo transfer.

Our Diagnostic Imaging (DI) discipline has expanded significantly over the last three years with the on-site introduction of a new combined small animal/equine (standing) CT unit, and a combined 1.5 Tesla MRI unit. As such, UCDVH now offers the full range of modalities for investigation of in-house and external patients. Similar to DI, the Anaesthesia discipline utilizes in-house and off-site case material to educate students on all aspects of the safe pre-, peri- and post-operative management of anesthesia/analgesia in healthy and diseased patients. Both the latter units travel off-site (e.g., Dublin Zoo) when required.

The Farm Animal Clinical Studies (FACS) unit treats both individual and herd-health disorders. The FACS hospital is based within the main UCDVH, but its numbers are augmented by the animals maintained on Lyons farm and the off-site herd-health visits. The in-house unit accepts a wide variety of species and medical conditions (bovine, ovine, caprine, porcine and camelid, with occasional other exotics). Our Herd Health Group is pivotal in ensuring off-site case recruitment as the five boarded specialists possess the diverse skill sets required to investigate/assess population diseases, production loss issues and control programmes. A small number of students attends each visit. Whilst bovine units predominate, ovine/caprine and exotic units are also recruited. Medical and preventive disease issues that arise on Lyons farm are also utilized for student teaching e.g., vaccination, castration, hoof pairing/ and pregnancy diagnosis.

The Pathobiology unit conducts post-mortem (PM) examinations on cases derived from UCDVH, external practices, Lyons farm, Dublin Zoo and various charities. The material provided covers all common domestic species, zoo animals, exotics and aquatic life. In order to maximize student exposure, we discontinued the professional charge for non-companion animal species. Our Clinical Pathology service processes large numbers of diagnostic samples and collaborates with external

laboratories to ensure the full range of modern assays required (e.g. gene testing, PCR etc.). Final Year students on the paraclinical rotation have a plentiful supply of PM material and access to all the diagnostic laboratories required.

The CEMS module provides 24 weeks of exposure to a large amount and diverse range of clinical material in general practice. Pre-defined minimum periods of placement for small, farm and equine practice ensure adequate clinical exposure to all main disciplines. The majority of material encountered is first-opinion in nature; however, once the minimum criteria are satisfied, students are free to devote their remaining time to referral-grade or ancillary placements (e.g., government laboratories, research projects etc.)

Since 2013, UCD has been a 49% partner in the **Belfield Pet Emergency Hospital (BPEH),** a joint venture with approximately 30 Dublin-based practices to provide a high-quality emergency out-of-hours (OOHs) service for small animal clients. The Dean and an Associate Professor in Small Animal Medicine sit on the executive board of the BPEH. The service operates from 7.30 pm to 7.30 am each week-night and provides full 24-hour cover over weekends and holiday periods. Students are rostered on this service at weekends as part of their ICU rotation, and any student wishing to gain additional exposure is free to sign-up for further shifts. The BPEH is run by a core team of veterinarians and veterinary nurses, with the consistency in retained personnel and the appointment of a Clinical Director significantly enhancing the student teaching experience. Cases that are critically ill, or unfit to travel back to their base practice the following morning, are automatically transferred to UCDVH, thereby providing us with a consistent supply of emergency cases for student teaching during normal working hours. The BPEH also provides the UCDVH OOHs nursing cover, thereby cementing the bond between both parties and resulting in an enhanced commitment by BPEH staff to student teaching. The continued success of the BPEH in recent years has led to an annual case load that now exceeds 5,000/year (growing by more than 10% per year), and the recruitment of additional practices. This formed one of the key pillars in the decision for the small animal hospital extension currently under planning. The new development will enable various improvements, namely three new consultation rooms, new treatment and surgical suites, a dedicated feline consultation/waiting room zone, an oncology suite, a fully equipped Animal Rehabilitation Centre, a staff relaxation area, additional dog kennels and a refurbished cat ward. The BPEH Board agreed a 12-year license agreement with UCD in 2019, thereby ensuring their enhanced and on-going commitment to the development of the service and the student education experience.

The **SVM hospital case load** has increased in many disciplines since the last EAEVE visitation in 2010. At present, the patient numbers represent an excellent resource for student teaching and provide the appropriate balance between volume and teaching quality. Slight year-to-year variation has occurred between disciplines; occasionally, this was attributed to minor delays in staff recruitment, but more typically reflected a random event. Companion animal case numbers declined by a small margin following the termination of the agreement between UCD and Dogs Trust in 2016. However, our small animal case load still approximates 15,000/year and is deemed fit for purpose. Large animal patient numbers have been maintained, or significantly increased in the case of the Equine Field Service (EFS). Several key initiatives have been implemented over the last six years to support the robust and sustainable supply of teaching material, including new facilities and staff, as well as new or expanded in-house and out-reach services (e.g. equine standing CT, on-site MRI). The small animal case load is derived through our on-site 24/7 service provision and external collaborations. New services currently offered include small animal oncology. The Belfield Pet Emergency Hospital (BPEH), our joint venture with local veterinary practices, has gone from strength to strength over recent years; this emergency clinic runs at night and weekends in the UCD Veterinary Hospital (UCDVH), with case numbers of approximately 5,000/year. Students are rostered on the BPEH as part of their small animal ICU rotation and can also volunteer year-round for extra rotations/electives. In addition to specific emergencies, the BPEH also sees a large volume of first-opinion material due

to the out-of-hours nature of the service it provides. The Dublin Society for the Prevention of Cruelty to Animals (DSPCA) is a shelter charity located close to the university in south Dublin; students are rostered to the veterinary suite in the shelter as part of their surgical skills rotation, under the supervision of UCD clinicians. Procedures undertaken by students primarily relate to canine neuterings and other minor surgical interventions. This rotation is largely analogous to, and has replaced, the previous Dogs Trust rotation. Our equine referral case numbers have been maintained over the last number of years, with a significant expansion and increase in our ambulatory first opinion numbers (see section 4.2.2). In addition, an external collaboration has been formed with a leading equine practice in Northern Ireland (Tullyraine Veterinary Clinic) for off-site access to both first–opinion and referral case material. This agreement also includes referral of the more complex cases presented to Tullyraine directly to UCDVH. Whilst farm animal caseload experiences a significant challenge in terms of our city location, we continue to enjoy the unwavering support of numerous farmer/veterinarians within a 100 km radius who refer material of high teaching value, thereby allowing us to maintain our farm animal hospital numbers. With the on-going expansion of our partnership strategies, first-opinion clinical education resources for large animals have been enhanced over the last six years. A similar external collaboration to enhance small animal first opinion and exotic case numbers has been implemented for 2020/2021; this core rotation consists of 3 students/rotation spread over 3 different branch practices (see later). The small animal hospital new-build project in 2020 is foreseen to further augment first opinion case load.

Table 5.1.3. Number of patients seen intra-murally (in the VTH)

Species	2018-2019	2017-2018	2016-2017	Mean
Cattle	359	346	345	350
Small ruminants	36	44	44	41.3
Pigs	8	18	31	19
Companion animals	7956	7801	7951	7903
Equine	1290	1211	1547	1349
Poultry & rabbits	0	0	0	0
Exotic pets	8	4	8	8.7
Others (specify)				
- Avian wildlife	11	13	2	8.7
- Alpacas and seals	45	7	14	22

Equine field studies rotation (ambulatory service, one week): The equine field service provides student access to a wide range of first-opinion cases. Although technically conducted off campus, it is entirely under the control of UCD staff. The clients are covered by the normal UCDVH/client relationship.

Dairy herd health visits: These are conducted as part of the Farm Animal Clinical Studies rotation. As before, the visits are under the direct control of UCD staff and covered by the normal UCDVH/client relationship.

Table 5.1.4. Number of patients seen extra-murally (in the ambulatory clinics)

Species	2018-2019	2017-2018	2016-2017	Mean
Cattle	0	1	1	0.66
Small ruminants	2	0	1	1
Pigs	0	0	1	0.33
Companion animals	0	0	0	0
Equine	929	789	959	892
Poultry & rabbits				
Exotic pets	10	9	7	8.7
Others (specify)				

Table 5.1.5. Percentage (%) of first opinion patients used for clinical training (both in VTH and ambulatory clinics, i.e. tables 5.1.3 & 5.1.4)

Species	2018-2019	2017-2018	2016-2017	Mean
Cattle	100	100	100	100
Small ruminants	100	100	100	100
Pigs	100	100	100	100
Companion animals	100	100	100	100
Equine	100	100	100	100
Poultry & rabbits	-	-	-	-
Exotic pets	100	100	100	100
Others (specify)	100	100	100	100

Table 5.1.6. Cadavers used in necropsy

Species	2018-2019	2017-2018	2016-2017	Mean
Cattle	133	117	85	105
Small ruminants	45	45	25	38
Pigs	4	5	4	4.3
Companion animals	236	241	286	254
Equine	54	45	42	47
Poultry & rabbits	36	30	26	31
Exotic pets	123	136	120	126
Others (specify)	-	-	-	-

Table 5.1.7. Number of visits in herds/flocks/units for training in Animal Production and Herd Health Management

Species	2018-2019	2017-2018	2016-2017	Mean
Cattle				
Animal Husbandry	22	22	22	22
Herd Health	54	38	36	36
Small ruminants				
Animal Husbandry	17	17	17	17
Herd Health	6	6	6	6
Pigs	-	-	-	-
Companion animals	-	-	-	-
Equine				
Animal Husbandry	17	17	17	17
Poultry & rabbits	-	-	-	-
Exotic pets	-	-	-	-
Others (specify)	-	-	-	-

Table 5.1.8. Number of visits in slaughterhouses and related premises for training in FSQ

Species	2018-2019	2017-2018	2016-2017	Mean
Ruminant slaughterhouses	2	2	2	2
Pig slaughterhouses	-	-	-	-
Poultry slaughterhouses	2	2	2	2
Related premises **	2	2	2	2
Compulsory EMS Placement in Slaughterhouse (3 days plus written assignment)	3	3	3	3

*** Premises for the production, processing, distribution or consumption of food of animal origin*

5.2 In addition to the training provided in the Establishment, experience can include practical training at external sites, provided this training is organised under direct academic supervision and following the same standards as those applied in the Establishment.

The SVM has entered into formal relationships with certain off-campus institutions/organizations that are better placed to provide optimum teaching material. In all cases (bar Clinical EMS), we place UCD academic staff at such sites. Thus, the planning, supervision and monitoring of students is precisely on a par with UCD on-campus rotations. Attendance is recorded by roll-call prior to the visit commencing. All students are assigned to each of the following sites on their individual timetables.

Small Animal Surgery rotation at the DSPCA (one week): elective neutering procedures are undertaken at this site. A formal agreement exists between the SVM and the DSPCA to permit student/staff access and ensure the supply of suitable animal numbers to satisfy curriculum requirements.

Strategic alliance with a leading, multi-branch first opinion: To address the lower first opinion proportion of our small animal case load, we have transferred the first opinion rotation to an external, core rotation in 2020/2021. A formal agreement is in place with Village Vets, who nominated three branches of their practices to participate. One student will be placed per practice for a week-long small animal rotation that facilitates sole exposure to a large first opinion case load of predominantly dogs and cats, with smaller numbers of exotics. Medical and surgical cases, as well as practice management, are covered. A formalized list of learning outcomes was agreed between both parties. maximize the teaching value and consistency of assessment, a dedicated staff member (appropriately trained) was nominated within each branch. This venture significantly increased each student's volume/range of first opinion exposure and individual dedicated teaching time. A particular rationale for selecting this practice is its heavy investment in veterinary dentistry; several staff were trained over a 3-year period by Perry Dental Referrals in the UK and dental cases now account for 5-6% of all turnover/branch (10-14 cases/branch/week). Special dental and radiographic equipment was purchased; the standard of work is reflected in a significant case fee.

Students who undertake off-site electives agree the objectives and learning outcomes with an academic supervisor, who must then sign off on the suitability of that elective; this *a priori* contract forms the basis of the future assessment of the elective. Attendance is ensured by retrospective checking. Clinical EMS remains a pivotal component of clinical training; the programme has undergone numerous recent reviews, and significant time/resources were invested in ensuring optimum goals and assessment strategies. An online software system (*Myprogress*) records and monitors each student's attendance and progress.

5.3 The VTH must provide nursing care skills and instruction in nursing procedures. Under all situations students must be active participants in the clinical workup of patients, including problem-oriented diagnostic approach together with diagnostic decision-making.

All clinical disciplines have a comprehensive nursing support structure, the members of which play a hugely active role in undergraduate student education. Board rounds are held every morning to determine the plans for that day; these rounds are attended by the clinicians, nurses and students with specific tasks subsequently delegated to the nursing and student cohorts. As virtually all cases accepted by the VTH require diagnostic/laboratory investigation or a significant period of in-house treatment/hospitalization, the nursing staff are the key delivery portal for instructing/supervising students in tasks such as sample collection (e.g., bloods, urinalysis), diagnostic interventions (e.g., ECG tracing, blood pressure measurement, IV catheter placement) and treatment interventions (injections, IV fluid therapy etc.). Patient preparation for endoscopic procedures (e.g. colonoscopy) is also routinely enabled by nurse-led teaching. In addition to above, our nursing staff instruct the students on all aspects of patient monitoring (pain scores, welfare), patient flow management and surgical nursing (e.g. wound care, bandaging etc.). An essential component to nurse-led teaching in the VTH relates to all aspects of infection control, including barrier nursing and disinfection

protocols. Two additional teaching tasks performed by our nursing staff relate to diet selection and feeding protocols (e.g., orogastric tube feeding), while our anaesthesia nurses help instruct students in patient monitoring under general anaesthesia.

It should be emphasized that the above list is in no way exhaustive as training in nursing care/procedures encompasses a wide spectrum of duties that are addressed as they arise on a daily basis. The conduct of rotations, irrespective of the discipline involved, follows a common template. All disciplines have one or two dedicated Service Chiefs (SCs) on duty, which are supported by our DVMS students (Residents in Specialist Training), interns, nurses and animal care attendants (ACAs). In addition, other academic/clinical staff provide support in terms of specialist clinics (e.g. endocrinology, dermatology) to ensure student exposure to a varied case load. Student responsibility is maximized to the extent possible by law and ethical guidelines; all this information is detailed within the Student Hospital Handbook. (https://drive.google.com/drive/folders/1PTzrQO26HuzLV24A8uPgvuT21z99xUBt?usp=sharing).

Student numbers per rotation vary from 3-4 (ICU, equine ambulatory) up to 22-24 (Farm animal clinical studies) Annex 3.2. Larger groups get sub divided into sub-groups of ~7 or less in the case of farm animal. All disciplines have one or two dedicated Service Chiefs (SCs) on duty, which are supported by our DVMS students (Residents in Specialist Training), interns, nurses and animal care attendants (ACAs). At the beginning of each rotation and morning rounds, the SC will orientate the students and assign specific responsibilities (typically **two** students/case). Each student is made aware of their key duties related to patient welfare and case management. Efforts are made to ensure that each student is exposed to working with all clinicians on duty and a variety of presentations. All rotations that involve direct client exposure involve the student taking lead responsibility for case preparation the night before i.e. the patient file/history supplied in advance, so the student is fully briefed. The students are responsible for taking the history and performing an initial physical examination. Subsequent to this, the students present the case to their senior and agree a management plan. The student retains direct responsibility for performing many aspects of the plan, assisted by staff. They perform (under supervision) all routine diagnostic procedures and are expected to have real-time information at morning/evening rounds. Students are responsible for clinically examining and devising a SOAP (Subjective, Objective, Assessment and Plan) analysis twice daily. In addition, they work with the Nurse Coordinators to schedule procedures with collegiate disciplines; this highlights the importance of team-play/triaging to accommodate patient need/flow management. On surgical rotations, students scrub-in on their cases, assist the primary surgeon and draft the initial surgical report. In anaesthesia, students are responsible for reviewing patient files, performing pre-anaesthetic checks, formulating the medication plans and direct participation in all relevant procedures. In DI, the students assist in imaging procedures and image interpretation. The students are also expected to follow the progress of the case holistically. Students on EFS and Herd Health visits perform all relevant work-ups and formulate diagnostic/treatment plans. They also assist in record keeping. Students are rostered for Out of Hours duties during which they receive unfettered access to a large amount of teaching material and are enabled to perform a significant degree of practical “hands-on” tasks.

Our students play a lead role in client communication in all disciplines, from initial history taking to client discharge and follow-up. Students also take responsibility (under guidance) for drafting the patient discharge and letter to the referring veterinarian. At discharge consultations and on ambulatory visits, the students may lead initial client communication (in the presence of clinician) in relation to the diagnosis, prognosis, treatment and follow-up plan; they are also given the opportunity to address any questions posed. This exercise significantly promotes skill sets in communication and empathy. No efforts are made to avoid student exposure to adversarial or difficult communications with clients; instead, we emphasize the benefits of how this exposure can better prepare them for the real world. The students are made aware of how they should remain neutral when clients make disparaging

comments. Staff emphasize that a calm, reasoned and non-adversarial approach (with continual communication) can successfully mitigate 99% of scenarios. We also emphasize the thoughts and actions they should adopt to ensure personnel safety. To maximize the teaching value of each case, various board/ward rounds, seminars and tutorials are scheduled in which the students present their cases. Board rounds are brief and focused with each student giving a detailed presentation on their specific case(s) to their peers and staff. This approach allows dissemination of the pivotal learning objectives to all, and further promotes their communication skills and self-confidence. In addition to new material, detailed medical records, images etc. related to high-quality teaching material previously seen in UCD are retained for future delivery to subsequent student groups.

5.4 Medical records must be comprehensive and maintained in an effective retrieval system (preferably an electronic patient record system) to efficiently support the teaching, research, and service programmes of the Establishment.

UCDVH operates the computer management system (Vetscope) which operates in full compliance to General Data Protection Regulations. The system enables the scheduling of client services and electronic requests for ancillary service disciplines (e.g. imaging, anaesthesia etc.). The system allows the online viewing of reported test results and the drafting of discharge instructions/referral letters. Specific interfaces exist for each discipline. Before the client arrives a "paper file" is created which contains the referral history, an examination form, planned procedures form, consent form and charge form. A hard copy of all data is also printed off by the time of discharge and placed in the patient file. Retrieval of case information from Vetscope for teaching or research purposes is possible using key search words/terms, including specifying precise diagnostic tests. Hard copy files are stored on site for 15 years. Data that originate off site for UCD patients (e.g. EFS) is placed on the Vetscope system when the staff return on-site.

Diagnostic Imaging - the DI unit employs a computerized digital imaging system to retain radiographic images on a central server to which all staff and students have access *via* networked computers throughout the hospital. Ultrasound, CT and MRI images are stored on a separate PACS server that can be accessed by staff and students. Hard copy images of high value teaching cases are stored in DI for future teaching and clinical review purposes.

Herd Health - a computer system using the database of the Irish Cattle Breeders Federation to record and analyze data is used by both staff and students. Kingswood and Irish Farm Computers software systems (farm-based records of animal health status/movements) are also used to allow analytical data be sent electronically. Access to the INRAtion software (formulation of dairy rations) is also available.

Comments

Vetscope meets requirements in that it is searchable and can generate clusters of similar cases for students or staff to evaluate and analyse for research, teaching and clinical activities. However, we are aware that it is somewhat dated and a new system is being procured at the time of writing the SER.

The University has strategically invested in its clinical facilities and this includes:

- UCD committed €3.3 million to invest in a small animal hospital expansion, due to commence building in 2020. This facility aims to provide dedicated suites in clinical oncology, animal rehabilitation centre (ARC) and feline medicine, as well as 3 additional consultation rooms, a medical treatment room and a new surgical suite. The ARC will contain a hydrotherapy pool and treadmill and will accept both internal and external referrals. The facility will be used 24/7 and provides a high degree of future-proofing.
- UCD spent just under €1 million to introduce a new, state-of-the-art combined small animal/equine standing CT machine (no anaesthesia required). This has resulted in increased

referral numbers for advanced equine skull and neck imaging, as well as enhanced small animal external referrals for elective procedures such as elbow CTs.

- We formed a strategic (concession-based) partnership with GE to introduce a new state-of the-art 1.5 Tesla MRI machine in 2019. The availability of permanent, high quality MRI on site in UCD will result in significant full-case, or procedure-based, referral to the hospital.
- We spent significant sums upgrading the surgical suite at the DSPCA in order to ensure that the facility was appropriate to train our students in neuterings etc.

Suggestions for improvement

A new clinical records management system that is modern and integrated with diagnostic services and diagnostic imaging will allow a system that is integrated across the hospital to be deployed that will be easier for students and staff to search.

The two major developments at UCD Lyons farm will allow a herd health base run from the Lyons farm and will also facilitate expansion of a farm animal ambulatory service from that base in a suitable location to support farm animal services. The Equine Centre of Excellence based at Lyons will ensure we can provide advanced clinical, rehabilitation and reproductive services in an accessible location to those in the Irish Equine sector.

The SVM is in active discussions with corporate donors to externally fund two major developments at UCD Lyons farm. Funding of €3.5 million has already been obtained in 2020 for a Herd Health-AgriTech Hub; further funding of €20 million for this deliverable is in advanced negotiation. The second proposal for an Equine Centre of Excellence (cost €27.4 million, and incorporating advanced clinical, rehabilitation and reproductive services) is currently in the hands of a corporate fund-raiser.

Equine fertility service: We have created a consultancy agreement with Dr. Niamh Lewis (expert in equine reproduction) which will allow UCDVH to offer advanced techniques in the treatment of equine infertility; referrals to this latter unit will concentrate on high value sport-horses. A small, purpose-built equine clinical reproduction laboratory was constructed in early 2020 to facilitate this project.

Standard 6 - Learning Resources

Standard 6. Learning resources

6.1 State-of-the-art learning resources must be adequate and available to support veterinary education, research, services and continuing education. When the study programme is provided in several tracks/languages, the learning resources must be available in all used languages. Timely access to learning resources, whether through print, electronic media or other means, must be available to students and staff and, when appropriate, to stakeholders. State-of-the-art procedures for bibliographical search and for access to databases and learning resources must be taught to undergraduate students.

The University has outlined its educational strategy the 2015-2020 Education strategy document, linked from https://www.ucd.ie/registrar/educationstrategy/.
The University vision for UCD graduates emphasises the value of a holistic education, one that stimulates learning and intellectual discovery in a research-intensive environment, as well making it possible for students to develop their personal and professional qualities while studying at UCD. This strategy relies on the actions of the following core units for support, development and hosting of learning resources:

- UCD Library (https://www.ucd.ie/library/)
- UCD IT Services UCD IT Services (https://www.ucd.ie/itservices/)which provides all central IT applications, support and infrastructure for staff and students throughout the University, and hosts the e-learning environment Brightspace (https://www.ucd.ie/itservices/ourservices/educationaltechnologies/virtuallearning-brightspace/)
- UCD Teaching and Learning, a dedicated unit which supporting staff to deliver inclusive, innovative and research-informed teaching that leads to engaging and meaningful learning experiences for all UCD students (https://www.ucd.ie/teaching/)

Students receive an **IT induction** as part of orientation from UCD IT Services. Induction introduces students to key services including their UCD Connect account, IT facilities on campus, software, UCD apps, wireless services, online safety, the virtual learning environment and where to find help and advice- see: https://www.ucd.ie/itservices/startoftermguide/.
Students are granted access to and receive training and ongoing support for MyProgress, PathXL and ePortfolio software from the educational technologist. The Veterinary Liaison Librarian and Veterinary Student Advisor meet with the SVM Student Peer Mentors the week before students come to university for a joint-training **library induction**. Once the trimester begins, Peer Mentors bring small groups of students to the Library. They demonstrate how to login to our public access personal computers (PCs) in the Library and the process of finding materials via the Library Catalogue. They are shown how to find a book, how to locate a book on the open shelves and how to borrow a book using our self-issue station. Access to eBooks through 'OneSearch' is highlighted, and how to download the book to their desktop. The different lending collections are explained as well as printing & photocopying services. Orientation is completed with a quick physical tour of the facilities.
University College Dublin provides a comprehensive programme of **development opportunities for academic and professional staff**: https://www.ucd.ie/peopledevelopment/.

A specific half-day course, the UCD Orientation Programme, is presented for new staff. This course provides participants with information on payroll, benefits, strategy, organisational structure and services (including library and IT) across the University (https://www.ucd.ie/peopledevelopment/ourservices/newtoucd/).

The **Collections Services Unit** staff are responsible for selecting, ordering, and processing Library materials at every stage of their lifecycle. Module coordinators who wish to order books that are not already available in the catalogue are encouraged to complete an online request form linked from the Library website. Books listed on the module reading list in the module descriptor are normally given

priority. Changes to the library collection are communicated by the SVM Liaison Librarian (see section 6.2) to the SVM Programme Board.

The institutional **Educational Technology Advisory Network (ETAN)** is a network of educational technologists that provides recommendations on technology requirements. The SVM's educational technologist represents the SVM on this committee who advocates for BrightSpace enhancements and new technologies that may assist the SVM. https://www.ucd.ie/teaching/professionaldevelopment/technologyenhancedlearningsupport/. Educational technologies not provided by the institution are licensed by the SVM to meet specific needs of the programme. The acquisition of these technologies is approved by the Dean. Examples include Tutor - a virtual microscopy platform, MyProgress - a workplace-based assessment platform, Sofia - a curriculum mapping platform. UCD Procurement & Contracts Office and the SVM's Vet Buyers Office provide guidance and support on the tendering procedures (https://www.ucd.ie/procure/etenders/). The process typically involves the development of a user requirement document (finalised in consultation with end users) which is then circulated to potential providers. Responses are scored and a platform is chosen. UCD IT Services and UCD Legal offer guidance and support relating to GDPR, legal and integration matters before the platform is procured. Faculty are offered training and support to integrate these platforms into the programme by staff in the VetEd Hub team. In 2018 the institutional virtual learning environment (VLE) was migrated from Blackboard to D2L BrightSpace. This project was sponsored by the UCD Dean for Students Prof Jason Last, who along with the Transition Team and Oversight Group commenced an institutional wide project that reviewed and chose the best VLE to meet the needs of the institution.

The project was implemented through several key phases that involved institutional wide consultation with all stakeholders. The first phase of the project established the institution's requirements through a survey. Once the new VLE was chosen the next phase involved trial rollout with a subset of modules. The final phase involved the migration of modules from Blackboard to BrightSpace and delivering content to all students across all programmes. Brightspace is now fully implemented as the VLE across the entire University.

6.2 Staff and students must have full access on site to an academic library administered by a qualified librarian, an Information Technology (IT) unit managed by an IT expert,
an e-learning platform, and all the relevant human and physical resources necessary for the development of instructional materials by the staff and their use by the students.
The relevant electronic information, database and other intranet resources must be easily available for students and staff both in the Establishment's core facilities via wireless connection (Wi-Fi) and from outside the Establishment through a hosted secured connection, e.g. Virtual Private Network (VPN).

UCD Library (https://www.ucd.ie/library/) comprises five libraries with four library sites on Belfield Campus and one on the Blackrock Campus. UCD Students have access to the collections and services in all UCD Libraries. Three major libraries are situated in close proximity to each other; the School of Veterinary Medicine library, the Health Sciences Library with its bio-medical collections and the James Joyce Library (JJL, formerly our Main Library) home to all of the Sciences, Engineering, Agriculture & Food Science, Arts & Humanities, Social Sciences, Business & Law Collections. There are considerable advantages in having the facility located within the SVM beside lecture theatres and laboratories and this is reflected in the visitors/user statistics of 90,000 on average each year. Irish Universities are members of the IReL Consortium (the Irish Research e-Library, https://irel.ie/) established in 2005 and nationally funded to enable Irish universities to provide access to a world-class electronic library service across the disciplines. UCD Library also subscribes to numerous other indexing and abstracting databases including CAB Direct, the key Veterinary Medicine Database.

The **Client Services Team** (https://www.ucd.ie/library/contact/structure/) is responsible for the ongoing development and management of high-quality Library services, that are dynamic and responsive to user needs. Leads and coordinates the effective customer relationships with Colleges and supports the University's Teaching & Learning agenda.
This team includes a dedicated **Liaison Librarian,** whose office is located adjacent to the Veterinary Library and the Veterinary Education Hub, providing on-site support for students and academics in the School. A staffed information desk service is available throughout the library's opening hours, and this is supplemented with online and chat services.

- *User Services Manage*r*:* Avril Patterson, BA, MLIS is responsible for the management of the Veterinary Medicine Library, including staffing and services.
- *SVM Liaison Librarian:* Carmel Norris, BSocSc, MA, MLIS is a member of the Programme Board and Staff/Student Liaison Committee, and responsible for SVM Relationship Management Teaching & Learning; Library Orientation for 1st year undergraduate and graduate entry (GE) students; Information Literacy Instruction; Tailored Training on using library resources; search strategies/skills for online searching; Learning Materials produced for all classes; Literature Review Workshops & Research Consultations by phone, in person and email; Assistance/Queries.
- *Collection Development & Resource Description Librarian:* Stewart McKee, BA (MOD) DLIS is responsible for the Collection development/selection & acquisition of both print and digital materials; Cataloguing of print & digital resources; Decision-making on the retention & disposal of materials in our collection.

Opening hours: During the teaching trimesters, the Veterinary Medicine library is open with staffed information service from 08:00-22:00 (Monday to Thursday); 08:00-17:00 on Friday, and 10.00-13:00 on Saturdays, extending to 17:00 in the six weeks before examinations. The James Joyce library provides more seats and longer hours, 08:30-23:00 Monday to Friday and 09:00-17:00/21:00 at weekends. In the pre-exam period, these hours extend to 07:00-24:00 Monday to Friday, and 09:00-24.00 at weekends.

The total **budget** for the UCD library was €2,771,306 in 2018-2019, including veterinary journal subscriptions costing €40,170 and veterinary acquisitions costing €76,758.

The **total space** occupied by the five library sites exceeds 18,000 m^2 of which the James Joyce Library occupies more than 13,500 m^2. Floorplans and indicative facilities for all of the UCD libraries are available at: https://www.ucd.ie/library/use/library-floorplans/.
The Veterinary Library has recently improved the study desk capacity by 25%, achieved by the removal of older print journals to an offsite storage location. There is now seating / study capacity of 120 with 71 desks wired for electrical plug-in, plus 13 collaborative study seats giving a total of 133 seats. The Health Sciences library has 434 seats and the James Joyce library 2,100 seats. In total, UCD Library provides over 3,000 study spaces for groups and individuals across the five library locations. There are two **Library Hubs** for collaborative work located on Level 1 James Joyce Library. These are social learning spaces that provides users with comfortable areas for collaborative and group study. These Hubs are equipped with sockets for laptop plug-in throughout, desktop computers and individual study spaces. UCD library also provides 24 group study rooms across all sites with online bookings for students- see https://ucd.libcal.com/.

In addition to study spaces there are **8 fixed public access PCs** in the Veterinary Library, with a further 104 PCs in the other libraries. UCD Library also provides a three-hour laptop lending service with 48 laptops available in the James Joyce Library and 24 in the Health Sciences Library. UCD hosts an extensive **Online Research Library** providing access to information resources and assistance in their use to both faculty and students. The Online Research Library is accessible anytime and anywhere with 24/7 access and retrieval services provided via the Library Catalog "OneSearch"

or individual Database/e-Journal Indexes. Databases include CAB Direct, Medline, PubMed, Biosis Previews, Zoological Abstracts, Web of Knowledge. The Library subscribes to key academic publisher collections including Science Direct, Taylor & Francis, Springer Verlag, Cambridge Journals, Cell Press, Royal Society of Chemistry, Sage, Wiley, JSTOR and Nature and also hosts Open Access Collections PubMed, BioMed Central, and DOAJ.

BrightSpace is the institutional VLE that enables online delivery of modules. All modules of the programme have a presence on BrightSpace where many faculty provide blended learning and online assessment opportunities for students.
https://www.ucd.ie/itservices/ourservices/educationaltechnologies/virtuallearning-brightspace.
UCD IT Services offer additional educational technologies to support programme delivery https://www.ucd.ie/itservices/ourservices/software/.

The SVM has licensed three main software packages to support the attainment of key programme outcomes:

- Cirdan PathXL - (https://pathxl.co.uk/) is a digital microscopy platform that is used for histology, pathology and parasitology teaching. The cost of the annual license is shared with the UCD School of Medicine.
- MyProgress - (https://www.myprogressapp.com) supports workplace-based assessment and is used across several years of the programme.
- Sofia – (https://www.sofiacurriculum.com) is a curriculum mapping software.

The SVM has a Veterinary Education Team (VetEd Hub) that consists of a lecturer in veterinary education, an educational technologist and administrative support staff. The outcomes of the team are guided by the Associate Dean for Teaching and Learning. The VetEd Hub provides guidance in the design of learning interactions and materials that support active student learning using appropriate educational technologies. Support is offered at a programme, module and individual level for a range of blended learning and assessment strategies. In addition, one faculty member of the SVM is currently undertaking a UCD Fellowship in Teaching and Academic Development and is examining the implementation of blended learning approaches using BrightSpace. Through the VetEd Hub a number of hardware and software supports are available (e.g. laptops, microphones, tablets, cameras etc.) for faculty who wish to develop rich multimedia resources. UCD IT Services provide additional software and access to a bespoke multimedia content development suite.(https://www.ucd.ie/itservices/ourservices/educationaltechnologies). UCD IT Services provides support for staff (https://www.ucd.ie/itservices/newtoucd/) and students (https://www.ucd.ie/itservices/startoftermguide/) online and through drop-in clinics and an IT Helpdesk. The institution provides a multimedia hosting platform through HEAnet https://www.ucd.ie/itservices/ourservices/educationaltechnologies/multimediacontentdevelopment/multimediahostingheanet/.
UCD Teaching and Learning offers an accredited Professional Certificate that includes a module that focuses specifically on Educational Technology (https://www.ucd.ie/teaching/professionaldevelopment/universityteachingqualification/). UCD Teaching and Learning and UCD IT Services run a series of events and workshops covering a range of topics related to the design and delivery of on-line materials https://www.ucd.ie/teaching/newsevents/events/). Pedagogical and practical toolkits are available for faculty through UCD Teaching and Learning's website (https://www.ucd.ie/teaching/resources/). The SVM hosts an informal Teaching and Learning Special Interest group which aims to share best practice. Additionally, UCD EdTECx talks is an annual event hosted by UCD IT Services and UCD Teaching and Learning which promotes best practice in educational technology by sharing case studies undertaken institutionally.

All academics, staff and registered students of the university are issued with an individual ID and Login to the 'UCD Connect Portal'. Electronic library resource access is enabled in this way via Licensing to any UCD IP address or via remote access using shibboleth authentication using UCD Connect login credentials. Wireless access to the UCD network is available in the SVM building and campus wide. UCD Connect users can also access the network via Eduroam. https://www.ucd.ie/itservices/ourservices/getconnected/wirelessservices/.
Wi-Fi Access Points are capable of speeds up to 600Mbit/s (802.11n). The APs are connected to the cable network at 1Gig preventing bottleneck when connecting to the backbone infrastructure. Wi-Fi speed can be affected by external factors.
A VPN is available to staff https://www.ucd.ie/itservices/vpn/.

6.3 The Establishment must provide students with unimpeded access to learning resources, internet and internal study resources, and equipment for the development of procedural skills (e.g. models). The use of these resources must be aligned with the pedagogical environment and learning outcomes within the programme and have mechanisms in place to evaluate the teaching value of changes in learning resources.

The Veterinary Library currently has 12,251 books in its collection. The bulk of these are available on open access in two main collections the General Long Loan Collection and the Short Loan Collection, where multiple copies of core module textbooks are held. Items held in storage can be retrieved / requested via the Online Catalogue with next day delivery to library sites. Over 400 e-books relevant to veterinary medicine are available within the library catalogue. It is UCD Library policy to purchase journal titles in digital format, while continuing to maintain print journal titles where an electronic version is not available for purchase. Veterinary Library Journal collection contains most of the relevant veterinary titles published in English, as well as journals in allied disciplines in hard copy and also electronic forms. Over 100 e-journals of relevance to veterinary medicine are listed in the catalogue. The SVM directly funds access to Veterinary Clinics of North America (all 4 titles), Veterinary Record and Veterinary Record Case Reports.

Access to learning resources is available online both on and off campus via BrightSpace, subject to the user's own internet connection and device. All modules of the programme have a presence on BrightSpace, which contain a range of resources appropriate for the intended learning outcomes and pedagogical strategy of the module. As mentioned above a range of supports are available to encourage best pedagogical practices on the appropriate use of educational resources for teaching from the VetEd Hub team and central institutional units. The SVM's curriculum mapping platform provides evidence of curriculum alignment of teaching and learning activities to module and programme learning outcomes. In addition, the institutional Curriculum Management and Reporting systems in InfoHub provide individual module descriptors, programme structure, vision and values statements, and programme outcomes details. This information supports ongoing curriculum enhancements. The SVM undertakes outcomes assessment activities throughout the academic year. Each module offers students an end of module feedback survey through InfoHub, data are collated through year level focus groups and end of programme final year surveys. Data at module, year and programme level provides valuable insights for module coordinators to evaluate their teaching and to provide enhancements to learning strategies and resources.

The Clinical Skills Centre (CSC) is used by the Veterinary Medicine and Veterinary Nursing programmes to facilitate practical classes. Practical classes are booked in advance through the central school timetable. The capacity of the Clinical Skills Centre is currently 28 allowing for small sized group practical sessions. Classes are supervised by a facilitator and the Clinical Skills Tutor is also available to assist during the class when required. Students are encouraged to avail of the Clinical Skills Centre outside of class time. The centre has a dedicated student practice area, allowing students to practice when classes are running. During their free time, students frequently use the Skills Centre to practice skills previously covered during practical classes. The Clinical Skills Centre Tutor is

available to assist and give feedback from 8am-5pm Monday to Friday. Due to timetable restrictions, students can also gain access to the Skills Centre outside of these times, using a key stored in a lock box on the wall outside the Centre. When entering, the students agree to abide by the Clinical Skills Centre House Rules. The rules are displayed clearly in the sign-in area outside the Centre and posted on the walls inside. The House Rules outline the conditions students are required to adhere to when using the Centre unsupervised - such as ensuring that for safety reasons a minimum of two students must be in the Centre when working unsupervised, only using equipment previously trained to use in class, agreeing to clean up after use and reporting low stock or equipment requiring repair. There are two security cameras, recording 24 hours per day, which are located within the Centre to ensure that student safety is prioritised and maintained. The security measures facilitate opening times that correspond to the opening hours of the Veterinary Library during term time allowing access until 10pm. Campus security check the Centre during their final security check prior to securing the veterinary building. The Clinical Skills Centre is designed to help students learn and improve their practical skills. The models and teaching material available in the CSC can be used during self-directed learning sessions or during practical classes. All the material is linked to the UCD Veterinary Hospital procedures and developed with support from our lecturers and clinicians as well as a community of international experts in the veterinary clinical skills teaching field. The CSC is designed to introduce students to a wide range of clinical procedures using animal mannequins, simulations and models allowing students to practise a range of skills in a friendly and relaxed environment. The CSC has many 'stations' within the room which focus on skills related to both small and large animal procedures and the resources are closely aligned with learning outcomes of module content across programme years. There is also a laboratory and anaesthesia station along with a dedicated student practise area. Students are able to learn and practise skills on models so that they are better prepared for clinical placements and assessments (Observed Clinical Structured Exams- OSCEs and Directly Observation of Clinical Skills DOPS). Each station and skill item has detailed, easy to follow instruction booklets allowing students to work in a self-directed manner. A Clinical Skills Tutor is also available to assist students and answer any queries they may have. The CSC is an integral part of both the Veterinary Medicine and Veterinary Nursing curriculum with many academic staff using the room and models to demonstrate skills and run practical classes throughout the year. Examples of models available include a full-size horse to practise handling, intramuscular injection, stable bandage, jugular blood sampling and intravenous catheter placement. CSC also has a full-size bovine model and several canine and feline models to practise handling and essential clinical skills such as bandaging and injection techniques. The use of latex pads are also incorporated allowing students to practise suturing skills. Stand-alone limb models with latex tubing mimicking veins allow students to practise intravenous catheter placement and management.

Comments

Replete with a new ventilation system, the SVM's library is an excellent information resource, which would benefit from additional study spaces. The newly situated and refurbished Clinical Skills Centre is designed to introduce students to a wide range of clinical procedures using animal mannequins, simulations and models, allowing them to practice a range of skills in a friendly and relaxed environment.

Suggestions for improvement

The acquisition of new educational technologies by the SVM is typically done on a case-by case basis, but cost remains an issue as funds have to be found from within the SVM's own budget. Some of these programme-specific applications are extremely expensive to acquire and maintain, annual costs and support costs and staff workload need to be considered. The COVID-19 crisis placed significant work pressure on our already busy Educational Technologist and the SVM has requested additional support from the university.

Standard 7 - Student Admission, Progression & Welfare

Standard 7. Student admission, progression and welfare

7.1 The Establishment must consistently apply pre-defined and published regulations covering all phases of the student "life cycle", e.g. student admission, progression and certification. In relation to enrolment, the Establishment must provide accurate and complete information regarding all aspects of the educational programme in all advertisings for prospective national and international students. Formal cooperations with other Establishments must also be clearly advertised.

Information for potential applicants is available through the University's comprehensive website geared towards the prospective student https://www.ucd.ie/registry/prospectivestudents/. Full descriptions of the veterinary medicine degree programmes are linked from that site (Annex 7.1). Undergraduate Prospectus https://www.myucd.ie/ucd-prospectus/. Graduate Prospectus https://www.ucd.ie/graduatestudies/t4media/UCD-Graduate-Prospectus-2020.pdf.

The website provides detailed information on the course structure and content and provides links to the detailed module descriptors for all modules of the programmes. The module descriptors provide detailed information on content, teaching and learning methodology, learning outcomes, prerequisites, and assessment and remediation strategy. A variety of additional measures are employed by the SVM to inform prospective applicants and promote wider access and participation and include:

- Regular site visits to our on-campus veterinary hospital by secondary school students/parents from a diverse background to enhance access of information about the programs offered.
- A 2-week summer school training program for secondary school students - 5 places in this program are reserved for students from socio-economic disadvantaged backgrounds and in-take is managed to ensure equal regional representation.
- The SVM participates in the annual higher options career fair held during mid-September in Dublin which is attended by over 20,000 secondary school students/staff/parents from Ireland.
- The SVM is represented at the UCD annual open day and UCD summer festival to enhance access of information about the programs offered at the SVM to general members of the public.
- Approximately 3 to 4 outreach events are held every year at different secondary schools for wider dissemination of details on programs offered at the SVM.
- A working group from the SVM admissions committee was established in Autumn 2019 to review access to Veterinary Medicine and Nursing. This is expected to recommend new entry routes to both courses (in line with other disciplines (i.e. medicine) within UCD).

7.2 The number of students admitted must be consistent with the resources available at the Establishment for staff, buildings, equipment, healthy and diseased animals, and materials of animal origin.

The number of veterinary students admitted to the different programs is subject to:

- Government and Graduate Entry Number Constraints - For the 5-year EU undergraduate program the number of EU place is set at 82 by the Higher Education Authority of Ireland while Graduate entry program is limited to 50.
- Infrastructure - The SVM has the capacity to accommodate approximately 140 to 150 students per annum and increases in this number are constrained by the size of physical facilities (lecture theatres, UCD Lyons Farm etc.), staff numbers as well as Veterinary Hospital facilities and case load.
- Applicant Pool - The quality of the applicant pool for the Graduate Entry Program on the 4 and 5 year course dictates the number of students recruited. The admission process selects students of sufficient quality (primarily academic ability and experience).

Table 7.2.1. Number of new veterinary students admitted by the Establishment

	2018	2017	2016	Mean
EU "free fees"	75	73	72	73
EU "full fees"	13	11	13	12
International	43	47	31	40
Occasional fee-paying	7	5	9	7
Total	**138**	**136**	**125**	**133**

Note- students are admitted in September of the academic year

Table 7.2.2a. Number of veterinary undergraduate students registered at the Establishment – 5-Year Programme

Year	2018-19	2017-18	2016-17	Mean
1st	89	86	87	87
2nd	86	84	86	85
3rd	88	89	90	89
4th	89	86	75	83
5th	83	77	90	83
Total	**435**	**422**	**428**	**428**

Table 7.2.2b. Number of veterinary undergraduate students registered at the Establishment – 4-Year Programme

Year	2018-19	2017-18	2016-17	Mean
1st	42	45	29	39
2nd	45	31	38	38
3rd	32	41	30	34
4th	38	27	38	34
Total	**157**	**144**	**135**	**145**

Table 7.2.3. Number of veterinary students graduating annually

Student fee group	2018-2019	2017-2018	2016-2017	Mean
EU "free fees"	69	58	81	69
EU "full fees"	8	20	16	14
International	37	18	26	27
Total	**114**	**96**	**123**	**111**

Table 7.2.4. Average duration of veterinary studies , graduating class June 2019

Duration of Studies	5 Year programme	4 Year programme
+0	87.2%	86.1%
+1	10.3%	11.1%
+2	2.6%	2.8%
+3 years or more	0%	0%

Table 7.2.5. Number of postgraduate students registered at the Establishment

	2018-19	2017-18	2016-17	Mean
Doctoral				
DVMS	29	24	23	25
PhD	54	51	49	51
Masters	13	12	12	12
Professional cert.	30	34	26	30
Total	**126**	**121**	**110**	**119**

7.3 The selection and progression criteria must be clearly defined, consistent, and defensible, be free of discrimination or bias, and take into account of the fact that students are admitted with a view to their entry to the veterinary profession in due course.
The Establishment must regularly review and reflect on the selection processes to ensure they are appropriate for students to complete the programme successfully. If the selection processes are decided by another authority, the latter must regularly receive feedback from the Establishment. Adequate training (including periodic refresher training) must be provided for those involved in the selection process to ensure applicants are evaluated fairly and consistently.

UCD offers two Veterinary Medicine Programmes: A 4-year Graduate Program and a 5-year Undergraduate Program. Each has its own admission criteria, tailored to the population of students eligible to apply. The five-year undergraduate programme is addressed below as the "standard programme"

Five-Year Programme, EU students

Students with an appropriate level of achievement at secondary school level, and/or a degree which may not fulfill all of the requirements for application to the four-year graduate entry programme, are eligible to apply for the five-year Veterinary Medicine Programme.

These applicants need to:

(1) Meet the University Matriculation entry requirements (http://www.ucd.ie/registry/prospectivestudents/admissions/undergraduateapplicants/minimumentryrequirementsmatriculation/) as determined by performance in the State Leaving Certificate (https://www.examinations.ie/) (or equivalent) exam.
- Students must have attained the age of 17 Years by January 15th following date of admission.
- For holders of the Irish Leaving Certificate, six subjects are required, with a minimum O6/H7 in English, Irish, Mathematics, a third Language and one other recognised subject.
- Subjects must include Irish (exemptions are possible for students who have not completed their secondary education in Ireland), English, a third language, mathematics, and chemistry (minimum grade Higher Level H5). Biology is not an absolute requirement but strongly recommended.
- Equivalents for other European/International School Leaving Examinations are calculated by the UCD Admissions Office.

(2) Have the required Animal handling or veterinary practice experience:
A minimum of 60 hours animal handling or veterinary practice experience with at least two of the following four animal categories: Pets (Dogs and cats); Horses; Farm animals (cattle, sheep, pigs, goats); Wildlife/zoo. This is independently verified by the SVM (http://www.ucd.ie/registry/admissions/vet.html).

The selection process for undergraduate entrants to the five-year veterinary medicine programme, along with applications to most other third level programmes in Ireland, is managed by the Central Applications Office. Students are offered places, based on the number available, in order of Leaving Certificate points score, or equivalent. A full description of the scoring and offer process is available on the Central Admissions Office (CAO) website (www.cao.ie). The CAO has an Independent Appeals Commission (IAC), to which recourse may be had by applicants who believe that they have been treated unfairly by CAO, and whose complaints have not been resolved by CAO. This process is described on the CAO website. The role of the Appeals Commission is to ascertain whether or not an applicant has been unfairly treated by CAO. Appeals must be made in writing, be signed by the applicant and must describe the alleged unfair treatment. Appropriate supporting documentation should accompany the appeal.

UCD is fully compliant with the Higher Education Authority of Ireland Higher Education **National Plan for Equity of Access** (https://hea.ie/assets/uploads/2017/06/National-Plan-for-Equity-of-

Access-to-Higher-Education-2015-2019.pdf). This policy sets equity of access to higher education as a fundamental principle of Irish education policy with a target of 33% participation of students from under-represented groups in undergraduate programmes. This policy is coordinated by the UCD-Widening participation committee and the SVM has direct representation on this committee. Ten out of eighty places on the 5-year programme are reserved for applicants who are disadvantaged by reason of socio- economic circumstances or disability via the Higher Education Access Route and Disability Access Route to Education (DARE). These applicants are considered at entry points levels 15% below those required for entry through the general pool. Full details are available at www.accesscollege.ie. Applicants are also eligible to be considered through UCD's Elite Athlete and Elite Performing Arts scholarship pathways, which provide for entry of successful applicants with up to 60 fewer CAO points than the general pool. A quota of two places is available in the veterinary medicine programme through this pathway.

5-Year Programme International Undergraduate Direct Applicants

International students may apply directly to UCD through the UCD Admissions website. By definition, an international student is from a country that is outside the European Union (EU) and European Economic Area (EEA). Full details are available at https://www.ucd.ie/global/study-at-ucd/undergraduate/entryrequirements/). Applicants are judged by the Admissions Committee based on:

- Academic achievement in general education and in the basic sciences (Chemistry, minimum grade Higher Level H5 or equivalent)
- Academic and DVM References
- Contribution to society through volunteering, sporting or artistic achievement or similar
- Personal statement outlining relevant animal and veterinary experience, background knowledge and motivation

Four-Year Programme Graduate Entry

Graduates with an honours degree in the biological sciences are eligible to apply for admission to the 4-Year Graduate Entry Programme (up to 50 places). There are two entry routes to this programme assessed as follows:

European Union Applicants (5-8 places)

(https://www.myucd.ie/courses/veterinary-medicine/veterinary-medicine-graduate-entry/)

- The grade of degree;
- Aptitude test (Graduate Australian Medical Schools Admissions Test – GAMSAT https://gamsat.acer.org/);
- Contribution to society through volunteering, sporting, artistic achievement or similar;
- Higher educational achievements/pre-requisite subject background;
- Relevant veterinary and animal experience;
- Personal statement detailing motivation and interests.

Applicants are initially screened using their GAMSAT scores and approximately the top 20 are called for interview. These are further ranked based on a combination of GAMSAT score, interview and scores in above categories and offers/no offer/ reserve recommendations made.

International Applicants (40-45 places)

(http://www.ucd.ie/vetmed/study/internationalstudents/)

- Degree Grade/GPA;
- Pre-requisite subjects
- Academic and DVM references;
- Contribution to society through volunteering, sporting, artistic achievement or similar;
- Relevant veterinary and animal experience;

- Personal statement detailing motivation and interests.

Offers/no Offers/Reserve decisions are made as follows:

1 High GPA (usually >3.6) and satisfactory or better in all other categories (i.e. references, animal exp, motivation etc.) and no queries raised by the Admissions Committee → direct offer.
2 High GPA (usually >3.6) and satisfactory or better in all other categories (i.e. references, animal exp, motivation etc.) but queries raised by the Admissions Committee → interview and offer/no offer/reserve decision.
3 GPA in range up to 3.6 with or without queries raised by the Admissions Committee and satisfactory or better in all other categories (i.e. references, animal exp, motivation etc.) → interview and offer/no offer/reserve decision.

The intake of students to both the 5-year undergraduate and 4 graduate entry programs are stable and predictable and vary little from year to year. Any increase in enrolment is planned 12 to 24 months in advance by the UCD Admissions Committee, the Dean and Senior Management Team of the SVM in consultation with the SVM Programme Board and SVM Admissions Committee. This is agreed and communicated with the staff of the SVM usually via the school forum or by direct communication. Currently there are no deficits in teaching facilities to accommodate existing student numbers. Resources are continuously considered by the SVM Senior Management Team and SVM School Executive and appropriate action implemented to ensure sufficient capacity. For example, the student intake last year increased by approximately 6%, and resource bottle necks such as anatomy specimen storage capacity were identified and rectified. Any impact on resources as higher student numbers proceed through the later years is under review and will be addressed in a timely manner. Occasionally insufficient students of a suitable standard accept places to fulfil the year target. In these years, the SVM has been happy to not to fill all of the places rather than reduce entry standards and this policy is expected to continue. There are no plans currently to further change the number of students admitted to the MVB Programme. Admission intake numbers are reviewed annually by the UCD Admissions Committee and the SVM Associate Dean for Admissions Dr Colm Reid in consultation with the Dean and Senior Management Team of the SVM.

7.4 There must be clear policies and procedures on how applicants with disabilities or illnesses are considered and, if appropriate, accommodated in the programme, taking into account the requirement that all students must be capable of meeting the ESEVT Day One Competences by the time they graduate.

All students with a disability or significant ongoing illness in UCD are encouraged to receive relevant academic and/or exam supports via the UCD Access & Lifelong Learning unit (http://www.ucd.ie/all/). Supports include:

- Examination accommodations such as extra time, use of the alternative examination location on campus, use of a reader etc.
- Classroom accommodations such as Permission to use Assistive Technology such as a recording device in lectures, Provision of Interpreter and/or Note Taker for Deaf students, Provision of required reading in an alternative format for Blind or visually impaired students.
- Guides for students on how to manage particular disabilities in college (https://www.ucd.ie/all/ucdstudents/support/disabilitysupport/).
- Adoption of Universal Design for Curriculum Design. Academic staff are supported to adapt universal design concepts in their teaching and assessment to meet the needs of a diverse class, including the use of open and free access online resources.
- Necessary and timely support to students from student advisors, peer mentors and program office staff as required.
- Experienced and mindful SVM staff that facilitate reasonable accommodation required by the students registered with the UCD-access unit.

- Tracking of student attendance and engagement by the year and module coordinators to allow the timely identification of any student issues and facilitate early intervention.

7.5 The basis for decisions on progression (including academic progression and professional fitness to practise) must be explicit and readily available to the students. The Establishment must provide evidence that it has mechanisms in place to identify and provide remediation and appropriate support (including termination) for students who are not performing adequately. The Establishment must have mechanisms in place to monitor attrition and progression and be able to respond and amend admission selection criteria (if permitted by national or university law) and student support if required.

The University Academic Regulations (http://www.ucd.ie/governance/resources/policypage-academicregulations/) set out the university's formal regulations in relation to how a degree programme is structured, its workload, its assessment, progression requirements and award classification.

A typical year comprises 60 credits (usually 30 credits per trimester). Progression to a subsequent year of the course occurs when:
a) a student has demonstrated achievement of the learning requirements of that year; and
b) a student has acquired sufficient credit (60) to meet the requirements of that year.

A student may progress to a subsequent year without completing the previous year (an incomplete year) when the following criteria are met:
a) the credits required by the student to complete the incomplete year do not exceed 10 credits;
b) the student has completed all preceding years to the incomplete year.
When a student progresses to a subsequent year without completing the previous year, the student may not take any modules as part of the subsequent year that conflict with their ability to take modules as part of the incomplete year.

All student grades, for all modules, are reviewed at the Examination Board which is attended by all module coordinators. It should be noted that most students perform satisfactorily in their programme of choice. Delayed progression can arise for several reasons, including reasons of extenuating circumstances. SVM and the University provide a range of support services to all students to aid their performance and progression throughout their programme of choice. If the student becomes ill during their time in the programme such that this impacts on their assessment, the **UCD Extenuating Circumstances Policy** is followed. The student may apply online for these circumstances via their SISWeb account. The student is required to provide supporting documentation which will be reviewed by the module Coordinator. The matter currently may be referred onwards to the Examinations Board for consideration and a final recommendation.

Progression:
Sections 3.7-3.9 of the UCD Academic Regulations outline requirements for student workload as follows:

3.7 A student may not register to more than 40 credits in any trimester. In determining workload, credits from resits and repeats shall be counted by a Governing Board.

3.8 A programme may not require a student to take more than 30 credits per trimester (including elective credit).

3.9 Governing Boards shall monitor student workloads and where, in the opinion of a Governing Board, a student's workload is unsustainable, it may, following appropriate consultation with the student, require that the student's workload be reduced to sustainable levels.

Students identified as being of potential **progression** concern (Credit Load going forward) are contacted by a representative of the SVM Programme Office to arrange a meeting with a student progress committee that has been convened for this purpose. The UCD and SVM's system for student

support and progression are working effectively. From 2020 a new University wide student support system is being implemented, in line with the recent changes to the UCD progression policy. This will further allow the SVM to identify and intervene with students who may need specific supports. Students with potential **continuation** concerns are also identified at meetings of the SVM Programme Examination Board. Sections 5.9-5.10 of the UCD Academic Regulations outline the regulations on continuation and readmission as follows:

5.9 A Governing Board shall review the academic performance of a student where:
a) the student fails to remediate a failed module after three attempts (including in-module resit for the full module, but excluding in-module repeats for assessment components and grades of IM, IA and IX); or
b) the student fails to achieve any additional standards for acceptable performance and progression for the programme as defined in the programme specification.
5.10 Where a student's performance is deemed to be academically unacceptable by a Governing Board, the Governing Board shall refer the case, with a recommendation and supporting evidence, as a continuation case to the Academic Council or its relevant committee to determine whether the student is or is not eligible to continue in the programme. Where a student is deemed ineligible to continue in the programme by Academic Council or its relevant committee, the student's registration shall be discontinued.

In cases of students with continuation issues, SVM follows the UCD Continuation and Readmission Policy and Procedures (https://www.ucd.ie/secca/; Annex 7.2).

The SVM is subject to UCD regulations on **academic misconduct and fitness to practice**. The UCD Student Code (https://www.ucd.ie/secca/studentconduct/) sets out the University's regulations and expectations in respect of student behaviour and conduct and describes the policy and procedures for managing student academic misconduct. The University policy and process for assessing and managing fitness to practice are detailed on the University Website (https://www.ucd.ie/secca/studentfitnesstopractise/). The SVM has a Fitness to Practice Committee comprised of 3 senior academics who report to the School Program Board and the Dean of Veterinary Medicine and meet on an ad-hoc basis to address cases as they arise.

The total percentage of veterinary students that graduated on time for both programmes (4 and 5-year programmes) in June 2019 was 86.8%. The main reasons for relative **student attrition** are academic, with failure on modules resulting in increased time taken to graduate. Students may also take time away from studies for personal or medical issues. A very small number choose to leave the programme (average 4.5% in the past 3 years.)

The **selection process** for undergraduate entrants to the five-year veterinary medicine programme, along with applications to most other third level programmes in Ireland, is wholly managed by the Central Applications Office as described previously. Students are offered places, based on the number available, in order of Leaving Certificate points score, or equivalent. A full description of the scoring and offer process is available on the CAO website (www.cao.ie). The selection process for all non-EU students and all those applying through the graduate entry route is managed by the University Admissions Office and the SVM Admissions Committee (detailed below).

The **Admissions Committee** is a sub-committee of the SVM Programme Board. It defines admission criteria and selects students for entry to the SVM. It reports to the SVM Programme Board and Dean of Veterinary Medicine. The Admissions Committee is subject to UCD Admissions Policy (https://www.ucd.ie/registry/t4media/Admissions-Policy.pdf). The committee is chaired by the Associate Dean for Admissions and Student Progression and is comprised of 6 academics (including the Associate Dean) from across the SVM with administrative support from the programme office.

The current committee members are*:

Dr. Colm Reid (Associate Dean for Admissions and Student Affairs, Veterinary Biosciences, Appointed 2018)
Dr. Seamus Hoey (Veterinary Diagnostic Imaging, Appointed 2016)
Dr. Monica Augusto (Small Animal Medicine, Appointed 2017)
Dr. Arun Kumar (Veterinary Biosciences, Appointed 2018)
Dr. Conor McAloon (Herd Health and Animal Husbandry, Appointed 2018)

*(1) At time of writing a recruitment process for two new academic members is underway
(2) Two new non-voting members representing the veterinary profession (1 Irish and 1 International) will be appointed from 2021. These will advise on current profession requirements/expectations and the focusing of admission criteria through the annual review process to reflect these.

Members are appointed following application via expression of interest and selected by the Admissions Committee in consultation with the Dean of Veterinary Medicine. Members are selected based on section (preclinical and clinical) representation, international experience and admissions experience. The Admissions Committee must have a minimum of 40% male and 40% female members and meet appropriate EDI balance as detailed by the UCD policy on diversity (https://www.ucd.ie/equality/information/policies/). The Admissions Committee members normally serve for a period of 3 years. The roles of the committee are to:

- Consider all:
  - ⇒ Graduate applicants to the 5-year and Graduate Entry 4-year program
  - ⇒ International applicants to the 5-year programme
  - ⇒ Mature Entry applicants to the Veterinary Nursing Programme
- Review applications, conduct interviews, rank applicants (based on stated criteria) and recommend decisions to the SVM Programme Board which make offers according to places available.
- Assess and recommend for acceptance transfer applicants to the Veterinary Medicine and Veterinary Nursing Programme.
- Review entry routes to Veterinary Medicine and Nursing and develop new non-standard routes as appropriate.

The committee meets on an ad-hoc basic during the year and every 2 weeks during the peak admissions period (October to December). The Admissions Committee members serve for a fixed term of 3 years. New members are inducted by training with the Associate Dean for Student Admissions and are paired with experienced committee members. All members of the admissions committee are expected to undertake training relevant to their roles (e.g. interview technique, unconscious bias training) where appropriate. The committee conducts an annual process review at the end of each admission cycle and reports to the SVM Programme Board and Dean of the SVM. As detailed in section in 7.3, any increase in enrolment is planned 12 to 24 months in advance by the UCD Admissions Committee, the Dean and Senior Management Team of the SVM in consultation with the SVM Programme Board and SVM Admissions Committee. This is agreed and communicated with the staff and students of the SVM usually via the school forum or by direct communication. Student number and available resources are monitored continuously by the SVM staff and discussed by the SVM Programme Board and recommendations implemented by the SVM Dean and SMT.

7.6 Mechanisms for the exclusion of students from the programme for any reason must be explicit. The Establishment's policies for managing appeals against decisions, including admissions, academic and progression decisions and exclusion, must be transparent and publicly available.

In all matters relating to student progression and continuation, the SVM follows established University policies. Information for students is available linked from the UCD Student Engagement, Conduct, Complaints and Appeals website https://www.ucd.ie/secca/.

The SVM is subject to UCD regulations on academic misconduct and fitness to practice and this determines the **mechanism for exclusion of students**. The UCD Student Code (https://www.ucd.ie/secca/studentconduct/) sets out the University's regulations and expectations in respect of student behavior and conduct and describes the policy and procedures for managing student academic misconduct. The University policy and process for assessing and managing fitness to practice are detailed on the University Website (https://www.ucd.ie/secca/studentfitnesstopractise/). The SVM has a Fitness to Practice Committee comprised of 3 senior academics who report to the School Program Board and the Dean of Veterinary Medicine and meet on an ad-hoc basis to address cases as they arise.

As mentioned previously, information for students on **appealing decisions** is available linked from the UCD Student Engagement, Conduct, Complaints and Appeals website https://www.ucd.ie/secca/. The UCD Assessment Appeals Policy describes the circumstances under which students may submit assessment appeals and the procedures that are followed (http://www.ucd.ie/secca/assessmentappeals/).

Appeal of continuation and readmission are described under the policy on continuation and readmission (http://www.ucd.ie/secca/continuationandreadmission/).

7.7 Provisions must be made by the Establishment to support the physical, emotional and welfare needs of students. This includes, but is not limited to, learning support and counselling services, career advice, and fair and transparent mechanisms for dealing with student illness, impairment and disability during the programme. This shall include provision of reasonable adjustments for disabled students, consistent with all relevant equality and/or human rights legislation. There must be effective mechanisms for resolution of student grievances (e.g. interpersonal conflict or harassment).

A comprehensive range of academic and **pastoral student support services** are provided to students. The UCD Student Adviser role(https://www.ucd.ie/studentadvisers/) (is to support students by providing pastoral advice and information on social, personal and practical issues and, where necessary, by referring them for more specialised advice to members of the academic, administrative or central support services. Dr Niamh Nestor is The SVM's dedicated Student Adviser and offers students time and space to explore issues of concern to them. Working closely with the Dean and the SVM Programme Board, she provides assistance to students in finding pathways to deal with personal, social and emotional issues and provides advice on relevant UCD policies, procedures and services.

The **UCD Chaplaincy Team** (https://www.ucd.ie/chaplaincy/) is available throughout the year for support, guidance and advice in complete confidence for those of all faiths and none) along with activities and volunteering opportunities for students.
The **Student Welfare Fund and Student Assistance Funds** provide assistance to students who have financial difficulties either as a result of ongoing circumstances or as a consequence of unexpected difficulties. Student Advisers/Chaplains are routinely involved in helping students apply for these funds. Full details are available at: https://www.ucd.ie/studentadvisers/studentsupports/financialsupports/.
UCD Student Health and Counselling provides on-campus medical, psychological and psychiatric care to registered students of the University. Full details of services provided are available at https://www.ucd.ie/stuhealth/services/. The staff of UCD Student Health and Counselling provide a service within an ethos of respect, courtesy and confidentiality, and aim at all times to operate to the highest professional standards. All consultations are treated in the strictest confidence. Student Counselling is a free and confidential service staffed by professionally qualified psychologists and counsellors. The service provides easily accessible support for students when personal issues arise that affect their happiness, well-being, capacity to cope, relationships or learning. An addiction counsellor is also available. Full details are available at: https://www.ucd.ie/studentcounselling/.

UCD Access and Lifelong Learning provides a range of supports for students who have a disability or a chronic, long-term illness. The aim is to facilitate students in becoming independent learners while fully engaging in university life. The supports available include: Assistive technology, learning support tutors, occupational therapists, writing and maths support clinics, dyslexia screening and alternative examination arrangements. Full details are available at: https://www.ucd.ie/all/.
The **UCD Student Desk (**https://www.ucd.ie/students/studentdesk/) is located in the ground floor of the Michael Tierney Building. The student desk primarily deals with queries relating to fees, official documents such as transcripts or evidence of attendance, student registration and examinations.
UCD Global (https://www.ucd.ie/global/) provides an extra level of support and information for international students.
The **UCD Students' Union** represents all students and provides a range of services, including: Training for class representatives, representation on University committees, welfare support, second-hand book sales, among others. Full information is available at: https://ucdsu.ie/.

UCD has a very wide range of student clubs and societies. Full details are available at: https://societies.ucd.ie/ and https://www.ucd.ie/sport/clubs/. SVM students are encouraged to participate in university-wide activities through clubs and societies, and many are high-achievers through sporting activity, musical activity, drama, craft, among others. There are also SVM-specific clubs and societies. UCD VetSoc (https://www.ucd-vetsoc.com/) is an official UCD society of which all SVM students are members. UCD VetSoc organises both social and academic events (Tuesday and Thursday in-term evening talks with a variety of speakers on a variety of topics), the annual Carol Service which will have its 40th anniversary this year and also liaises with academic staff on matters of student concern. Other veterinary student-led societies include: UCD Veterinary Nursing Soc, UCD One Health, European Veterinary Business Association (EVBA), Veterinary Equestrian Club and Veterinary Rugby and Soccer teams. Students with exceptional performance (academic, sporting or cultural) are supported through membership of UCD's Ad Astra Academy (https://www.ucd.ie/adastraacademy/).

School-specific supports: The SVM operates an integrated School and Programme Office which students use for support on a range of issues including admissions, academic progression, letters of reference, assistance with registration, and liaison with offices across the University, including: UCD Student Desk and UCD Global. The team also liaise with a wide range of external stakeholders to the SVM. The Programme Office team is responsible for areas such as extra-mural studies and timetabling, annual academic calendar events and daily administrative support to the Dean. The School/Programme office liaises daily with the Student Advisers, administrators in each of the academic sections, and with UCD Registry and all other University units. The Associate Dean for Teaching and Learning works closely with both the Programme Office staff and Student Advisers and provides support to students individually or in groups, as required, on any matter affecting academic progression or on other issues that may affect a student's educational progress. The Dean also works closely with Programme & School Office staff and the Student Adviser and responds to issues raised by students individually, in groups, or by student representatives. A member of the academic staff is responsible for liaising with each year group as "Year coordinator". This involves regular meetings with Class Representatives and attendance at Staff-Student Liaison Committee meetings. Each module has an academic coordinator who is responsible for the module descriptor, for the assessment process, and for ensuring that all matters concerning the module are communicated in a timely manner to students. The Peer Mentor programme (https://www.ucd.ie/peermentoring/) provides training for students who then act as mentors for new students, commencing during orientation week and continuing throughout the academic year. There is a UCD specific process for **resolution of student grievances**, linked from the UCD Student Engagement, Conduct, Complaints and Appeals website https://www.ucd.ie/secca/. The governance document is the Student Complaints Policy. Students are advised to raise their complaint as soon as possible with the relevant person or area (Unit, School or service provider) in the hope that the issues can be resolved easily and quickly

at local level. If the student is not satisfied with the local response they may submit a formal complaint. The first step is to submit the Student Complaint Form: Head of Unit Review to the Head of the relevant School in which the issue arose. If the student remains dissatisfied, having received a formal response from the Dean/Unit, they can make a complaint at University level, by submitting a Student Complaint Form: which is reviewed by Student Complaints Officer. Bullying, harassment and sexual harassment are contrary to the UCD Dignity and Respect Policy (https://www.ucd.ie/equality/support/dignityrespect/). The policy sets out the framework for dealing with complaints of bullying and harassment, including sexual harassment. It includes information for dealing with complaints informally as well as information on the formal procedure. It also contains information on the supports available for staff and students. Students, staff and visitors to UCD can now report issues of a Dignity & Respect nature anonymously through the UCD Report and Support tool.

7.8 Mechanisms must be in place by which students can convey their needs and wants to the Establishment. The Establishment must provide students with a mechanism, anonymously if they wish, to offer suggestions, comments and complaints regarding compliance of the Establishment with national and international legislation and the ESEVT standards.

Multiple systems are in use to collect and analyse students' opinions. The University provides a process for students to submit feedback on each module, with module co-ordinators having the opportunity to augment the basic set of questions included in the feedback process. (https://www.ucd.ie/teaching/resources/moduleandprogrammedesign/). The SVM organises focus groups at the end of every academic year with each class group with the aim of getting student opinion on what worked well and what could be improved. A "Stop, Start, Maintain" dialogue is used. The feedback from each year group is then presented to and discussed by the relevant academic staff and a series of action items are agreed and communicated back to students. Staff-Student Liaison Committees, held twice in trimesters 1 and 2, are a key vehicle for obtaining and canvassing student opinion and for students to raise issues, requests and complaints. Minutes will be available to the site visit team. Student representatives sit on the SVM Governing Board and regularly raise academic matters in this forum. Student Representatives are invited to meet regularly with the Dean and Programme Office staff to discuss specific issues of concern and potential new initiatives. A confidential post box is provided at a prominent location within the main Veterinary Sciences building for students who wish to raise issues anonymously.

Comments

Overall, the SVM is performing well in the area of Student Admission, Progression and Support. The student intake is stable and predictable from year to year and the resources are well aligned to students numbers. A network of complementary policies, processes and supports at the level of both the University and the SVM function effectively and efficiently to manage this area.

Suggestions for improvement

In common with many other SVMs, ensuring a balanced and representative intake can be challenging. While there is a range of national and university policies and processes in place to ensure this is the case, there is room for improvement particularly in terms of gender balance and increasing the male intake across both programmes. Recent initiatives by the EDI committee of the SVM, in preparation for their Athena Silver Award application have further highlighted these concerns. The student recruitment process will be further improved from 2021 by the inclusion of two external veterinary practitioners on the Admissions Committee to provide expertise on reflecting current profession requirements in student selection criteria. In addition, a system to monitor student intake metrics and correlate them with student progression is being implemented which will allow us to further focus and refine the SVM intake criteria. Finally, the Admissions Committee will continue to identify new avenues of intake and intends to recommend for implementation a new pathway for entry for mature students from 2021.

Standard 8 - Student Assessment

Standard 8. Student assessment

8.1 The Establishment must ensure that there is a clearly identified structure within the Establishment showing lines of responsibility for the assessment strategy to ensure coherence of the overall assessment regime and to allow the demonstration of progressive development across the programme towards entry-level competence.

The veterinary medicine programme has undergone curricular review and change since 2015 and continues to change. By adopting an outcomes-based approach, decisions about change are evidence-based and ensure that graduates leave with the knowledge, skills and attributes required for successful careers in the modern workplace. Our comprehensive mixed-methods approach to the assessment of outcomes employs a variety of approaches to gather feedback from a range of key stakeholders. This approach allows the SVM to monitor the impact of curricular change and informs future decision-making. It is fundamental to ensuring that the curriculum remains dynamic and responsive to a changing society. A range of data collection tools are deployed multiple times throughout the year to collate both quantitative and qualitative data, which are triangulated by the Curriculum Review Committee.

Assessment across the program is underpinned by a programmatic approach which focuses on ensuring that the assessment type is appropriate for the domain of competence being tested (e.g. skills vs knowledge) and aligns to the module's learning outcomes which in turn are mapped to Programme Outcomes (POs). In 2019 the SVM procured a curriculum mapping software (Sofia) which shows how sets of outcomes (e.g. individual teaching activity, module outcomes, assessments) map to the intended learning outcomes of the programme, domains of competence and accreditation standards. The approach to **monitoring student progress** in each academic year is underpinned by a programmatic approach to assessment across all years which has a strong focus on assessment for learning. This ensures students receive timely feedback to help regulate their learning and develop a strategy for timely remediation where required. This approach also focuses on ensuring that the assessment type is appropriate for the domain of competence being tested (e.g. skills vs knowledge) and aligns to the module's learning outcomes which in turn are mapped to Programme Outcomes (POs) and the COE 9 clinical competences. In 2019, the SVM procured a curriculum mapping software (Sofia) which shows how sets of outcomes (e.g. individual teaching activity, module outcomes, assessments) map to the intended learning outcomes of the programme, domains of competence and accreditation standards.

A range of assessment methods is used to evaluate students' progress throughout the programme and is summarised in the MVB Assessment Matrix (Annex 8.1). Both direct and indirect assessment methods are used summatively and formatively across the programme and ongoing curriculum enhancement aims to increase the extent to which direct observation assessment methods are embedded across the programme. Module coordinators provide formative/low stakes summative assessments to students (e.g. peer assessments, online quizzes, in-class quizzes, mid-trimester MCQs). Increasingly peer assessment is used to increase feedback opportunities particularly in the development of clinical skills.

We continue to review and revise our programme of assessment to ensure that graduates have achieved the programme outcomes and demonstrated the nine clinical competences. This strategic approach to assessment is informed by evidence-based pedagogy (Swanwick, 2014), best veterinary educational practice (Baille, 2014) and on-going consultation with medical assessment experts. A variety of theoretical knowledge testing formats is used across the programme aligning with Miller's pyramid of clinical competence (see programme assessment matrix). Formats move progressively from testing knowledge recall to the application and integration of knowledge applied to clinical and professional scenarios. Assessment of practical and clinical skills (before final year) is increasingly

moving to the Objective Structured Clinical Examination (OSCE) format which assesses skills at the 'Shows' level of Miller's pyramid and is used in Years (1,2) and 3. In Year 5 clinical skills are tested through core and **D**irect **O**bservation of **P**rocedural **S**kills (DOPS) ('does' level of Miller's pyramid). During the clinical year all students must pass all 18 DOPS that are mapped to 9 clinical competences (Annex 3.4).

Clinical rotations have adopted a common Work Based Assessment (WBA). End of Rotation (EOR) evaluation form with associated descriptors for Likert scales. There are minor variations to the knowledge domain scales as per the requirements of the rotation. The consistent use of WBA forms for end of rotation feedback and evaluation helps increase inter-rater reliability across the rotations (Annex 8.2). To fulfil programme requirements, final year students must pass all clinical rotations (and elective) and complete 24 weeks of clinical EMS. Throughout the programme an e-portfolio is used where students complete a range of individual and group activities and tasks and with an associated reflection (e.g. post communications skills role-play, teamwork activities). In final year students must meet a satisfactory standard in their end of rotation evaluation which assesses professional attributes including written and verbal communication, teamwork, behaviour, clinical reasoning & case management, health & safety in the work-place at the 'Does' level of Miller's Pyramid where performance is integrated into practice. The summary of **assessment in final year** is shown in Annex 8.3.

8.2 The assessment tasks and grading criteria for each unit of study in the programme must be published, applied consistently, clearly identified and available to students in a timely manner well in advance of the assessment. Requirements to pass must be explicit.
The Establishment must properly document the results of assessment and provide the students with timely feedback on their assessments. Mechanisms for students to appeal against assessment outcomes must be explicit.

Assessment information is provided to students through the published module descriptors and also via the specific details provided by the module coordinator on BrightSpace. Guidelines for students who undertake examinations in UCD: https://www.ucd.ie/registry/staff/registryservices/assessment/. Additional examination guidance is provided through UCD via several student websites e.g. Exam Regulations for Students: https://www.ucd.ie/students/exams/examregulations/.

There are two official times in the year, December and May, when end-of-trimester examinations are held. Normally, there is a one-week revision period between the end of teaching activities and the start of the examination period. **UCD Assessment** provides logistical and administrative support to timetable and invigilate end of trimester examinations. Examination schedules are planned centrally and posted publicly online. Module Coordinators meet with Year Coordinators to discuss the sequencing of in-trimester assessments. Combined, both processes aim to ensure examinations are scheduled fairly and take into account the student experience. UCD Assessment has put quality assurance processes in place for all assessment types to reduce the scope for error and to ensure that assessment items are correctly formatted, testing time is sufficient and exam papers are internally and externally reviewed.

- Exam paper templates are provided by UCD Assessment to ensure consistency of formatting. Exam paper proofing guidelines are provided from UCD Assessment.
- Guidelines to maintain the security of examination papers are provided by UCD Assessment:
- UCD provides an online Exam Paper Management System (EPMS) to further facilitate the quality and distribution of end of trimester exam papers.
- Draft examination papers are initially reviewed by a team of academic staff in cognate subject areas and then by the external examiners before they are finalised.
- A checklist to support the running of in-trimester examinations is provided by UCD Assessment.

- UCD Academic Regulations (reg 4.12) ensures that records of assessment are archived in a safe and comprehensive manner in accordance with the University's retention policy and procedures).

As per UCD Academic Regulations (Reg 4) assessments are graded using letter grades. For objective and quantitative assessment components (e.g. MCQ/SBA) the UCD alternative numerical scale 2 is used but the overall module grade is reported as a letter grade using the UCD conversion process. Some modules and/or components e.g. EMS, CEMS, DOPs, End of Rotation Evaluation Forms all return results as pass/fail. Each grade has a value attached to it for the purposes of calculating a Grade Point Average (GPA). The minimum pass grade for Veterinary Medicine is D- which corresponds to 50%. All assessment grades are submitted to an online UCD system called GradeBook which aggregates individual assessment grades and calculates the student's final end of module grade. UCD Academic Regulation (4.12) stipulates that all grades are entered into GradeBook no later than 20 working days post assessment submission. The UCD Assessment Team within UCD Registry manages the process of grading rules and GPA calculations, providing all calculations for programme exam boards and implementing any approved changes. Timelines for posting provisional and final examination results are published online as the Grade Approvals Process schedule.

The Veterinary Medicine Programme Exam Board is formally responsible for the award of grades and progression and graduation of students registered to the programme and is governed by the following UCD policies - UCD's Academic Regulations, Grade Approval Process, Assessment Code of Practice, Fitness to Practice Policy and Plagiarism Policy. Progression rules are given in Annex 7.2. There are no major barriers to progression, although students are required to have passed all previous modules before commencing the final year of studies. Module remediation strategies are in Annex 8.4.

Principles governing **assessment feedback** are described in the UCD Academic Regulations 4.32-4.35 which lay out the obligations of both module coordinators and students. Module coordinators must provide timely feedback on both formative and summative assessments, and students have a responsibility to reflect on and act on the feedback provided. Feedback on assessment must be provided according to the specification in the module descriptor and no later than twenty working days after the deadline for submission of each piece of assessed work. Staff guidance on appropriate use of feedback is available at: https://www.ucd.ie/teaching/resources/assessmentfeedback/.
Students may **appeal** the results of the examination process to the Academic Council Committee on Assessment Appeals (ACCAA). Procedures and policy are published online for students: https://www.ucd.ie/secca/assessmentappeals/.

8.3 The Establishment must have a process in place to review assessment outcomes, to change assessment strategies and to ensure the accuracy of the procedures when required. Programme learning outcomes covering the full range of professional knowledge, skills, competences and attributes must form the basis for assessment design and underpin decisions on progression.

The SVM's **assessment strategy** is informed by educational best practice in veterinary medical education and is developed in consultation with faculty and external assessment consultant expertise (e.g. Professor Katherine Boursicot and Professor Emeritus Sarah Baillie). It is implemented by module coordinators and is coordinated and reviewed at year and programme level by the **Curriculum Review Committee** (CRC) described in Section 3.4. Review includes analysis of assessment results at exam boards and student and faculty feedback which is considered at the CRC. UCD Gradebook is complemented by a suite of InfoHub reports which enable module coordinators and SVM **Programme Examination Boards** to assess and compare all assessment information. The module grade distribution (SUM + %) is reviewed per module, in addition a report of each student's end of trimester results is provided (credits earned, final GPA, year GPA, module result). These data are analysed at the SVM Programme Exam Board.

Online examinations administered through BrightSpace provide basic psychometric item analysis on MCQ/SBA assessment types. Statistics include score distribution, class average (+ Std Dev), reliability coefficient KR20, and question statistics that include: standard deviation, discrimination index, point biserial, and distractor response frequency. Similar assessment types administered through SpeedWell OMR provide equivalent data. Module coordinators analyse this data to determine the reliability of their assessments, address any errors and to determine conclusions regarding the quality of the assessment. External examiners, from UK and European Veterinary Schools review teaching within modules (and Years in the preclinical years) assessment approaches and exam performance and provide a report, part of which elicits comments on standards in relation to other veterinary schools in the UK and internationally.

The SVM continues to develop a programme of assessment across the Programme to ensure that an appropriate blend of formative and summative assessment methods are implemented, assessing skills, knowledge and professional attributes to produce a coherent and integrated assessment strategy across all years of the programme. A programme assessment blueprint was designed and implemented in 2015 as part of an institutional Curriculum Review and Enhancement Project. The design of the review blueprint highlighted the alignment of module assessments to programme outcomes, however issues with its construct validity were identified. In response in 2019 a new set of assessment blueprints were designed by the SVM and implemented through Curriculum Mapping Software Sofia. These new blueprints aim to identify the alignment of assessments to programme learning outcomes, module learning outcomes and accreditation standards. These maps provide evidence of how learning outcomes are assessed and by what methods. Ongoing work is underway to finalise assessment item blueprints with all module coordinators to ensure the appropriate sampling of content is undertaken in MCQ and SBA assessment types. The Curriculum Review Committee is using the assessment blueprints and the useful insights to the programme of assessment to identify any unintended or hidden curriculum.

The SVM has developed a comprehensive approach to gathering outcomes data which helps evaluate teaching and assessment approaches across the programme as well the attainment of day one competence at graduation. These data are channelled into the SVM Management team, SVM Executive and critically the SVM Programme Board, CRC and SCRGs to support change which is effective and timely. Examples of outcomes-informed changes are: the new curriculum design, core experiential communication skills training embedded in years 2 &3, the development of longitudinal Professional Growth and Clinical Skills curricula, increased case-based learning and reduced lecture numbers. The SVM has undertaken a comprehensive review of assessment across the curriculum using external examiner feedback, external consultation and has upskilled many faculty through participation in AMEE/ESME online programmes and the International Advanced Assessment Course(link). As a result, the SVM has modernized assessments and developed the MVB Assessment Matrix to collate information across the whole curriculum and demonstrate alignment with Miller's pyramid. In preparation for the modernisation of assessment methods and practices, workshops from both external and internal providers were, and continue to be, delivered to support staff

8.4 Assessment strategies must allow the Establishment to certify student achievement of learning objectives at the level of the programme and individual units of study. The Establishment must ensure that the programmes are delivered in a way that encourages students to take an active role in creating the learning process, and that the assessment of students reflects this approach.

Assessment across the program is underpinned by a programmatic approach which focuses on ensuring that the assessment type is appropriate for the domain of competence being tested (e.g. skills vs knowledge) and aligns to the module's learning outcomes which in turn are mapped to Programme Outcomes (POs). In 2019 the SVM procured a curriculum mapping software (Sofia) which shows how sets of outcomes (e.g. individual teaching activity, module outcomes, assessments) map to the

intended learning outcomes of the programme, domains of competence and accreditation standards. The University focus on module learning outcomes demonstrates the drive towards towards **student–centred learning** in the curriculum and helps to shift the emphasis on the learner as opposed to a coverage model by the teacher. A showcase example where students must take an active role in their learning is provided in Professional Growth 3. In this module students prepare a mindmap using the requirements of Clinical EMS and provide a clear plan of how they will meet those requirements, their learning objectives and their reasoning behind their choice of clinical placement. Students identify their learning objectives for each placement, record them online through the UCD Placements system and then they are approved by the module coordinator

8.5 Methods of formative and summative assessment must be valid and reliable and comprise a variety of approaches. Direct assessment of clinical skills and Day One Competences (some of which may be on simulated patients), must form a significant component of the overall process of assessment. It must also include the quality control of the student logbooks in order to ensure that all clinical procedures, practical and hands-on training planned in the study programme have been fully completed by each individual student.

Day One Competences mapped to ESEVT and VCI are documented in Appendix 2. As described previously, the principle form of assessment of clinical skills and day-one competences in the final clinical year is through the use of DOPS. During the clinical year all students must pass all 18 DOPS. Each DOP can be attempted in a number of clinical services (see DOPS matrix – Annex 3.4). Students present when they feel they are ready to attempt a specific DOP. Failure to complete the DOP satisfactorily prompts feedback and development of a remediation plan. The student can attempt the DOP again in the same rotation (if feasible) or another appropriate rotation. Central oversight of student progress in DOP completion allows identification of a struggling student and supports early intervention to ensure a remediation plan can be put in place and DOPs can all generally be successfully completed in the scheduled modules. During clinical rotations, students are evaluated by faculty as they work alongside them in the provision of clinical service. Enhanced uniformity of approach in evaluating the students and providing feedback was adopted across the rotations in 2019. End of Rotation Evaluation forms have been standardized and are used to collate feedback from members of the clinical team during a rotation and establish if a student's performance meets, exceeds or is below expectations. This assessment evaluates professional attributes including written and verbal communication, teamwork, behaviour, clinical reasoning and case management, health & safety in the work-place. Feedback is given mid-rotation to help students self-regulate their progress and a remediation plan is put in place where deficiencies in skills, knowledge or professionalism are identified.

Comments

Assessment of developing competence is based on Miller's pyramid. We continue to develop a programme of assessment to ensure that an appropriate blend of formative and summative methods is implemented producing a coherent and integrated assessment strategy across the programme. Its strengths include the adoption of evidence-based pedagogical principles that are learner-centred to support students' problem-solving skills and Day One Competence development.

Suggestions for improvement

Currently, reports from external examiners regarding the assessment process are disseminated to the relevant Head of Subject and Section and discussion predominantly occurs at the level of the Module Coordinator. Given the strategic direction of the new spiral scaffolded curriculum, there will be a need to have a more 'joined-up' higher level discussion at the level of the SVM Programme Board and its sub-committee, the Curriculum Review Committee. The use of carefully constructed single-best answer MCQs , interrogating the deeper layers of understanding is a key element of our assessment strategy for clinical subjects. We envisage an increased use of these questions in the years ahead and there will a greater reliance on e-technology to facilitate this process. The SVM is engaging

with senior management in the university regarding the acquisition of appropriate examination software that would greatly facilitate this important process and deliver appropriate on-line proctoring – an issue that has been thrown into sharp relief by the COVID-19 crisis.

Standard 9 - Academic & Support Staff

Standard 9. Academic and support staff

9.1 The Establishment must ensure that all staff are appropriately qualified and prepared for their roles, in agreement with national and EU regulations and must apply fair and transparent processes for the recruitment and development of staff.
A formal training (including good teaching and evaluation practices, learning and elearning resources, biosecurity and QA procedures) must be in place for all staff involved with teaching. Most academic staff (calculated as FTE) involved in veterinary training must be veterinarians. It is expected that more than 2/3 of the instruction that the students receive, as determined by student teaching hours, is delivered by qualified veterinarians.

The SVM's mission is an inclusive community, delivering excellence in education, research and clinical endeavour (Strategic Plan 2019-2024). The SVM places great emphasis on creating an inclusive community, a culture of support and collegiality, and a special learning environment for our students. Successful application for the Athena SWAN Bronze Award, officially bestowed in November 2019, is testimony to this commitment. The supporting Tables provide evidence that the SVM has sufficient faculty with the appropriate qualifications to deliver the programme. The number of faculty employed in the SVM predominantly depends on government Higher Education Authority (HEA) funding (based on its existing Recurrent Grant Allocation Model, relating to fee income from undergraduate students, external income and clinical service (Standard 2, Finances).

UCD has recently developed a new Central Pool Academic Appointments initiative that is aligned with University Strategy key objectives. One of these initiatives is the highly competitive UCD Ad Astra Fellows programme (targeting high potential early-stage academics), launched in March 2019, and a new Assistant Professor (an early career veterinarian) was recruited in January 2020. The Ad Astra scheme was launched again on 6 December 2019 and the SVM was pleased to have been one of the UCD Schools included in the upcoming round. An updated student:faculty ratio was used as the decisive factor in the allocation. The SVM is hopeful that further appointments can be achieved within this innovative scheme, which is currently 'on-hold' because of the financial uncertainty created by the COVID-19 pandemic. The SVM made an unsuccessful 'One Health Theme' application for a professorship under the national HEA-funded Senior Academic Leadership Initiative (SALI), which promoted gender balance at senior academic levels in the Irish higher education sector. We will consider a further application under the 2020 call. The SVM recently advertised internationally, to the level of Full Professor, an externally funded Chair in Veterinary Ethics and Welfare. Societal knowledge, perceptions and expectations regarding the welfare of animals and ethical consideration regarding the keeping and use of animals is rapidly evolving. This prestigious appointment is wholly in keeping with the SVM's new Strategic Plan with its 'One Health-One Welfare' theme. A new externally funded residency programme in morphological pathology will also add an additional member to the team in veterinary pathology in 2020. These new positions are secure.

The current number of academic faculty are listed in Tables 9.2.1 and 9.2.2. Most FTE faculty are veterinarians. However, in the context of our 'One Health-One Welfare' strategy, it is important to note that integration and collaboration of our non-veterinarian colleagues with the SVM and CHAS is a vital ingredient of delivery of excellence in teaching and research. An appropriate example is the integrated academic section of Herd Health and Animal Husbandry, within which veterinarians work collaboratively with colleagues with expertise in nutrition, reproductive biology, food safety and animal welfare, delivering a 'farm-to-fork' ethos which reflects the reality of the need for an interdisciplinary team approach to the challenges facing the agricultural industry in the 21st century. Furthermore, collaboration between our clinical equine and small animal teams and non-veterinarian colleagues in the academic section of Veterinary Biosciences in areas such as arthritis therapy and treatment of diabetes mellitus is an excellent example of enhanced teaching and research in the context of translational medicine.

UCD provides a comprehensive programme of development opportunities for academic and professional staff, including opportunities for development in T&L, ranging from stand-alone modules right up to Professional Certificate/ Professional Diploma in T&L. Other in-house UCD development opportunities include (for example) specific courses for new staff (UCD Orientation Programme), leadership and management training, mentoring and coaching, personal effectiveness, academic/research development, financial management, teambuilding. Full details are available at http://www.ucd.ie/learninganddevelopment/. There is expertise in the School Academic staff to cover the majority of the curriculum offered by the school. In some limited areas external expertise is brought in to cover some minor areas such as pig and poultry medicine, some specific aspects of food safety (veterinary inspectors).

Faculty development activities are regularly offered to all staff to highlight best practice in veterinary medical assessment and teaching. Residents, interns and temporary faculty are invited and encouraged to attend. Invited veterinary medical/medical assessment experts have provided seminars on a range of topics including assessment, clinical skills teaching and OSCEs. A School Teaching and Learning Special Interest Group has been established which meets monthly to share practice and experience relating to teaching, assessment and feedback and all staff are invited and encouraged to attend.

Over 70% of the academic staff in the UCD School of Veterinary Medicine are veterinarians and they do deliver in excess of 2/3 of the total instruction in the UCD veterinary programme.

The SVM places great emphasis on creating an inclusive community within which there is a culture of support and collegiality and a special learning environment for our students. The SVM's successful application for the Athena SWAN Bronze Award, which was officially bestowed on the SVM in November 2019, is testimony to the commitment to the development of an inclusive community with EDI at its core. SVM takes a proactive approach to providing a positive and engaging cultural environment in which to study and work. Balanced gender representation as part of EDI policy is of core importance in all SVM's cultural activities, including staff and student societies, events, committees and communications.

There are several initiatives underway to ensure that all staff and students are given equal opportunities and encouragement to progress, including the recent launch of three mentorship programmes for Faculty, Postgraduate Students and Postdoctoral Research Fellows. In addition, a number of workshops have been held explaining the promotion process for faculty. Work is underway to ensure that all staff are aware of the many flexible working options available to them. The Sense of Community Working Group is a sub-committee of the Athena SWAN Action Team, tasked with encouraging and supporting a sense of community and belonging in the SVM for all staff and students. The group develops and delivers a number of initiatives to achieve its goals including the running of a community garden, the 'Purl Jam' crafts group, the veterinary sporting greats event, annual carol service and the awarding of the Dean's Inclusion Award for staff or students who have demonstrated outstanding behaviours in the areas of equality, diversity and inclusion during the preceding college year. A number of other events are run throughout the year to celebrate our diverse staff and student base and coincide with international EDI initiatives including International Women's Day, International Men's Day and the Pride Festival. The SVM believes that its exciting on-going development plans involving both the UCDVH and UCD Lyons Farm will facilitate the attraction and retention of a diverse faculty. Furthermore, EDI is embedded in the strategic plans of the SVM, CHAS and UCD. EDI is also a component of UCD's Ad Astra Fellowship programme highlighted above, under 8.1. The SVM continues to explore options for non-exchequer, externally funded posts as part of its development plans. Furthermore, the SVM avails of UCD's exciting 'Rising to the Future 2020-2024' strategy and the ambition for future development and the development of facilities on the UCD campus environment. As an example of this bold ambition, the recently completed UCD Staff Club, which provides a new hub for faculty, staff, alumni and partners of the University to meet, socialise and entertain in an environment befitting a world-class university. Its adjacency to the Veterinary Sciences Building has been an added attraction for the staff of the SVM.

9.2 The total number, qualifications and skills of all staff involved with the programme, including teaching staff, 'adjunct' staff, technical, administrative and support staff, must be sufficient and appropriate to deliver the educational programme and fulfil the Establishment's mission. A procedure must be in place to assess if the staff involved with teaching display competence and effective teaching skills in all relevant aspects of the curriculum that they teach, regardless of whether they are full or part time, residents, interns or other postgraduate students, adjuncts or off-campus contracted teachers.

The required tables show the numbers and range of staff members in the school. The external examiner system used in UK and Ireland ensures that the staff members are assessed in terms of the adequacy of taught modules, standards of assessment and competence of staff at delivering and assessment of modules. Excellence in education is one of the goals in the SVM strategic plan. The SVM has a strong commitment to the development of teaching skills within its staff. Under the leadership of the SVM's Associate Dean for Teaching and Learning (ADTL), examples include the 'VetEd Hub' group and the newly furbished space for a new Clinical Skills Centre (CSC), created in 2017. The new appointment in December 2019 of a full-time CSC coordinator underlines the importance of the clinical skills strand within our new spiral, scaffolded curriculum. The CSC facilitates opportunities for collaborative teaching between students of veterinary medicine and veterinary nursing; creating and developing relationships between future professionals who will be working together in veterinary practice.

Several of our faculty have completed or are currently engaged in UCD's Graduate Certificate/Diploma in Teaching and Learning (T&L) and a small number have completed an equivalent distance learning degree at other institutions such as the Royal Veterinary College. Collaboration with the SVM's Educational Technologist, in the development of innovative teaching methodologies and on-line graduate certificate programmes, sets an example for life-long learning. The SVM has its own 'Special Interest in T&L' group and several faculty have been successful in applications for UCD's Educational Fellowship Programme. Active participation in educational conferences (VetEd), training courses and scholarly activity in veterinary education resulting in peer review publications (e.g. McAloon *et al.*, 2020) and pedagogy is testimony to the SVM's commitment to this key strategic goal.

Tables 9.2.1 and 9.2.2 display details of faculty with the expertise to deliver the MVB degree programme. The SVM has an appropriate balance of veterinarians and non-veterinarians of 71% veterinarians:29% non-veterinarians. It also has a broad range of European Board of Veterinary Specialisation (EBVS)/American Board of Veterinary Specialties board-certified veterinarians (several of whom also possess PhD qualifications). PhD qualified veterinarians within pre-clinical faculty provide a perspective on research careers in the biomedical sciences for veterinarians (Appendix 1). Among our adjunct faculty are several eminent professionals, including senior veterinarians in the Department of Agriculture, Food and the Marine (DAFM) who provide a unique dimension to student teaching, particularly in the area of veterinary public health and statutory aspects of disease surveillance.

Table 9.2.1. Academic staff of the veterinary programme**

Type of Contract	2018-2019	2017-2018	2016-2017	Mean
Permanent (FTE)	61.4	62.4	60.4	61.4
Temporary:				
Associate Professors	0.4	0.4	0.4	0.4
Lecturers / Assistant Profs	5.2	3.2	4.2	4.2
Interns (FTE)	14	10	9	11
Residents (FTE)	18	22	20	20
PhD students (FTE)[1]				
Practitioners (FTE)				
Others (academic and teaching) (FTE)	1	1	1.6	1.2
Total (FTE)	100	99	95.6	98.2

[1]*In UCD PhD students do not contribute to the formal teaching of veterinary students – they may do some minor hourly paid teaching as demonstrators.*

Table 9.2.2. Percentage (%) of veterinarians in academic staff

Type of Contract	2018-2019	2017-2018	2016-2017	Mean
Permanent (FTE)	71	71	70	71
Temporary:(FTE)	100	100	100	100

The SVM has a number of both administrative and technical support staff, who are invaluable and key to the functioning of the school. Administrative staff are located in the School / programme office and within academic sections. Technical support staff located in academic sections and are responsible for a mix of both teaching and research technical support activities. Numbers are listed in Table 9.2.3.

Table 9.2.3. Support staff of the veterinary programme

Type of Contract	2018-2019	2017-2018	2016-2017	Mean
Permanent (FTE)	64.7	64	62.6	63.8
Temporary:(FTE)	29.2	30.2	35.2	31.5
Total (FTE)	93.9	94.2	97.8	95.3

There are also specific dedicated research support staff that are a mix of research assistants and post-doctoral fellows. They are largely on temporary contracts and are hired onto specific research grants to contribute to the delivery of these grants. They report directly to the academic staff member that holds the specific grant.

Table 9.2.4. Research staff of the Establishment

Type of Contract	2018-2019	2017-2018	2016-2017	Mean
Permanent (FTE):				
Research support	2	3	3	2.7
Temporary (FTE):				
Researcher	17	19.8	29.6	22.1
Research support	2.7	2.7	2.7	2.7
Total (FTE)	21.7	25.5	35.3	27.5

It is not expected that there will be any material changes in numbers of academic and support staff over the next 3 years. UCD has recently developed a new Central Pool Academic Appointments initiative that is aligned with University Strategy key objectives. One of these initiatives is the highly competitive UCD Ad Astra Fellows programme (targeting high potential early-stage academics), launched in March 2019, and a new Assistant Professor (an early career veterinarian) was recruited in January 2020. The Ad Astra scheme was launched again on 6 December 2019 and the SVM was

pleased to have been one of the UCD Schools included in the upcoming round. An updated student: faculty ratio was used as the decisive factor in the allocation. The SVM is hopeful that further appointments can be achieved within this innovative scheme, which is currently 'on-hold' because of the financial uncertainty created by the COVID-19 pandemic. The SVM made an unsuccessful 'One Health Theme' application for a professorship under the national HEA-funded Senior Academic Leadership Initiative (SALI), which promoted gender balance at senior academic levels in the Irish higher education sector. We will consider a further application under the 2020 call. The SVM recently advertised internationally, to the level of Full Professor, an externally funded Chair in Veterinary Ethics and Welfare. Societal knowledge, perceptions and expectations regarding the welfare of animals and ethical consideration regarding the keeping and use of animals is rapidly evolving. This prestigious appointment (expected to be taken up in 2021) is wholly in keeping with the SVM's new Strategic Plan with its 'One Health-One Welfare' theme. A new externally funded residency programme in morphological pathology will also add an additional member to the team in veterinary pathology in 2020. These new positions are secure. Recruitment of academic staff involves national and international advertisement of positions. Shortlisting and interview panels are generally made up of a Presidents representative, College Principal representative, Dean, Head of Discipline and external member (cognate subject area) with appropriate gender balance. Candidates are shortlisted and then interviewed with a successful candidate selected following interview and presentation of a seminar (https://www.ucd.ie/hr/resourcing/interviewselectionprocess/#d.en.33742).

An induction period of three years normally applies to all permanent Lecturer/Assistant Professor appointments. The first year of the induction period runs concurrently with the probationary period. Faculty appointed as Associate Professor are required to complete an induction period. The attainment of tenure is an important step in the professional life of all faculty. The benefits of tenure include the right to enjoy the full protection of the Universities Act, 1997 in relation to terms and conditions of employment, to be a voting member of the College to which their SVM is affiliated, and to be a member of their SVM Committee. The requirements for tenure are as follows:

• Academic achievement demonstrated by the possession of a doctoral degree or its recognised equivalent; and
• Certification from the Dean of the SVM of evidence of:
    (i) Satisfactory performance in lecturing and other relevant teaching duties
    (ii) Satisfactory engagement in research and scholarship evidence by publication in appropriate journals and/ or books by academic publishers and/or postgraduate supervision, and (iii) Satisfactory involvement in the activities of the SVM

Faculty development activities are regularly offered to all staff to highlight best practice in veterinary medical assessment and teaching. All academic staff, residents, interns and temporary faculty are invited and encouraged to attend. Invited veterinary medical/medical assessment experts have provided seminars on a range of topics including assessment, clinical skills teaching and OSCEs. A School Teaching and Learning Special Interest Group has been established which meets monthly to share practice and experience relating to teaching, assessment and feedback and all staff are invited and encouraged to attend.

The appointment procedure of support staff is the responsibility of line managers. A job description is created or updated in accordance with HR Department Guidelines and Regulations. Positions are approved as part of the yearly School staff budget plan. A request is initially sent to the College Finance Office for approval via the HR Online Hire System. Once approved, the post is passed to HR for advertisement. The position will be advertised on the (internet) heads of unit will select shortlisted applicants following the closing date based on matching mandatory criteria for that post, Degree certifications or vocational training can be supplied via the online application and original documents and references will be requested by HR from the successful applicant in advance of confirmed offer & contract of employment. All the above steps from the approval stage, advertising

to the start of contract are published on the University HR Website. A wide range of Staff development courses are available to Administrative supported under the University P4G Programme (https://www.ucd.ie/peopledevelopment/ourservices/). Through the P4G process staff identify their training needs on a yearly basis. The training courses range from University software for daily operations to personal development/supervisory courses.

UCD has a Consultancy and External Work Policy which permits members of faculty to engage in external consulting in order to expand and maintain their professional competence, keep abreast of developments and innovation in the context of the professions and business, and to support the Irish economy and enhance the reputation of the SVM and UCD by sharing clinical, scientific and academic knowledge with the veterinary profession and other relevant professions and the business community. There are two broad categories of external work covered under this policy:

- *External work undertaken in a private capacity*, either private consulting (Devlin Time) or Pro Bono Activity. Private consulting (Devlin Time) is defined as an academic member of staff on a purely private basis, without recourse to any form of university resources, facilities or insurance indemnification. The remuneration element of this work is a matter which is private to the staff member and the entity on whose behalf he/she is undertaking the work. Pro Bono Activity is defined as work which the staff member undertakes on an unpaid basis and which relates to the staff member's discipline (e.g. where professional advice in the discipline is offered on a pro bono basis to voluntary organisations / relevant individuals). It does not include general community or social based work which does not relate to the staff member's area of expertise.
- *University Consulting*, either with or without remuneration to the staff member. University Consulting with no remuneration to a staff member is defined as work which the university has contracted for with a third party, from which revenue is received by the university, but for which the relevant staff member does not receive remuneration. Consulting activity with remuneration to a staff member is defined as work which the university has contracted for with a third party, from which revenue is received by the university from which a staff member may make claim for payment.

The Consultancy and External Work Policy outlines policies and procedures for each of these categories of external work. The following broad policies apply:

- The activities are related to the academic and professional interests of staff.
- All external activities (both external work & university consulting) do not exceed two sessions per week, or 20% of working time.
- External activities do not interfere with the performance of normal academic duties and are recommended by the Dean
- External activities do not give rise to any conflict of interest for the individual member of staff or for the university
- Approval to undertake private consulting (Devlin Time) and pro bono work will be given by the HOS (through Info Hub) College Principal or VP

Several members of faculty have engaged with ConsultUCD (https://www.ucd.ie/innovation/consultucd) which offers entrepreneurial advice and includes the NovaUCD centre which offers a purpose-built, state-of-the-art incubation facility for knowledge-intensive companies and provides a comprehensive business support programme for client companies as well as facilitated access to the NovaUCD network of researchers, business leaders and investors.

9.3 Staff must be given opportunities to develop and extend their teaching and assessment knowledge and must be encouraged to improve their skills. Opportunities for didactic and pedagogic training and specialisation must be available. The Establishment must clearly define any systems of reward for teaching excellence in operation. Academic positions must offer the security and benefits necessary to maintain stability, continuity, and competence of the academic staff. Academic staff must have a

balanced workload of teaching, research and service depending on their role. They must have reasonable opportunities and resources for participation in scholarly activities.

UCD provides a comprehensive programme of development opportunities for academic and professional staff, including opportunities for development in T&L, ranging from stand-alone modules right up to Professional Certificate/ Professional Diploma in T&L. Other in-house UCD development opportunities include (for example) specific courses for new staff (UCD Orientation Programme), leadership and management training, mentoring and coaching, personal effectiveness, academic/research development, financial management, teambuilding. Full details are available at http://www.ucd.ie/learninganddevelopment/. UCD also provides opportunities for staff to apply for teaching awards and scholarly opportunities to develop, publish, and contribute to education and veterinary education literature (we have numerous staff that publish in relevant education relater journals).

Several female members of faculty have been successful with applications to the Aurora Leadership programme, an innovative leadership development training programme aimed at women up to Associate Professor and equivalent professional services level. It aims to encourage women in academic and professional roles to think of themselves as leaders, to develop leadership skills, and to help institutions like UCD optimise the leadership potential of women. Furthermore, Heads of Section and the Dean have availed of leadership training arranged by the Roffey Park Institute with the support of UCD HR.

Commencing in March 2019, the P4G programme provides the opportunity for all UCD employees to have at least one annual conversation with their line manager, the Dean, or alternate reviewer, within which achievements and challenges of the previous year are reflected on; goals and objectives for the coming year are agreed; a personal development plan, if required, is discussed and agreed; career aspirations are explored and supported where possible. P4G is informed by and supports the UCD Strategy generally, and in particular Goal 6 within the SVM Strategic Plan (2019-2024) to deliver an 'inclusive and empowering community' in which every member is enabled to achieve their full potential. The P4G process is managed using UCD's InfoHub (https://sisweb.ucd.ie/usis/W_HU_MENU.InfoHubMenu) and facilitated by the SVM's Office Manager and the SVM's HR Partner Mr. Enda Bennett who assists the SVM management team, its Heads of Section and general staff across a whole range of HR issues. On commencement, a SVM-specific meeting for reviewers was held by the Dean and HR Partner, a follow-up review meeting was held in December 2019, and the programme will re-commence shortly.

Outside these UCD programmes, the SVM also provides opportunities for academic and professional staff to undertake specific programmes of development, education or training aligned to their specific role. Where this requires a significant investment on the part of the SVM, the proposal is considered by the SMT. A budget is provided for all academic and other staff providing clinical services to fulfil their continuing education requirements as stipulated by the Veterinary Council of Ireland and/or Specialist Board.

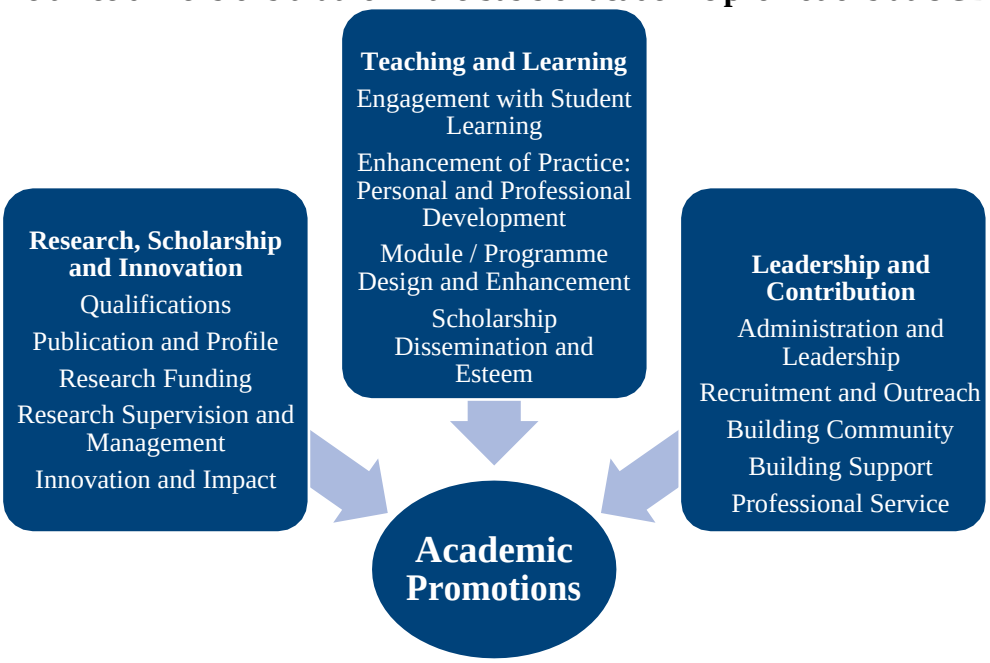
Academic staff contracts in UCD are normally divided 40% research, 40% teaching / continuing education and 20% administration / leadership roles. Academic staff within the clinical setting are normally 50% clinical service, with 50% off-clinics split between other teaching / continuing education, research and administration / leadership roles. There is no difference between permanent and temporary and specific variants from this may be agreed with line managers.

UCD has a research sabbatical leave policy for faculty which applies to all permanent members of faculty engaged in teaching. Research sabbatical leave will be granted in the pursuit of research or scholarly work, either within the University or elsewhere, which necessitates studying for a particular defined period. Research sabbatical leave is granted with the recommendation of the Dean with the support of the College Principal.

9.4 The Establishment must provide evidence that it utilises a well-defined, comprehensive and publicised programme for the professional growth and development of academic and support staff, including formal appraisal and informal mentoring procedures. Staff must have the opportunity to contribute to the Establishment's direction and decision-making processes. Promotion criteria for academic and support staff must be clear and explicit. Promotions for teaching staff must recognise excellence in, and (if permitted by the national or university law) place equal emphasis on all aspects of teaching (including clinical teaching), research, service and other scholarly activities.

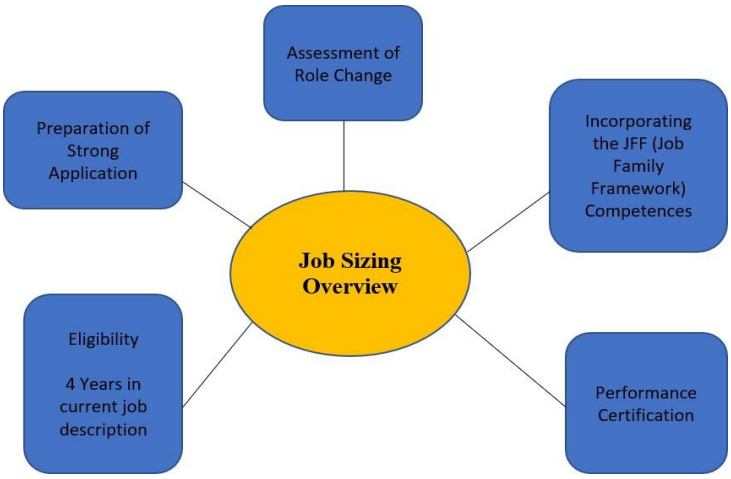
The academic career structure includes the grades of Assistant Professor, Associate Professor, Professor and Full Professor. Additional promotional pathways, through Competitive Retention or Senior Administrative pathways, also exist. A comprehensive account of the University's Promotion and Tenure policies is available at http://www.ucd.ie/hr/promotions/. All applications are judged on an individual basis against the DFF (Development Framework for Faculty)**.** There is no internal quota system in place for faculty promotions. Normally a period of continuous employment of three years at UCD is expected prior to applying for promotion. Simultaneous applications for promotion to different levels are not permitted. An applicant's work is evaluated under three dimensions. These three dimensions that form the basis of Academic Promotions at UCD are shown (Figure 9.1). All academics are expected to attain *satisfactory* achievement across each of the dimensions. In addition, Associate Professors are expected to be working at the level of *'substantial'*, Professors at the level of *'outstanding'* and Full Professors at the level of *'exceptional'* achievement. In recognition of SVM representations that academics with substantial clinical responsibilities in UCDVH were disadvantaged in the previous promotions process, the DFF outlines a list of criteria within the Leadership and Contribution dimension (under Professional/Clinical Service) for clinical achievement at satisfactory, substantial, outstanding and exceptional levels. The SVM is aware of the residual anxiety amongst clinical faculty. In this context, clinicians have attended UCD information sessions about the DFF and the Dean and College Principal have encouraged them to apply for promotion as application rates by UCD Veterinary Hospital (UCDVH) clinicians have been low. Further, two members of faculty who work within UCDVH were successfully promoted from Assistant Professor to Associate Professor. Within the context of the Athena SWAN process, two workshops to encourage hospital clinicians to apply for promotion were held in March and May 2019 with the participation of the Dean and members of the SMT. One of these workshops was led by the CHAS Principal Professor Cecily Kelleher and Deputy President and Registrar of the University, Professor Mark Rogers. UCDVH clinicians found these workshops very helpful and have been encouraged to apply for promotion under the new DFF, following discussion with their Head of Section and Dean. The recently introduced Performance For Growth (P4G) programme has facilitated conversations on promotion. The DFF takes account of part-time staff, staff on fixed-term contracts and staff that have taken periods of leave. Staff working less than 1 FTE are expected to have the same quality, but a proportionately lower quantity, of achievement. Applications are considered at monthly meetings of the Faculty Promotions Committee. All candidates are given written feedback, with the opportunity for oral feedback to unsuccessful candidates.

Figure 9.1 The three dimensions that form the basis of academic promotions at UCD



Job sizing (previously job grading; Figure 9.2) is the University process by which the grade for a particular support role is established. It is an assessment of a role, not a person. Job sizing framework allows for a review of roles which are considered to have grown over the years and for them to be assessed and potentially regraded and then for the incumbent, subject to certain conditions, to be promoted without competition. The role must have grown across the factors on which such jobs are sized in UCD i.e. work complexity, decision-making, impact, capability, relationships, supervision.

Figure 9.2 Job sizing for support staff roles – overview



9.5 A system for assessment of teaching staff must be in operation and must include student participation. Results must be available to those undertaking external reviews and commented upon in reports.

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

SVM Programme Board. Major issues, such as curriculum review, involve all academics within the school. 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. 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 year of the programme. In line with UCD's pilot Student Feedback project, UCD Veterinary Medicine implements an online questionnaire for each semester of the MVB year, 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 SVM 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).

Comments

Although corporate practice investment has not been as significant in Ireland as it has been in the USA and UK, its entry to the market over recent years poses risks in the context of staff recruitment and retention as well as in case recruitment. The SVM has actively sought to recruit, train and mentor young academic clinicians to provide a rewarding long-term career within the university. We have also sought to create niche areas by investing in new staff and equipment (e.g. oncology, MRI) to obtain a competitive advantage. House prices and the cost of living in the Dublin area are high and in addition to this, some anxiety exists amongst early career veterinary hospital clinicians in the context of promotion and career progression. This concern stems to a significant degree from the previous UCD quota-based, benchmarking system. However, since May 2016 applications for promotion by faculty members are considered on a rolling basis within the UCD Development Framework for Faculty and the SVM is actively supporting and encouraging clinicians to apply within this new system.

Suggestions for improvement

Increasing the number of academic faculty is a key objective and the SVM will continue to pursue additional posts under UCD's AD Astra Fellowship scheme when the it re-activates. The numbers of faculty applying for sabbatical leave in the SVM is small and the SVM should reflect with UCD HR on sabbatical policy and culture.

Standard 10 - Research Programmes, Continuing & Postgraduate Education

Standard 10. Research programmes, continuing and postgraduate education

10.1 The Establishment must demonstrate significant and broad research activities of staff that integrate with and strengthen the veterinary degree programme through research-based teaching.

UCD is a research-intensive university with global standing and impact. As outlined in the UCD Strategy 2020-24, the university strives to provide an inclusive educational experience that defines international best practice and prepares graduates to thrive in present and future societies. Within the University, and the School, research informs teaching. Staff have both research and teaching responsibilities, and each are valued equally. Evidence-based veterinary medicine is at the core of the veterinary curriculum, and students are encouraged to develop a depth and breadth of learning within an environment linked to critical enquiry and the ongoing advancement of knowledge. Students are supported to develop the required knowledge, skills, and professional attributes for day one entry to the veterinary profession, and to become lifelong learners, problem solvers and global citizens.
Staff at the SVM are highly research-active, and this is reflected in the QS global ranking of UCD for the subject area of Veterinary Science (world ranking was 26 in 2019- see: https://www.topuniversities.com/; Annex 10.1.

Table 10.1.1a Papers and other outputs published over the past three years

	2018-19	2017-18	2016-17	Total
Book		1	1	2
Book Chapter	6	4	18	28
Edited Book			1	1
Conference Contribution	19	13	18	50
Conference Papers & Posters	52	69	69	190
Internet publication	1		37	38
Journal article	172	178	198	548
Media		1		1
Other		1	6	7
Patent	1	3	1	5
Presentation		2	1	3
Report		3	2	5
Grand Total	**251**	**275**	**352**	**878**

Faculty staff sit on at least 39 different external research panels and at least 55 different advisory or editorial boards. During 2016-19, faculty gave more than 190 presentations at poster sessions at various meetings, and there were at least 600 journal publications. These numbers may not include all presentations that would have been made by PhD candidates, post-doctoral or technical staff, as these are not captured by the university research management system. A listing of publications is provided in Appendix 5.

Table 10.1.1b. List of the main funded research programmes in the establishment that were carried out over the course of the last complete academic year

Project Title	Project Funding Category	Annual Funding (Euros)	Duration (Years)
Development of Next-Generation Control Tools for Bovine Tuberculosis: A One Health Approach	National	184,951.90	5.00
Next generation approaches to improved diagnostics and molecular epidemiology for control of Mycobacterium avium subsp. paratuberculosis (NexusMAP)	National	170,918.65	4.00
Surveillance Welfare and Biosecurity of Farmed Animals (SWAB)	National	159,638.24	2.00
Clean Broilers through Enhanced Farm Biosecurity Processing Prerequisites and HACCP Based Interventions (Clean Broilers)	National	159,072.63	4.00
The Macroalgal Fibre Initiative: 'natural molecules naturally'	National	134,458.25	4.00
Medical devices for buccal delivery of bioactive drugs: an SFI CURAM core project	National	108,123.33	6.00
The role of dietary feed additives in modulating rumen fermentation disruptions and the subsequent inflammatory responses in lactating dairy cows	National, Business	106,177.00	2.00
Bilateral BBSRC-SFI: Tackling a multi-host pathogen problem - phylodynamic analyses of the epidemiology of M. bovis in Britain and Ireland	National	105,606.90	3.00
Innovative Dairy Production Systems and Technologies (DairyTech)	National	104,674.82	4.00
Albumin particles for intra-articular delivery of celecoxib to treat osteoarthritic inflammation. (IA-NANO)	International	98,295.36	2.00
Investigation of respiratory disease on Irish pig farms associated risk factors and the relationship with performance welfare and antimicrobial use (Pathsurvpig)	National	92,023.50	4.00
A multidisciplinary approach to identifying viruses circulating in Northern Zimbabwe	International Business	86,994.00	2.07
Development of blood tests for the diagnosis of tuberculosis in cattle	National	85,344.57	19.00
NANOstructured oSteoChOndral scaffold: novel biomimetic tRiggErS for enhanced bone regeneration (NANO-SCORES)	National	81,144.27	3.00
Application of New and Emerging Technologies to Develop Vaccines against Fasciola hepatica	National	78,908.70	5.00
Antimicrobial Use and Resistance in Animal Production (AMURAP)	National	75,762.71	4.00
SMARTSWARD: Future Proofing Irish Livestock Sustainability	National	68,089.85	4.00
Defining the molecular basis of host-pathogen interaction in bovine TB	International	59,466.67	3.00
TP15: Intestinal permeability of a proprietary series of bioactive peptides discovered as by-products in foodstuffs: towards oral formulation design	National, Business	57,500.50	2.00

Understanding physicochemical interactions between selected intestinal permeation enhancers and glucagon-like-Peptide 1 (GLP-1) analogues to enable oral formulation design	International Business	52,000.00	1.50
Dairy Calf Housing and Pneumonia	National	50,050.00	4.00
Centre for Veterinary Epidemiology and Risk Analysis: a portfolio of research projects	National	49,538.87	19.00
Supporting Student Success - A Collaborative Approach to Enhancing Engagement Employability and Life Skills	National	49,497.28	3.00
Development of high-output grass-based spring milk production system	National	48,032.83	3.00
The prevalence and control of ectoparasites in cattle in Ireland	National, Business	46,975.00	2.00
UCD2 Transatlantic One Health Alliance	International Business	45,000.00	4.00
Bioeconomy Research Centre (BEACON)	National	43,717.58	6.00
The interaction between genotype and nutrition in high yielding dairy cows in seasonal grass based systems of milk production (NutriGen)	National	39,997.15	4.00
AMBER Spoke SFI Funding	National, Private Donations	36,400.00	5.00
Development of a vaccine for the control of tuberculosis in badgers	National	32,089.24	19.00
Other projects -annual budget <30,000- see **Annex 10.2** for full listing		864,186.94	
Total annual funding		3,374,636.73	

The School has a number of areas of research excellence, including One Health, translational research, veterinary epidemiology and national disease control and veterinary clinical studies.

One Health. The UCD One Health research programme, comprises scientists, engineers and veterinary and medical clinicians, working collaboratively to maximise the health and well-being of humans, animals and the environment through academic excellence, education and outreach. Areas of relevance to veterinary medicine include antimicrobial resistance and food safety, emerging infections, zoonoses and comparative oncology. Research is integrated into teaching (e.g. VET20180: Introduction to One Health-Bridging Human & Veterinary Medical Science) to ensure that the student body is aware of relevant new advances. The STAR programme (established by the UCD[2] Transatlantic One Health Alliance and sponsored by Zoetis) is an undergraduate research exchange programme between UCD and UC Davis which provides opportunities for undergraduate students to participate in One Health research. Commencing in 2017, two students annually (one each from UCD and University of California Davis) have taken part in this student exchange programme. UCD students present their research at the annual Student Summer Research Awards (SSRA) symposium, which integrates veterinary and human medicine. Alice O'Byrne (Year 4 MVB) won the Bronze Medal in 2017 with her project on molecular epidemiology of Sarcocystis neurona from land to sea: in opossums and marine mammals from western Washington. Martha Crowe (Year 3 MVB) won the Bronze medal in 2019 for 'investigation of AMR in free-range pigs in Ireland. Students of veterinary medicine are also members of the student-led One Health society, which organises seminars and an annual conference. In October 2018, the conference took place in Edinburgh with the theme ‘Vet Futures One Health Week, a British Isles university-wide celebration of One Health and its importance from Zika to climate change, antibiotics resistance to mass extinctions, pharmaceutical patents to maternal health in low income countries’.

Translational Research. This research theme encompasses research groups developing new and improved diagnostics, drug delivery, regenerative medicine and the bioeconomy. Recent highlights

include the development of nanostructured osteochondral scaffolds and their use translated in the equine clinical practice to restore the joint (funded by the Science Foundation Ireland/Health Research Board translational research award and Horizon 2020) and the use of nanotechnology for oral delivery of nutraceuticals, micronutrients and medicines. This latter area has attracted major funding from both national and international sources, including DAFM, SFI the Centre in Medical Devices 2014-2020 and FP7 (http://www.trans-int.eu/). Translational research is integrated into the teaching of veterinary medicine to highlight new advances across these various areas (e.g. VET40390 Evaluation of poor performance; VET30160 Introduction to clinical medicine and surgery). In Clinical extra-mural studies (CEMS), students have the opportunity to participate in research projects for up to 6 weeks. Student training grants such as the Thomas O'Hanlon award and Student Summer Research Awards (SSRA) also provide opportunities for undergraduate veterinary medicine students to participate in translational research.

Veterinary epidemiology and national disease control. Under this theme, research is conducted by the UCD Centre for Veterinary Epidemiology and Risk Analysis (CVERA), the Bovine Tuberculosis Diagnostics and Immunology Research Laboratory, and those within Veterinary Public Health & Food Safety. Research undertaken in these areas is frequently used to support and inform national & international policy development, implementation & evaluation. CVERA provides epidemiological support for the control and eradication of regulatory animal diseases, including the national eradication programme for bovine tuberculosis, and staff work closely with national policy-makers, both in government and industry. CVERA also contributes to training in veterinary medicine, both to undergraduates and postgraduates and emerging knowledge from this initiative is also used in undergraduate and postgraduate teaching. The Tuberculosis Diagnostics and Immunology Research Laboratory has demonstrated that field vaccination of badgers with BCG generates high levels of protective immunity against tuberculosis under natural conditions. Within the 4th year of the undergraduate programme, particularly in VET30170 Veterinary Herd Health and Population Medicine, there are several lectures to undergraduates focusing on current developments in national disease control programmes (bTB, BVD, Johne's disease), as well as the work of the European Food Safety Authority in assisting the European Commission in controlling the current African Swine Fever (ASF) epidemic. The Veterinary Public Health & Food Safety group are involved in a diverse range of epidemiological and risk assessment- based studies designed to identify potential risk factors and evaluate potential control measures for preventing or reducing the prevalence of foodborne pathogens along the food chain. Outputs from this research are frequently disseminated to relevant external stakeholders including the national Department of Agriculture (DAFM) and the Food Safety Authority of Ireland to inform national policy, and also to support commercial operators within the Irish agrifood sector. The latest knowledge and expertise from this research is taught in VET30060 (Veterinary Public Health I) and VET30140 (Veterinary Public Health II).

Veterinary Clinical Studies. Clinical research in small animals investigates recent developments in neuropathology including greyhound meningoencephalitis and feline immunodeficiency virus associated neuropathology, diagnostic imaging of the brain of small animals using high-field magnetic resonance imaging (MRI) and Short Tau Inversion Recovery (STIR) MRI pulse sequences for visualisation of canine lumbar spinal nerve roots, and small animal endocrinology, with a focus on areas such as feline and canine hyperthyroidism, canine hyperadrenocorticism and diabetes mellitus. Large animal research incudes equine exercise and physiology assessment of the energetic benefits of supplements on thoroughbred horses and equine respiratory muscle training, which is a new clinical and performance tool funded by Enterprise Ireland. The Dean's Lunchtime Clinical Club takes place at lunchtime on Tuesdays during term (https://www.ucd.ie/vetmed/newsandevents/deanslunchtimeclinicalclub/). The talks are aimed at pre-clinical undergraduate students. They are case-based and focus on the clinical work taking place in the UCD Veterinary Hospital and research within the SVM. DVMS students also present their clinical work to undergraduate students. Module VET50040 includes the Residents' Journal Club for critical appraisal of articles and keeping up to date with the current literature.

10.2 All students must be trained in scientific method and research techniques relevant to evidence-based veterinary medicine and must have opportunities to participate in research programmes. Throughout the undergraduate curriculum, the School places considerable emphasis on evidence-based veterinary medicine, with a focus on the critical review of literature relevant to veterinary medicine to improve clinical practice and decision-making. Further, within the recently revised curriculum, the spiral Professionalism Strand includes an evidence-based veterinary medicine theme. This Strand will interdigitate with existing modules within each year to enhance this progressive development of research skills. Programme outcomes include the ability to "review and critically analyse the literature relevant to veterinary medicine to improve clinical practice and decision-making in an evidence-based approach" (mapping to AVMA Standard 11, Competency 9), 'recognise limitations in knowledge / clinical skills and demonstrate awareness of when and from where to seek professional advice / assistance / support', 'demonstrate lifelong learning skills to enhance areas of professional competence' and 'demonstrate comprehensive problem solving skills in a range of veterinary contexts'. Of the 53 non-elective, non-optional modules within the Programme, 17 (32.1 %) individual module learning outcomes directly map to the above research-related programme outcomes. However, in a recent survey of Module Coordinators, 51/53 (96.2%) module coordinators confirmed exposure to or participation in research on at least some level of Bloom's taxonomy within their module. Students are required to complete substantive scientifically-based assignments throughout the programme. Many generic research skills are taught in the core undergraduate Year 1 module VET10170 while in the same semester, students work in groups to write a 5000-word essay appropriately citing the surveyed literature (VET10050). Research ethics are discussed in VET30430 (Animal Behaviour and Welfare). In Year 2, students are asked to write a review of a topics in genetics and animal breeding that is of interest to them and are expected to appraise the content and conclusions of research papers (VET20050). Indeed, most undergraduate Year 1 and 2 and graduate entry Year 1 modules include desired learning at the level of 'at least remember, understand and apply research skills, such as understanding the evidence-based approach, and application of evidence from the literature' (e.g. VET30430, VET30440). Practical laboratory-based experiments and data management are undertaken in some of these modules (e.g. VET30330, VET30500).

Within the subsequent clinical years, research evidence to support clinical recommendations is highlighted in most modules, and students are directed to analyse and evaluate key research studies (e.g. VET30050, VET30470, VET30450). Students are required to write a critical literature review as part of the evaluation of modules VET30060, VET30370, VET30390 and VET30140. In other modules, self-directed evaluation of the literature is required to complete assignments (e.g. VET30050, VET30510, VET30090). Almost all Year 5 modules include desired research learning that spans all six levels of Bloom's taxonomy, including the creation of structured, evidence-based clinical plans that are presented within clinical rotations as written or oral reports (e.g. VET40260, VET40290). Clinical rotation assessment includes the requirement to use an evidence-based approach to support clinical decision making, and to source, critically analyse and apply knowledge in relation to clinical cases. Students also frequently participate in the collection of data for clinical research during rotations (e.g. VET40280, VET40290). Within the recently revised curriculum, the spiral professionalism strand includes an evidence-based veterinary medicine theme. This strand will interdigitate with existing modules within each year to enhance this progressive development of research skills. Implementation of improved module mapping software will also increase the visibility of research exposure within the programme. Numbers of undergraduate students directly involved with research and publications in the school are listed in Annex 10.3.

There are a number of organised events which highlight the importance of research to all students. The One Health Society holds a week of seminars with invited national and international speakers annually during October. Students are regularly invited to attend other One Health seminars e.g. comparative oncology meeting (Feb 2019) and UCD- squared research seminar showcasing collaborative projects between UCD and UC Davis (May 2019), thus replacing the Zoetis sponsored

talks that invited international experts four times a year until 2018. In 2017, the Dean initiated a weekly clinical lunchtime seminar series for students throughout the semesters giving residents, post and undergraduate students the opportunity to present challenging clinical cases or various clinical research topics and news. One of the days is specifically devoted to summer research projects where 4 students present their project to encourage others to partake. In 2018, the monthly CURE seminar series where postgraduate researchers presented their work was amalgamated with the Clinical lunchtime seminar to give students more opportunity to hear about research activities at the SVM. Final year students have the option to attend weekly Resident seminars, where Residents from the UVH present their clinical research areas of interest.

The UCD Veterinary Society and the farm animal veterinary society organize weekly evening talks on a wide range of topics including career paths, clinical work and occasionally research throughout the semesters. The UCD microbiology society organizes monthly research seminars and promote them to all students. The Conway Institute runs a weekly science research seminar series, which is open to all.

Student Participation in Research
Undergraduate students are provided with a range of opportunities to be involved in research. The following offerings are available to students to take on a voluntary basis.

The **Student Summer Research Awards (SSRA) Program** is run through the UCD School of Medicine. Each year, undergraduate students from medical-based programs (e.g. veterinary medicine, veterinary nursing, medicine, physiotherapy) undertake an eight-week supervised laboratory or clinical research project in Ireland or at a collaborative institution. MVB students identify a faculty mentor they would like to work with and together they develop a research proposal. The faculty mentor ensures that the student experiences all aspects of research, for example becoming a member of a research team, attending lab meetings, learning research skills. Most students undertake a wet-lab based projects, however some students have completed survey-based projects, being involved in all aspects of the project from the initial concept, to designing questions, distributing the survey, analyzing data and writing publications. During the summer, meet- ups are organized within the SVM and all summer research students have an opportunity to present their work to staff and to network with other researchers. Students participating in the SSRA receive workshops on research integrity and poster design. They submit an abstract and design a poster. The program culminates in the Annual Student Summer Research Awards where all students present at a poster evening. Posters are reviewed by teams of staff from the UCD Colleges of Health and Agricultural Science and of Science, together with patient advocates. Ten students are shortlisted to present an oral presentation of their work at the Gold Medal evening. Veterinary students have been represented at the gold medal evening for the last number of years. Each year, students from UCD are encouraged to participate in the UCDavis **STAR Program** as part of the UCD-squared initiative. Competitive funding is available from Zoetis and UCDavis for students to work with an established faculty mentor in Davis and gain insight into a research career. Students can undertake research as part of their clinical extra-mural studies (CEMS) module. Students undertake 26 weeks CEMS from semester 2 in year 3. Up to 6 weeks of this can be for research. The research work should be clinically focused, and students generally work undertake research with staff in the SVM.

Each year, students apply for the **professional work experience program** in DAFM. A representative from DAFM comes to speak to the students, roles are advertised competitively and the students must apply for them. These roles are in the central/regional veterinary centres. They generally involve data analysis or advice development (based on an analysis of best practice) and give students an insight into what it is like to work for a government department, which is an alternate career choice open to them. Generally, 2-4 students are placed with DAFM, however in 2019 a number of new roles were opened up and 7 students undertook placements. Students are facilitated

to take a year out from the veterinary degree course to study for an **intercalated degree** in another subject. A number of courses are available at Universities around the UK such a BSc in Comparative Pathology at the RVC, London, UK.

Students undertaking research work in UCD are supported by a number of **endowments**, (UCD Foundation Awards (Thomas O'Hanlon, John O'Connor, White Horse Travel Bursary, Paralink Award) to pay a stipend to the student. These bursaries are competitive and students must apply for them by submitting letters of motivation and detailed research proposals. Our undergraduate students are encouraged to work with their academic mentors to write proposals and apply for **other funding sources**. Students have been awarded Wellcome Trust Summer Vacation Scholarships, Morris Animal Foundation Veterinary Student Scholar Award (Brittany Rampersad, 2019) Veterinary British Veterinary Association Overseas Travel Grant for a research project that contributes to sustainable development and good animal welfare in a developing country (2019, Kate Toland).

A **poster session** is run each October, for all students involved in research to present their work to their peers and staff within the SVM. This helps the students to motivate their peers to become involved in the research experience. Many students present posters/oral presentations at international or local meetings (e.g. International Federation of Association of Anatomists or UCD Hospital Conference, Association for Veterinary Teaching and Research Work (Ireland)). In addition, many students contribute to original research articles and are involved in preparing and submitting manuscripts for publication. In 2016, Fergal McDermott's summer research project was included within a paper published in the journal Science (https://dx.doi.org/10.1126/science.aah3783).

10.3 The Establishment must provide advanced postgraduate degree programmes, e.g. PhD, internships, residencies and continuing education programmes that complement and strengthen the veterinary degree programme and are relevant to the needs of the profession and society.

Each year, students commence MSc and PhD research degrees with Principal Investigators within the school. There is no formal programme for graduate research, however, all PhD students in UCD must undertake a structured programme, including 30 ECTS in relevant and complementary topics over the course of their 4 years. The main research topics are One Health, translational research (drug discovery, drug delivery, pharmacology), veterinary public health, parasitology and infectious diseases (e.g. antimicrobial resistance, vaccine development). The School also offers a Doctor of Veterinary Medical Specialisation (DVMS) programme which is conducted in parallel with the requirements of a variety of residency programmes approved in UCD by the European Board of Veterinary Specialisation. This professional doctorate programme, across a series of clinical specialties, incorporates taught elements, supervised professional practice and supervised research with a total credit volume of 270 ECTS. Funding for many of these degrees comes from the exchequer (e.g. Irish Research Council, Walsh Fellowships in conjunction with Teagasc, Ireland's Agriculture and Food development authority).

Within the UCD Veterinary Hospital, interns are hired for one year only as staff members, and as such do not undertake formal postgraduate training. Residents undergoing specialist training must be enrolled in a European Board of Veterinary Specialisation residency programme (or equivalent) for which UCD is an approved provider and is fully accredited and must also enroll in an EQF Level 8 degree (either DVMS or PhD) within their three or four year programme. The DVMS programme is almost always undertaken because clinical training contributes to the award of this degree. In some cases, the volume or seasonality of clinical workload and research requirements may allow completion of a PhD, provided this is permitted by the specialist college involved. To date, this has only happened within the ECAR residency programme.

Table 10.3.1. Number of students enrolled in postgraduate (Residency) clinical training

	2018-19	2017-18	2016-17	Mean
Residents				
EBVS disciplines				
ECVIM-CA (Internal Medicine)	4	4	4	4
ECVDI	3	3	3	3
ECVS (Small Animal)	3	3	3	3
ECVS (Large Animal)	2	2	2	2
ECAR	2	2	2	2
ECVP	1	1	1	1
ECVAA	2	2	2	2
ECEIM	2	2	2	2
EVPC (Parasitology)	1			
Other Programmes (non-EBVS)				
ACVP	1	1	1	1
TOTAL	**21**	**20**	**20**	**20**

Table 10.3.2. Number of students enrolled in postgraduate research training

	2018-19	2017-18	2016-17	Mean
Doctoral Programmes				
PhD	54	51	49	51.3
DVMS	27	24	22	24.3
Total	81	75	71	77
Masters	13	12	12	12.3
TOTAL	94	87	83	88

The numbers of residents listed in Table 10.3.2 were determined by evaluating DVMS programme enrolments each year. Almost all residents are enrolled in a DVMS programme; therefore these numbers are indicative of the number of students engaged in clinical specialist training programmes. However a resident may remain enrolled as a DVMS student following completion of the specialist training programme if the thesis is not complete by that time. Therefore, there is an overestimate of the numbers the residents in clinical training at any single point, and the number of residency positions will therefore not match to the numbers enrolled to the DVMS programme.

Table 10.3.3. Number of students enrolled in other postgraduate programmes offered by the SVM

Course name *(hours)*	**2018-2019**	**2017-2018**	**2016-2017**	**Mean**
Graduate Certificates				
Grad. Cert Small Animal Medicine - 30 ECTS	14	0	20	**11.3**
Grad. Cert. Dairy Herd Health - 30 ECTS*)*	27	26	26	**26.6**
Grad. Cert Equine Medicine	0	20	20	**13.3**
TEARAP- 5 ECTS	68	70	25	**54.3**

Changes in agricultural practice, trends in domestic animal ownership and increasing internationalisation mean that veterinary practitioners are faced with new challenges every day. While veterinarians and veterinary nurses have continually developed their professional and clinical skills throughout their careers, the mandatory requirement for Continuing Veterinary Education (CVE) brings to the fore the need for relevant, timely programmes to meet practitioners' needs. Through the UCD CVE Educational Portal and our graduate certificate programmes, we offer a range of flexible online distance modules and programmes to veterinary practitioners and veterinary nurses

which enable them to undertake part-time study while working. Graduate certificate programmes are offered to those holding a degree in veterinary medicine who wish to attain a post-graduate award through online delivery. These programmes range from 12 – 16 months in duration.

Graduate Certificate in Dairy Herd Health: The programme is designed to equip dairy cattle practitioners with Level 9 NFQ educational outcomes that are relevant and useful at farm level. Graduate Certificate in Small Animal Medicine: This programme is suitable for veterinary surgeons working in small animal practice who wish to develop their approach and knowledge more specifically in this area. It is also suitable for vets wishing to refresh their skills after a career break or new graduates wishing to enhance their skills base. Three other graduate certificate programmes are currently being rested and refreshed; The Graduate Certificate in Equine Sports Medicine, The Graduate Certificate in Veterinary Practice Management and The Graduate Certificate in Canine Sports Medicine. It is our intention to offer these programmes again in the near future, based on demand.

The SVM continuing veterinary education opportunities include three short modules offered through the UCD CVE Educational Portal (ucdcve.wcea.education): CPCA01010 Concepts of Animal Welfare and CPCA01000 Veterinary Ethics. These are funded by the Veterinary Council of Ireland and offered free online to veterinarians who accept veterinary medicine students on placement. A 3-hour course in pig welfare (charged) is also available.

The SVM offers an annual one-day conference, and veterinary practitioners and veterinary nurses from across the country are invited to enroll. An example of a recent Veterinary hospital conference programme is in Annex 10.4. Currently the UCD Vet School is undergoing significant curriculum changes in the MVB programme so the ability to expand the CVE programme is limited, however we do liaise closely with the regulator and with vets in practice to address CVE needs. We currently offer CVE points for training workshops delivered in the Veterinary School (e.g. OSCE examiner training & Communication Skills Facilitators training) and it is our intention to increase offerings of these types of events which are available to UCD Veterinary School staff, vets in practice and colleagues from other educational institutions.

Table 10.3.4 Number of attendees at continuing education courses run by the Establishment

Course name (hours)	**2018-2019**	**2017-2018**	**2016-2017**	Mean
CPCA01010 Concepts of Animal Welfare *(Online - 2 hours)*	52	99	49	66.7
CPCA01000 Veterinary Ethics *(Online - 2 hours)*	45	56	35	45.3
Pig Welfare Indicators Project for TVI's and OV's (PIGWELFIND) *(Online - 3 hours)*	3	2	6	3.7
CPCA00820 Veterinary Nursing supervision *(Online - 4 hours)*	35	48	43	42
CPCA01070 Veterinary Library access *(Online - 1 hour)*	51	24	56	43.7
Annual UCDVH Conference (7 hours)	~550	~550	~550	~550

10.4 The Establishment must have a system of QA to evaluate how research activities provide opportunities for student training and staff promotion, and how research approaches, methods and results are integrated into the veterinary teaching programmes.

Research within the School is overseen by the Associate Dean for Research Innovation and Impact with support from the Research Committee. The role of the Associate Dean is to foster, support and promote and communicate research (& innovation and impact) within (and as relevant outside) the School, to provide leadership and vision, including the development of strategic and implementation plans for research in the School and to represent research (& innovation and impact) within the School, the College and the University. The Research Committee supports the Associate Dean in these tasks. The Research Committee is a standing School committee that meets regularly, generally monthly. Chaired by the Associate Dean, members are drawn from each of the School sections, plus a postgrad/postdoc representative, representatives from UCD Research and administrative support. In the future, members will be appointed following application by expressions of interest, drawn from all sections, with varying levels of research interest and with at least 40% male and at least 40% female members. Membership will last 3 years, renewable once but only under exceptional circumstances. The Research Committee is currently implementing a strategic plan, developed in 2018. Research conducted by clinicians and early career academics has been identified as areas requiring particular assistance, a decision reinforced following annual quantitative review. Communications to staff is undertaken twice-yearly at the School Forum and regularly through the Research Committee e-zine. Further, there is weekly discussion and information sharing between research and teaching and learning, and more broadly, at the senior management team (SMT). The School is an active contributor to the Summer Student Research Awards (SSRA), which offers all students the opportunity to complete a summer research programme. Each year, summer researchers from the previous year, present at lunchtime seminars in the Autumn and Spring trimesters to encourage their peers to take summer research projects. During these seminars, an Committee member talks to the students about potential research opportunities (e.g. the SSRA process, grants to apply for). Information about how to organize a summer research project (a series of FAQs) and details of summer research projects developed by staff members is emailed to all students using targeted communications. Where students are interested in a research project and require guidance, there is a dedicated member of the RIIC to contact. The research committee provides a consumable budget for undergraduate students taking summer research projects with supervisors in the school. The School has access to overhead investment programme (OIP) funding, which is linked to the competitive research funding that is attracted into the School each year. The majority of these funds are allocated following competitive application from staff, based on criteria to emphasis areas requiring particular assistance (see above) and multidisciplinary research. The balance of funds are used to support undergraduate student research and to maintain and purchase essential research equipment.

Comments

Within the UCD School of Veterinary Medicine, two different, but complementary, approaches are used to engage undergraduate students in research.

- Firstly, there is an emphasis on research skills and experience at each year of the undergraduate curriculum. students initially focus on research principles and methods, however, this evolves during the clinical years to the appraisal and integration of research in veterinary medicine. Evidence-based veterinary medicine underpins clinical case management. We are comfortable with these levels of research skills and exposure, but have been concerned about integration, year on year. This issue will be resolved, whilst retaining the strengths of the current system, within the introduction of the new veterinary curriculum, which operationalises vertical integration. There will be a formal vertical research thread throughout the programme as part of the ‘professional studies’ theme, which should solidify and ensure stepwise development of competence in research skills. Further, as part of the

ongoing curricular review, specialised software is being introduced to maximise synergies/avoid overlaps between subjects.

- Secondly, all students have the opportunity for further research involvement, particularly through the SSRA. The SVM has committed considerable resource in building this programme, and it is now an important feature of the undergraduate programme. There is ongoing exploration of ways to maximise broader student understanding of SSRA, and of a sense of achievement for involved students, including an awards event, an annual poster session in the SVM foyer, pizza events, presentations, paid research opportunities through the national Department of Agriculture, Food and the Marine etc.

There are a number of important research-related initiatives within the SVM, which are seeking to build collective research excellence, with flow-on benefits to undergraduate students. These include the development and implementation of a strategic research plan, a number of initiatives to strengthen clinical research (including the hiring of a veterinary research nurse), and the introduction of a staff mentoring programme (with an emphasis on research).

Suggestions for improvement

There are a number of important research-related initiatives within the SVM, seeking to build collective research excellence, with flow-on benefits to undergraduate students. These include the development and implementation of a strategic research plan, a number of initiatives to strengthen clinical research (including the hiring of a veterinary research nurse), and the introduction of a staff mentoring programme (with an emphasis on research).

As reflected previously, there are opportunities for improvement, particularly in relation to skills and experience in scientific writing by undergraduate students. Currently, the School places considerable emphasis on evidence-based veterinary medicine, with a focus in early years on research principles and methods, evolving during clinical years to appraising and integrating research into clinical decision-making. The School is currently transitioning towards a spiral curriculum, and 'Professional Studies' (a vertically integrated module) offering the potential for increased future emphasis on scientific writing.

List of ESEVT Indicators

ESEVT Indicators

	Name of the Establishment:	**UCD School of Veterinary Medicine, University College Dublin**				
	Name & mail of the Head:	**Michael Doherty michael.doherty@ucd.ie**				
	Date of the form filling:					**26-Aug-20**
	Raw data from the last 3 full academic years	**Year -1**	**Year -2**	**Year -3**	**Mean**	
1	n° of FTE academic staff involved in veterinary training	100	99	95.6	98.20	
2	n° of undergraduate students	592	566	563	573.67	
3	n° of FTE veterinarians involved in veterinary training	82	81	77.6	80.20	
4	n° of students graduating annually	114	96	123	111	
5	n° of FTE support staff involved in veterinary training	93.9	94.2	97.8	95.3	
6	n° of hours of practical (non-clinical) training	883	883	883	883	
7	n° of hours of clinical training	992	992	992	992	
8	n° of hours of FSQ & VPH training	200	200	200	200	
9	n° of hours of extra-mural practical training in FSQ & VPH	48	48	48	48	
10	n° of companion animal patients seen intra-murally	7956	7801	7951	7902.66667	
11	n° of ruminant and pig patients seen intra-murally	403	408	420	410.333333	
12	n° of equine patients seen intra-murally	1290	1211	1547	1349.33333	
13	n° of rabbit, rodent, bird and exotic patients seen intra-mura	64	24	24	37.3	
14	n° of companion animal patients seen extra-murally	0	0	0	0.0	
15	n° of individual ruminants and pig patients seen extra-mura	2	1	3	2.0	
16	n° of equine patients seen extra-murally	929	789	959	892.3	
17	n° of visits to ruminant and pig herds	99	83	75	85.7	
18	n° of visits of poultry and farmed rabbit units	0	0	0	0.0	
19	n° of companion animal necropsies	236	241	286	254.3	
20	n° of ruminant and pig necropsies	182	167	114	154.3	
21	n° of equine necropsies	54	45	42	47.0	
22	n° of rabbit, rodent, bird and exotic pet necropsies	159	166	146	157.0	
23	n° of FTE specialised veterinarians involved in veterinary tr	39	37	37	37.7	
24	n° of PhD graduating annually	22	11	7	13.3	

The boxes within the red frames must be filled in by the Establishment (the other values will be automatically calculated)

ESEVT Indicators

Name of the Establishment:	**UCD School of Veterinary Medicine, University College Dublin**				
Date of the form filling:	**26/08/2020**				
Calculated Indicators from raw data		**Establishmen values**	**Median values[1]**	**Minimal values[2]**	**Balance[3]**
I1	n° of FTE academic staff involved in veterinary training / n° of undergraduate studer	0.171	0.15	0.13	0.045
I2	n° of FTE veterinarians involved in veterinary training / n° of students graduating an	0.723	0.84	0.63	0.093
I3	n° of FTE support staff involved in veterinary training / n° of students graduating an	0.859	0.88	0.54	0.319
I4	n° of hours of practical (non-clinical) training	883.000	953.50	700.59	182.410
I5	n° of hours of clinical training	992.000	941.58	704.80	287.200
I6	n° of hours of FSQ & VPH training	200.000	293.50	191.80	8.200
I7	n° of hours of extra-mural practical training in FSQ & VPH	48.000	75.00	31.80	16.200
I8	n° of companion animal patients seen intra-murally / n° of students graduating annua	71.195	62.31	43.58	27.615
I9	n° of ruminant and pig patients seen intra-murally / n° of students graduating annual	3.697	2.49	0.89	2.807
I10	n° of equine patients seen intra-murally / n° of students graduating annually	12.156	4.16	1.53	10.626
I11	n° of rabbit, rodent, bird and exotic seen intra-murally / n° of students graduating an	0.336	3.11	1.16	-0.824
I12	n° of companion animal patients seen extra-murally / n° of students graduating annu	0.000	5.06	0.43	-0.430
I13	n° of individual ruminants and pig patients seen extra-murally / n° of students gradu	0.018	16.26	8.85	-8.832
I14	n° of equine patients seen extra-murally / n° of students graduating annually	8.039	1.80	0.62	7.419
I15	n° of visits to ruminant and pig herds / n° of students graduating annually	0.772	1.29	0.54	0.232
I16	n° of visits of poultry and farmed rabbit units / n° of students graduating annually	0.000	0.11	0.04	-0.045
I17	n° of companion animal necropsies / n° of students graduating annually	2.291	2.11	1.40	0.891
I18	n° of ruminant and pig necropsies / n° of students graduating annually	1.390	1.36	0.90	0.490
I19	n° of equine necropsies / n° of students graduating annually	0.423	0.18	0.10	0.323
I20	n° of rabbit, rodent, bird and exotic pet necropsies / n° of students graduating annual	1.414	2.65	0.88	0.534
I21*	n° of FTE specialised veterinarians involved in veterinary training / n° of students gr	0.339	0.27	0.06	0.279
I22*	n° of PhD graduating annually / n° of students graduating annually	0.120	0.15	0.07	0.050
1	Median values defined by data from Establishments with Accreditation/Approval status in May 2019				
2	Recommended minimal values calculated as the 20th percentile of data from Establishments with Accreditation/Approval status in May 2019				
3	A negative balance indicates that the Indicator is below the recommended minimal value				
*	Indicators used only for statistical purpose				

Foot note: PhDs graduating annually is combined PhDs and DVMS

Glossary

ADTL	Associate Dean for Teaching and Learning
AVMA	American Veterinary Medical Association
BCG	Bacillus Calmette–Guérin
BPEH	Belfield Pet Emergency Hospital
bTB	Bovine Tuberculosis
BVD	Bovine Viral Diarrhoea
CAO	Central Admissions Office
CEMS	Clinical Extra-Mural Studies
CHAS	UCD College of Health and Agricultural Sciences
COE	Council of Education
CRC	Curriculum Review Committee
CSC	Clinical Skills Centre
CVERA	UCD Centre for Veterinary Epidemiology and Risk Analysis
CT	Computerised tomography
DAFM	Department of Agriculture, Food and the Marine
DFF	Development Framework for Faculty
DI	Diagnostic Imaging
DOPS	Directly Observation of Clinical Skills
DSPCA	Dublin Society for the Prevention of Cruelty to Animals
DVMS	Doctor of Veterinary Medical Specialisation
EAB	External Advisory Board
EAEVE	European Association of Establishments for Veterinary Education
EBVS	European Board of Veterinary Specialisation
ECG	Electrocardiograph
EDI	Equality Diversity and Inclusion
EFS	Equine Field Service
EMS	Extramural studies
FACS	Farm Animal Clinical Studies
FTE	Full-Time Equivalent
GAMSAT	Graduate Australian Medical Schools Admission Test
GE	Graduate Entry
GPA	Grade Point Average
HEA	Higher Education Authority
HOS	Head of School
HR	Human relations
ICSI	Intra-cytoplasmic sperm injection
ICU	Intensive care unit
LAS	Large Animal Surgery
LIMS	Laboratory Information Management System
MCQ	Multiple Choice Question
MDR	Multiple drug resistant
MRI	Magnetic Resonance Imaging
MVB	Bachelor of Veterinary Medicine (the undergraduate programme)
OSCE	Observed Clinical Structured Exams
OV	Official Veterinarian
P4G	Performance for Growth
PC	Personal computer
PM	Post mortem
PO	Programme Outcome
PPE	Personal Protection Equipment

QA	Quality Assurance
QQI	Quality and Qualifications Ireland
RCVS	Royal College of Veterinary Scientists
SALI	Senior Academic Leadership Initiative
SAM	Small Animal Medicine
SAS	Small Animal Surgery
SBA	Single best answer
SC	Service Chief
SCRG	Stage Curriculum Review Group
SFI	Science Foundation Ireland
SISWEB	Student Information System
SMT	Senior Management Team
SSRA	Summer Student Research Awards
SVM	School of Veterinary Medicine (the SVM)
T&L	Teaching and learning
UCD	University College Dublin
UC Davis	University of California Davis
UCDVH	UCD Veterinary Hospital
UMT	University Management Team
VCI	Veterinary Council of Ireland
Vet-ASAT	Vet Athena SWAN Action Team
VetSoc	The UCD veterinary society for students
VI	Veterinary Inspector
VLE	Virtual learning environment
VPH	Veterinary Public Health

List of appendices and annexes

Annex 10.1	QS Global Ranking for UCD Veterinary Science
Annex 10.2	Full listing of current research projects in the establishment
Annex 10.3	Involvement of undergraduate veterinary students in research
Annex 10.4	Example UCDVH Conference Programme

Addendum

How the COVID-19 outbreak affected the University College Dublin (UCD) School of Veterinary Medicine (SVM) and actions take to alleviate the impact of the lockdown

Introduction

On Thursday March 12th 2020, Ireland's Taoiseach (Prime Minister) Mr. Leo Varadkar announced that all schools and universities would close from Friday 13th March and that indoor gatherings of more than 100 people and outdoor mass gatherings of more than 500 people would be cancelled; 'social distancing' would become the societal mantra. Running short of turns of phrase to describe the unprecedented situation that we found ourselves in, we were encouraged by the empathy and collegiality that was evident within the School and its affiliated organisations, Veterinary Council of Ireland, Veterinary Ireland, EAEVE, Veterinary Schools Council and AAVMC. The University College Dublin campus emptied of its 30,000 students; final year students of veterinary medicine were taken off clinical rotations in the UCD Veterinary Hospital (UCDVH) which continued to operate an emergency service for referring veterinary practitioners. The UCD Lyons Farm and its staff, under national health service guidelines continued working through a busy spring calving and lambing season.

Immediately, we became aware of the need for a coherent and coordinated approach to communication because the potential for social media confusion and anxiety was high amongst students, staff and society in general. Clarity and coordination of communication to staff and students would be critical at the level of the university management team and the SVM's senior management team (SMT), which adopted an interim role as the School's COVID-19 Contingency Group using ZOOM and WhatsApp. Our Google Community site was used for sharing information and key resources were posted there https://sites.google.com/ucd.ie/sovm.

The senior veterinary student representative from VetSoc was invited to join ZOOM meetings of the SMT, facilitating more efficient communication with a student body more likely to regularly review the VetSoc Facebook page than emails sent by the Dean to their UCDConnect accounts. Our Student Adviser was providing invaluable pastoral support and with the SVM's Communication Manager initiated a special newsletter for all our students, providing support and advice with a focus on mental wellbeing. Members of staff also made a significant contribution in this regard, sending messages of support and helping establish, with the help of VetSoc, an on-line clinical quiz by providing case scenarios.

Our primary concern was the health and safety of our students and staff coupled with a professional responsibility for biosecurity, public health and animal welfare. Never before did our 'One Health-One Welfare' motto seem so appropriate. Whilst most final year veterinary hospital rotations were close to completion, we faced an immediate challenge with the graduating class of 2020, in relation to clinical assessment and graduation.

Across UCD, one of the biggest immediate challenges related to our international students and our position was that should students wish to return to their home country to complete studies online, and it was safe for them to travel, they were permitted to do so under the arrangements which the university has put in place for at-distance teaching and learning. The University also advised that if students travel to another country at this time, they should be alert to the public health, safety and travel advice for that country, and follow its recommendations.

Teaching and Learning

The abrupt closure of the campus in an effort to prevent the spread of COVID-19 resulted in unprecedented challenges to the delivery of the MVB programme with a need to redesign material

for online delivery mid-trimester, with the key objective of ensuring delivery of Day One Competences upon graduation. A key challenge for faculty and teaching support staff when moving to online delivery was designing learning interactions that supported students' active learning and the development of higher order cognitive skills. This move could not be achieved by simply converting face-to-face teaching approaches to an online format; pedagogical considerations had to be made that required a fundamental redesign of modules; these included:

- Developing authentic learning activities;
- Developing rich media learning resources;
- Managing student engagement online;
- Adapting delivery for a variety of learning contexts and online access.

Fortunately for the SVM, blended and online learning has been widely promoted as an educational strategy for several years. Faculty have been encouraged and supported to innovate with educational technologies with the help of our Educational Technologist, the VetEd Hub team and the virtual learning environment, BrightSpace, which, with its 'virtual classroom' prompted staff members to further innovate with blended learning approaches. To deliver module content, faculty developed a series of online lectures and innovative media rich learning resources for students e.g. the creation of videos of the bovine clinical examination – some with obvious errors, others correct. Student engagement was fostered by developing learning activities and discussion forums. Case-based learning resources and activities featured in several modules encouraging students to apply their knowledge to authentic scenarios that would mirror practice. Some modules provided live seminars and tutorials to students and Year 4 students conducted communication skills sessions online by role playing history taking scenarios with actors. Subjects such as diagnostic imaging worked particularly well in a virtual context and feedback from final year students was positive.

However, not all components of the curriculum could be delivered online; rotations in the UCDVH were disrupted and following virtual delivery of material that lent itself to this method and considerable re-working of the timetable, the class of 2021 began on July 20th with intensive hands-on clinical skills teaching set to start in the UCDVH on September 7th.

Assessment

Assessment strategies had to be reconsidered and practical guidelines were developed by the School's VetEd Hub team to complement UCD guidance. Alternatives to regular assessments were 'open book' exams which would assess the students' ability to use information for problem-solving rather than factual recall.

The challenges of assessment were as follows:

- Security of summative assessment;
- Timing (we have students across different time zones);
- Assessment of Practical Skills;
- Variable broadband speeds and reliability for us and our students

In response to these challenges we applied the principles below underpinning the creation of alternative assessment (using Voltaire's 'don't let the perfect be the enemy of good') as a guiding principle. Thus, alternative assessment needed to map to module learning outcomes.

- Workload for the assessment should be proportional to module credit volume;
- Students must be informed of the changes clearly and well in advance of the assessment
- Uniformity of approach (in so far as possible);
    a. this will be helpful for students and lessen anxiety
    b. this will help us work collectively and support each other;

- Approaches chosen should ideally already be familiar to you, reliable and feasible. (Now was not the time for unnecessary experimentation with technology and new pedagogical approaches.)

As security would be a challenge, the following guidelines were used:

- Open book/ semi-open book assessments - all uploaded material would be plagiarism checked using Urkund where possible;
- replacing end of trimester summative assessments with course-work, assignments etc. which can meet the Learning Outcomes;
- Course work - all uploaded material would be plagiarism checked using Urkund;
- An honour system - i.e. - students must self-declare an honest approach- no conferring, use of only permitted resources under the open book rules, no making a copy of the questions (with a link to UCD's Student Conduct Code);
- Informing students there would be random checks on students' performance (egg students who suddenly perform very differently in assessments);
- MCQ tests set up with questions randomised and distractors randomized for each student differently. Time-released and time-limited assessments will limit the opportunity to cheat in this context;
- Replacing some MCQs with *Short Written Answer* questions to minimise impact on the summative question bank.

Timing of exams needed to take consideration of both Irish and international students. The examination schedule was extended from two weeks to three weeks, with 45 exams taking place during this time. Efforts were made to stagger the exams for each student cohort throughout this period and as most international students had returned home, consideration was given to their time zones and how many hours ahead or behind these students were from Dublin time. The SVM's Educational Technologist, created a useful student guide to online exam technical preparation and advice on troubleshooting during an exam. Additional time was given to the standard assessment period to support students if technical issues arose. Feedback was sought from students and this information was used to enhance the teaching, learning and assessment experiences further. For example, faculty facilitating 'check-ins' with students online via BrightSpace and conducting short surveys with students.

Whilst stress and worry was evident, students responded well to the support provided as evidenced by this testimony to the Dean from one of our final year students in the class of 2020.. '*I have just completed my first of 5 online exams… I am so grateful and appreciative of the staff at UCD. Throughout this whole crisis of COVID-19, my academics have not once made it to the top of my list of worries. The support we felt in the hospital setting is felt at home by the continual reassurances and understanding expressed by everyone. I'm heartbroken the conclusion of my veterinary student career is not accompanied by the usual celebrations but I find solace in the companionship of classmates even across great distances and the encouragement and care from professors'.*

Clinical and Pre-Clinical Extra-mural Studies (EMS)

We had an immediate challenge with extra-mural placements and the anxiety that students felt about their ability to complete these, particularly those in the rising final year class of 2021. We appreciated that due to the ongoing COVID-19 crisis, students would have been unable to complete CEMS over the 2-week spring break and that the chance of them completing CEMS during the summer was also unlikely. In these most unprecedented circumstances, we reviewed the requirement for placements and held discussions with the Registrar of the Veterinary Council of Ireland (VCI) and Veterinary Schools Council - with directs links to RCVS. With the support of the Registrar of the VCI, the new requirements would be a 50% reduction in the previous 24 weeks mandatory of Clinical EMS before graduation; the CEMS requirement for the class of 2021 was now 12 weeks. The core weeks of CEMS still had to be completed; 4 weeks small animal practice; 4 weeks farm animal/mixed practice; 2 weeks equine practice; 1 week meat plant; 1 week free choice (research, conference etc.). These

weeks would have to be completed before the end of April 2021. However, if students wished to complete more CEMS and the opportunity was available, they would be welcome to do so (if it didn't interfere with final year rotations. A similar decision was made for the 3rd year class of 2022. Those first and second year students required to complete the 12 weeks of pre-clinical EMS were also given the opportunity to complete this during the summer of 2021.

The UCD Veterinary Hospital

The final year students of veterinary medicine who were currently on rotation were instructed to return home and virtual delivery of material would begin. Clients and referring veterinary practitioners were contacted, all animal patients under care were gradually discharged and the UCD Veterinary Hospital and its Clinical Diagnostic Laboratory would then operate an emergency service only, using separate, biosecure 'A & B' clinical teams.

Helping with the National COVID-19 Effort

Staff and student volunteers contributed and continue to contribute to the national effort to control COVID-19; a contribution that was delivered in the following ways:

- Bolstering public health efforts by assisting with phone line contact-tracing of COVID 19 cases from a centre on the UCD campus;
- Training volunteers to make initial contact calls to the public to advise them of public health guidelines and to escalate calls upwards if necessary;
- Assisting with laboratory training in COVID-19 diagnostic procedures;
- Actively involved with the national epidemiological modelling advisory group (work that resulted in significant publication outputs e.g. McAloon *et al.,* 2020)*

Research

Early in the pandemic, we noticed pressure on current post graduate students regarding completion of their laboratory work and the knock-on effect to completion dates and agency funding/fees as well as on future research support budgets. The SMT provided key guidance on current Public Health Guidance in relation to various request from both students and staff on movement related to research projects around the country during the emergency. With care, on-going essential research in a near-empty building would present very little infection risk and would continue (including important COVID-19 laboratory research) under the appropriate guidance of the relevant principal supervisor (COVID-19 WG). Heads of Section were contacted and a list compiled of the names of their research staff/students who would be in the veterinary sciences building and the rooms/laboratories that they will be using.

Finances

The economic consequences of the pandemic pose a serious challenge to university finances and in line UCD policy, the SVM was requested to pause staff recruitment pending a full review of institutional actions and finances.

Equality, Diversity and Inclusion

The Athena SWAN team created a questionnaire to gather information on the impact of the crisis on all staff, as number of concerns were raised around the challenges of working and studying from home. To help staff and students, the committee created a document outlining a range of supports for mental and physical wellbeing, suggestions on ways to stay in touch and a range of sites for sports/music/entertainment and websites to help with entertaining and educating our children. Staff and students were welcome to offer any further suggestions or discuss concerns by contacting vetathenaswan@ucd.ie.

SVM COVID-19 Working Group

As the national situation showed signs of gradual improvement and a phased reopening of the country under lockdown was announced by the Taoiseach on May 1st, the need to risk assessment became

increasingly important. To assist with this contingency planning and public health advice, the SVM established a COVID-19 Working Group chaired by Professor of Veterinary Epidemiology, Simon More and consisting of the Clinical Director of the UCD Veterinary Hospital Dr Rory Breathnach, members of the School's Health and Safety committee (Mr. Marc Farrelly and Ms. Catherine McCarney), Virologist (Dr Gerald Barry) as well as key time-tabling input (Ms. Belinda Whitby). The primary outputs from the working group would be robust but practical local guidelines for specific School-related activities to assist relevant staff to manage risks posed by COVID-19. The Group would liaise closely with Dr Peter Coulahan (Director of Safety, Insurance, Operational Risk & Compliance at UCD) both to seek his expertise and to ensure close alignment with University-level decision-making.

Conclusion

The COVID-19 pandemic posed and continues to pose challenges to the delivery of the School's programmes. While staff were well positioned to meet these, significant effort time and resourcing continues to be required to adapt to online teaching and to ensure modules are delivered. COVID-19 presents challenges for the upcoming trimester and staff are working tirelessly to make sure that students receive the best possible educational experience. Deep gratitude is owed to all the staff of the School and its Veterinary Hospital who have continued to deliver our programmes and animal care in the face of the adversity. Sincere thanks are also due to our students who have shown great resilience in the most of difficult of circumstances.

Michael Doherty, Dean, 27th August 2020

Reference: McAloon C., *et al.,(*2020), Incubation period of COVID-19: a rapid systematic review and meta-analysis of observational research, BMJ Open, 10.